Communication Assessment Tool for Gender-Diverse People Assigned Female at Birth

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Abstract of Thesis

Communication Assessment Tool for Gender-Diverse People Assigned Female at Birth

The transgender community and their communication wishes are diverse and heterogenous, so it is important to understand the situation and goals of each person individually before beginning therapy (Azul 2015). While the Transsexual Voice Questionnaire, Male to Female (TVQ^{MTF}, Dacakis, Davies, Oates, Johnston, & Douglas, 2013) exists for clinicians to assess the vocal situation of transfeminine individuals, a counterpart does not exist for transmasculine individuals. The vocal situation, sociocultural positioning, and wellbeing factors of transmasculine individuals are unique and by most accounts not unproblematic; thus, the Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth ($VCSQ^{AFAB}$) was drafted to address the voice-related needs of this population. Three systematically organized focus groups of transmasculine participants (n=12) were held to 1) improve understanding of common voice-related ideas and needs in the community and 2) assess the comprehensiveness and face validity of the $VCSQ^{AFAB}$. Thematic analysis of the focus groups proved that the voice-related ideas and needs of this transmasculine community aligned with the three proposed domains: voice function, sociocultural positioning, and communication-related wellbeing, and that all items were warranted. Participants deemed the questionnaire an overall comprehensive and thorough assessment tool; constructive feedback regarding the questionnaire's user-friendliness resulted in minor modifications to the initially proposed tool. The $VCSQ^{AFAB}$ demonstrates face validity and is valuable for person-centered clinical practice with gender-diverse people AFAB.

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Chapter 1: Introduction

1.1 Unique Vocal Situations

Within the field of voice therapy, speech-language pathologists (SLPs) have a facilitating role in voice and communication changes for transgender people. This is distinct from traditional voice therapy because the modification of voice to sound more masculine or feminine is an elective process. Most clients attend voice therapy because there is some kind of physiological or medical necessity that warrants rehabilitation. In these cases, SLPs work to rehabilitate voice to a healthy state which it was previously in. On the other hand, with gender-diverse clients, there may not be anything physically or anatomically harmful about the production of voice. Rather, SLPs work to modify voice in transgender clients from one healthy state to another, with the ultimate goal of improving the client's satisfaction and wellbeing.

In a person-centered approach, the clinician assesses the client's vocal situation. The term vocal situation refers to all aspects of voice production, including the anatomy and physiology of the larynx, an individual's vocal behavior, the meaning that other people attribute to their voice, and the societal, cultural, and environmental context in which the voice occurs (Azul, Nygren, Södersten, & Neuschaefer, 2017). These factors help a clinician understand how a transgender client may be viewing their own voice, their desires for how their voice sounds and feels, and how this voice may function for them in situations outside of therapy.

To help understand a client's vocal situation in traditional voice therapy, SLPs use the Voice Handicap Index (VHI), an instrument that quantifies the psychosocial consequences of a voice disorder (Jacobson, Johnson, Grywalksi, Silbergleit, & Benninger,

1997). In traditional clinical practice, the VHI allows voice clients to rate the impact of their voice disorders on their daily lives. The clinician can use this information to better understand the impact of the voice disorder on the client's life, which can not only help the SLP motivate the client for therapy, but also create functional, realistic goals for the client built around their individual lifestyle.

Because the transgender community has different reasons for seeking out voice therapy than a traditional voice client, the VHI is not the best assessment tool for this population. In a study of 48 transgender individuals, T'Sjoen et al. (2013) evaluated the disability caused by voice using the VHI. Researchers found that the VHI did not indicate a handicap in these individuals; however, an extra question about how these individuals were addressed in telephone conversations showed that transfeminine individuals did experience disability due to their voice. Thus, the VHI did not adequately capture the needs of the transfeminine population. The transgender community and their communication wishes are diverse and heterogenous, so it is important to understand the situation and goals of each person individually before beginning therapy (Azul 2015).

1.2 Measuring the Vocal Situation

To best understand the goals of a person, it is important to understand their vocal situation. Currently, the Transsexual Voice Questionnaire, Male to Female (TVQ^{MTF}) exists for clinicians to assess the vocal situation of transfeminine individuals (Dacakis, Davies, Oates, Johnston, & Douglas, 2013). A counterpart for this questionnaire does not exist for transmasculine individuals.

The TVQ^{MTF} is a self-report questionnaire which is population-specific and psychometrically evaluated and allows transfeminine individuals to convey their

perceptions of their own voice (Dacakis, Oates, & Douglas, 2017). The TVQ^{MTF} began as the Transgender Self-Evaluation Questionnaire (TSEQ), which was a modification of the VHI. The TSEQ was developed in response to the lack of an adequate tool to quantify the vocal situations of transgender individuals. Shelagh Davies modified the psychometrically valid VHI using her clinical experience with transgender individuals (Dacakis et al., 2013). The rapid development of this questionnaire through modification of an existing tool allowed for it to immediately serve the transgender population. However, the formal psychometric properties of the questionnaire were not measured until later. The content validity of the questionnaire was assessed through thematic analysis of interviews of 14 transfeminine individuals on the role of communication in their lives (Dacakis et al., 2013). The thematic analysis of these interviews involved three researchers independently analyzing the interview transcripts and recording their results on a form which was based on the International Classification of Functioning, Disability and Health (ICF) framework and subsequently meeting to reach a consensus on which themes had emerged. This thematic analysis revealed three significant themes that were missing from or underrepresented in the TSEQ. These themes were the effect of emotion and mood on voice, the presence of voice quality problems, and societal responses to voice. Their analysis also revealed the intensity of emotions that transgender individuals felt when their voice hindered their attempts to convey their identity in society. In addition, researchers found that four items in the TSEQ were not found in their thematic analysis, which included, “people seem irritated with my voice, “people ask what’s wrong with my voice,” “I am envious of other transsexual women who have a more feminine voice than mine,” and “my voice embarrasses me” (Dacakis et al., 2013). Thus, thematic analysis of

interviews from the transgender community allowed researchers to identify which themes were important to include in a questionnaire serving this population and which ideas could be excluded.

Using this thematic analysis, researchers made modifications to the TSEQ and called this new questionnaire the TVQ^{MTF}. This new version of the questionnaire contained 30 items each describing a perception of the voice using a 4-point Likert scale. Dacakis et al. (2013) recruited 35 transgender individuals and examined the reliability of the questionnaire and found it had both strong internal consistency and test-retest reliability. Construct validity was established through principal components analysis (PCA) of 133 transfeminine individuals' responses to TVQ^{MTF} items (Dacakis, Oates, & Douglas, 2017). PCA revealed a two-component structure in the questionnaire: vocal functioning and social participation. This accounted for 26 items on the questionnaire, and the remaining 4 items could not be separated into only one component. The voice functioning and social participation categories revealed from PCA reflect the level of impairment and activity and participation components of the ICF respectively, thus they established emergent construct validity in the TVQ^{MTF}.

The development of this questionnaire has helped the transfeminine population obtain more robust clinical voice and communication services, and it has furthered research on transfeminine voice. The TVQ^{MTF} has provided a means for clinicians and researchers to understand the transfeminine client's perspective of their vocal situation, which has transformed clinical services for the transfeminine population. Prior to the development of the TVQ^{MTF}, a psychometrically valid and population-specific measure did not exist for transfeminine individuals to quantify their voice-related experiences to their clinicians.

Thus, clinicians were not able to thoroughly comprehend the impacts that voice was having on the lives of transfeminine individuals: previous measures were overlooking themes that were later shown to be significant to this population, such as voice quality problems and societal responses to voice. Service now is more sensitive to the multitude of aspects of communication that the voice of transfeminine individuals can affect. The standardized measure also provides a means to include psychosocial outcomes of interventions. Therefore, the TVQ^{MTF} has helped foster better clinical services for the transfeminine population.

Given the value that the TVQ^{MTF} has had on services for transfeminine individuals, it is likely that a corresponding questionnaire for transmasculine individuals could be useful for understanding the needs of transmasculine populations at large as well as at the individual level for clinical practice. In accordance with the terminology discussed in the paper by Azul (2015), for the remainder of this paper, the term transmasculine will refer to all individuals who were assigned female at birth (AFAB) but do not feel adequately described by this classification.

1.3 Vocal situation of transmasculine people

The transmasculine community is extremely diverse, with a heterogenous set of goals and ideas related to gender. In the past, voice literature has asserted that transmasculine people attain acceptable masculine-sounding voice tone and quality through hormone therapy alone (Söderpalm, Larsson, & Almquist, 2004). However, it is becoming increasingly clear that testosterone therapy does not affect all transmasculine individuals to the same extent or pace (Irwig, Childs, & Hancock, 2017; Azul, 2015), and even when testosterone lowers fundamental frequency, this does not linearly correlate to

satisfaction with voice (Van Borsel, de Cuypere, Rubens, & Destaerke, 2000). Their entire vocal situation must be considered when they enter voice therapy.

A standard voice assessment of the vocal situation for the transmasculine population would, as the TVQ^{MTF} did for the transfeminine population, improve related clinical services and research. Population-specific questionnaires have been made because they enable clinicians to better understand the specific needs of their clients. These questionnaires have done especially well when they have incorporated the populations they wish to study in the process of establishing their validity. The transmasculine population does not have a population specific questionnaire; however, there is evidence that they need one, separate from the TVQ^{MTF}. For this assessment tool to be useful, it must have face and content validity and address the transmasculine vocal situation. An assessment based on the concept of the vocal situation should inform the clinician about the person holistically, meaning it should assess not only the person's voice and communication function in an acoustic and physiological domain, but it should also consider the individual's own sociocultural positioning and goals for treatment, along with their psycho-social wellbeing related to their voice. The importance of the creation of a face and content valid questionnaire and the inclusion of these three domains in a transmasculine voice questionnaire is further discussed in this chapter.

1.4 Creating a Valid Questionnaire

Voice questionnaires in the past have established face and content validity by using client and clinician reports. In the development of the Voice Handicap Index, researchers included items in a preliminary questionnaire based on patient reported data in order to ensure content and face validity (Jacobson, Grywalski, Silbergleit, Jacobson, Benninger,

& Newman, 1997). Similarly, the Singing Voice Handicap Index ensured content validity by selecting individual items for the questionnaire based on patient report and input from speech-language pathologists (Cohen, Jacobson, Garrett, Noordzij, Stewart, Attia, & Cleveland, 2007). Thus, to create a transmasculine questionnaire with face and content validity, it is integral to consider the perspectives of both the transmasculine population and speech-language pathologists.

The TVQ^{MTF} was developed as an evolution of the already existing TSEQ. The TSEQ was first evaluated by two speech-language pathologists with at least 5 years' experience working with the transfeminine population and two transfeminine individuals. The comments from these four individuals were discussed among researchers Dacakis, Davies, Oates, Douglas, and Johnston to reach a consensus on appropriate changes that needed to be made. To gather a more robust measure of content validity based on the firsthand experiences of transfeminine people, the authors recruited 14 transfeminine individuals and interviewed them on the role of communication in their lives. These interviews were transcribed and analyzed for recurrent themes. To analyze for recurrent themes, three speech-language pathologists independently analyzed the transcripts using an ICF framework. The authors then met to gather a consensus on their analyses. The three authors unanimously agreed that three significant themes emerged from the interviews, which were underrepresented or missing in the TSEQ: "the effect of emotion and mood on voice," "the presence of voice quality problems," and "societal responses to voice" (Dacakis et al., 2013). These three themes represented concepts that were clearly significant to the transfeminine experience, but which were not part of the TSEQ. Based

on this review of the content validity of the TSEQ, researchers made substantive changes, which warranted the questionnaire's renaming to the TVQ^{MTF}.

In subsequent years, the TVQ^{MTF} was further assessed for psychometric validity. To assess the content validity of the TVQ^{MTF}, Davies and Johnston (2015) interviewed five transfeminine individuals and explored their experiences and concerns regarding their voice. This involved a 30-minute interview regarding their experience and concerns with their voice, filling out the TVQ^{MTF}, and making additional comments if they were not elicited in the interview. The interviews were then analyzed, based on an analysis scheme developed by the researchers. They examined the TVQ^{MTF} and found six recurring themes which seemed to underlie the questions. These six themes were used to code the interviews and comments about the questionnaire. Any items that did not fit into these themes were noted. They found that 29 of the 30 items on the TVQ^{MTF} corresponded with the themes that they identified. However, they also found that 24% of voice-related ideas from the interviews did not correspond to the six TVQ^{MTF} categories they identified. Thus, while the correspondence of many themes identified in the interviews and items on the TVQ^{MTF} helped further establish the content validity of the TVQ^{MTF}, it appears that the TVQ^{MTF} does not address the full array of concerns raised by transfeminine women. This highlights the importance of gathering information regarding the experiences of a population prior to the creation of a questionnaire.

Thus, the $VCSQ^{AFAB}$ will gather information about the experiences of transmasculine individuals through focus group interviews, in addition to the information on transmasculine individuals gathered from research literature and experienced clinician knowledge. Salient themes from the focus group discussions will then be identified and

used to help create a face and content valid questionnaire, which we anticipate may include the domains of voice and communication function, speaker sociocultural positioning, and communication-related wellbeing.

1.5 Voice and Communication Function

Assessment of voice and communication function involves understanding the behaviors that a person engages in that could affect their current vocal functioning. In accordance with terminology from Azul (2017), voice function in this paper will refer to an individual's vocal ability, or the areas of assessment and treatment than an SLP may consider with a voice client, which includes domains such as vocal stability, power, or quality.

Some of the behaviors that could influence voice function in transgender individuals include hormone treatment, smoking habits, chest binding, and slouching or posture changes (Azul et al., 2017). One way to categorize these behaviors is into four domains: speaker practices (e.g., body posture and breath support), professional practices (e.g., surgery and hormone treatment), conversational partner practices (evaluation of speaker by others), and supra-individual biocultural mediation (e.g., vocal demands) (Azul, Hncok, & Nygren, 2020). These behaviors can influence the process of vocal change, including the shift toward more masculine-sounding voice. Introduction of androgens into the body can affect not only speaker pitch, but also their voice quality and fundamental frequency range (Hancock, Irwig & Childs, 2017). Another behavior that can affect the voice is smoking. Expert opinion papers have shown transmasculine individuals consider smoking to lower their fundamental frequency (Davies et al., 2015; T'Sjoen et al., 2012; Van Borsel et al., 2000). Studies have suggested that smoking may adversely affect aspects

of the voice, such as frequency parameters including jitter (Gonzalez & Carpi, 2004). This means that smoking may adversely affect the voice quality of transmasculine clients. Practices to visually appear more masculine, such as chest binding and slouching, affect the respiratory support for optimal phonation (Azul et al., 2017). Wearing binders can affect pulmonary values such as lung capacity, which can influence aspects of the voice such as phonation intensity (Davies et al., 2015). Poor posture can also affect respiration and limit optimal phonation (Azul et al., 2017). Both binding and posture changes can create dissatisfaction with one's voice due to an inability to project the voice. All of these behaviors affect parameters of voice and are therefore important to include in a questionnaire designed to assess the vocal situation of a transmasculine individual.

In a systematic review of 22 publications which considered the notion of voice in the transmasculine population, reported vocal impairments included voice quality, pitch range and variability, singing voice, voice control and stability, vocal power, vocal endurance, and respiration (Azul 2017). In a study of 50 transmasculine individuals, nine reported strained or hoarse voice quality because of efforts to sound more low-pitched (Nygren, Nordenskjöld, Arver, & Södersten, 2016). In addition to lower F0, transmasculine speakers taking androgen hormones experience a reduced total frequency range and a low habitual pitch level (i.e., F0 lower within the total range) (Cosyns et al., 2014; Davies et al., 2015; Hancock, Irwig, & Childs, 2017; Van Borsel et al., 2000). Additional effects of hormone treatment can be restrictions to voice control or stability (Azul et al., 2017; Nygren et al., 2016) and vocal power, or the ability to project one's voice, and vocal endurance, which can result in vocal fatigue (Nygren et al., 2016, Söderpalm et al., 2004). According to Azul et al. (2017), problems with vocal power include weak voice, limited

volume range, or the inability to carry the voice. This can be due to hormone therapy, laryngeal surgery, or self-guided attempts to modify voice.

Research literature documents a plethora of factors that influence voice function particular to transmasculine individuals, but reported parameters are not standardized and much remains to be known regarding the extent and impact of vocal impairments experienced.

1.6 Speaker Sociocultural Positioning

Not only is it important to consider a speaker's voice function, but it is also critical to understand how their voice is related to their sociocultural positioning. An individual's sociocultural positioning involves how a person views their identity, and how they wish to be perceived by others in a social space. Goals for using voice to convey and influence positioning must be centered around an individual, including how they wish to present themselves, which is not the same for every transmasculine person, nor the same at every point in their life.

The transmasculine community is a heterogeneous group. For example, in a critical review, Azul (2015) found that among 14 individuals formally diagnosed as "female-to-male" transgender, three described themselves as "neither male nor female," two as "rather male than female," one as "male and female," and one felt they did not have a gender identify at the time. Furthermore, their self-attributions did not necessarily correspond with gender descriptors that they wanted or were willing to have others attribute to them. Thus, even among the transmasculine community there is variability in subjective gender positioning and desired gender attributions.

Notably, gender is not the only sociocultural positioning mediated by voice. Vocal qualities contribute to attributions of speakers' age and race. For example, listeners utilize their understanding of fundamental frequency changes through the lifespan: in males, pitch declines steadily from 4-50 years old, and then it begins to steadily rise (Stathopoulus, Huber, Sussman, & Lafayette, 2011). Additionally, frequency perturbation differences between white and black male speakers enable naïve listeners to successfully identify speaker race (Walton & Orlikoff, 1994). The individual's wishes in these regards should be considered when creating holistic goals for the transmasculine individual, in order to maximize their ability to influence the construction of all aspects of their identity.

An assessment tool designed to help the SLP understand the aspects of identity that an individual wishes to convey with their voice, as well as the gap between the current and desired attributions in those regards, would be helpful when establishing goals and measuring change.

1.7 Communication Related Wellbeing

Finally, the wellbeing of an individual is important for preparedness for change and learning to manage societal reactions and has been shown to impact voice function; therefore, it is critical to include this domain in a transmasculine voice questionnaire (Baker, 2008). Stable wellbeing is defined as when "individuals have the psychological, social, and physical resources they need to meet a particular psychological, social, and/or physical challenge" (Dodge, Daly, Huyton, & Sanders, 2012). Essentially, wellbeing involves not only how much stress is in an individual's life, but also how they are able to react to that stress. Dodge et al. propose a figurative see-saw as a means of conceptualizing wellbeing, in which wellbeing is the balance point of an individual's resource pool

(psychological, social, and physical resources) and an individual's challenges pool (psychological, social, and physical challenges). When an individual has too many challenges or resources, the see-saw dips in either direction.

The psychosocial situation of a transmasculine individual may involve the degree of distress they feel when communicating the gender to which they feel they belong, or the degree that they feel respected in their social spheres (Azul et al., 2017). These aspects are important to consider for clinicians to treat a person holistically. Clinicians attending to this domain can guide a transmasculine individual to anticipate adverse reactions about their gender positioning in society and manage the anxiety they may feel about being misrepresented.

This requires understanding an individual's gender congruence, or the degree to which someone feels authentic, or comfortable with their external presence and accepts their genuine identity, rather than one which is societally prescribed (Kozee, Tylka, & Bauerband, 2012). Understanding someone's gender congruence helps clinicians understand how an individual is interacting with their identity, or how comfortable they are with their identity and how they are choosing to express themselves in various social situations. Measures like the Transgender Congruence Scale have yielded consistent and valid scores about transgender congruence (Kozee, Tylka, & Bauerband, 2012).

According to the minority stress model for transgender and gender nonconforming (TGNC) people, transgender individuals face not only the stressor of nonaffirmation (when one's internal gender identity is not affirmed by other people), but they also face violence, rejection, and discrimination (Testa et al., 2015). These are all considered distal stressors, or external stressors. These are challenges to an individual's wellbeing caused by other

individuals. TGNC people also face proximal, or internal, stressors, which include challenges to wellbeing such as internalized transphobia or fear of future discrimination. These are challenges to wellbeing that are formed within the individual. Despite these unique proximal and distal challenges, TGNC people also have access to particular resources to wellbeing, such as identity pride and community connectedness. The minority stress model shows that transgender individuals face unique stressors to wellbeing, but also unique resources; thus, it is critical for clinicians concerned with the wellbeing of their clients to understand the unique risks and resilience in this population.

A transmasculine individual is at risk for gender-incongruence stressors as well as the typical stressors that influence voice in the cisgender population. For example, a lack of confidence regarding one's voice has been found to lead to low average sound pressure levels and resistance to producing high frequencies, which may limit vocal range (Baker, 2008). All stress could influence communication-related wellbeing; the potential for additional stressors in this population warrant a population-specific voice questionnaire.

Assessing wellbeing is an integral part of a transmasculine voice questionnaire because these factors not only influence the voice, but also enable the clinician to treat the client more holistically.

Chapter 2: Current Study Goals and Questions

2.1 Research Questions

The present study aims to establish the face validity of the Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth ($VCSQ^{AFAB}$). Thus, the current study aims to answer the following questions:

1. What are common voice-related ideas and needs regarding sociocultural positioning and wellness in the AFAB community?
2. Does the Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth adequately capture the desires and needs that transmasculine individuals have about their voice?
3. How does a sample of the transmasculine community view the Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth?

2.2 Hypotheses

Given the findings of previous research on the transmasculine vocal situation, we expect common voice-related ideas and needs in the AFAB community to align with the three domains: voice and communication function, sociocultural positioning, and psychosocial well-being (Azul 2015; Azul et al., 2017). We also hypothesize that concerns that transmasculine individuals have about their voice will be captured by items existing on the $VCSQ^{AFAB}$. Finally, we hypothesize the transmasculine community will view the $VCSQ^{AFAB}$ as an appropriate and comprehensive questionnaire to quantify their vocal situations. Nevertheless, we expect constructive feedback from participants regarding the validity of the questionnaire.

Chapter 3: Methods

An integral part of creating a valid tool is to gather perspectives in the intended audience regarding the applicable content as well as specific characteristics of the tool. Thus, in order to assess the face validity of the VCSQ^{AFAB}, this study aimed to gather opinions from the transmasculine population. Previous studies examining transgender issues have incorporated focus groups as this can be an effective tool to give minority groups a voice in research (Nemoto et al., 2004; Potoczniak et al., 2009, Kenagy, 2005). The group atmosphere can help respondents explore shared experiences. Focus groups can be a more accessible means of gathering information, as some individuals may not have access to the Internet in order to participate in an online questionnaire. Responses from the focus group will be used to modify the VCSQ^{AFAB} for eventual clinical use.

3.1 Participants

Participants were individuals over the age of 18 years who were assigned female at birth but did not feel adequately classified by this description.

3.1.1 Recruitment

Participants were recruited by community-based groups, email, flyers, and word of mouth.

3.1.2 Demographics

A total of 12 participants and two facilitators were involved in the focus groups. The Mean age of 12 participants at the time of the focus groups was 27.6 years old (SD=9.8), ranging from 18 to 51 years old. Participants' self-reported gender encompassed a wide variety of positions other than female (e.g., male and transmasculine as well as non-binary, gender-queer, fluidflux). A summary of demographic information is provided in Table 1.

Analyses did not include responses from the two facilitators, who were both AFAB. There was no indication of existing relationships among the participants nor with the facilitator in focus group 1. Two members of focus group 2 reported knowing one another. One member of the focus group and the facilitator in focus group 3 identified knowing one another.

Facilitators received $100, and focus group participants received $20 as compensation for their participation.

Table 1. *Participant Demographics*. Self-reported demographics of focus group participants, organized by focus group

ID	Age	Assigned Sex at Birth	Current Gender Identity	Race/ Ethnicity	Highest Education Level	Sexual Orientation
Focus Group 1						
1	27	Female	Gender Queer	Multiracial	College	Other
2	24	Female	Non-Binary	Caucasian/ White	College	Queer
3	51	Female	Nonbinary genderqueer, Masculine of center, transman/male	Declined	College	Pansexual
Focus Group 2						
4	20	Female	Nonbinary	Czech	Some College	Pansexual
5	27	Female	Nonbinary, Transmasculine	Black	College	Queer, Bisexual
6	23	Female	Nonbinary	White	College	Questioning
7	18	Female	Fluidflux (genderfluid-genderflux)	Lebanese, Jewish	Some College	Queer, Cupio/ asexual
8	18	Female	Transmasculine, Genderqueer, not girl	None? Irish?	Some College	Aroace
Focus Group 3						
9	41	Female	Nonbinary/ Transmasculine	White/ Latinx	College	Queer
10	22	Female	Male	South Asian	College	Bisexual

11	31	Female	Man	Jewish (by choice)	Some Graduate School	Bisexual
12	29	Female	Transmasculine/ Nonbinary	Caucasian/ Italian (Dual Citizen)	Graduate School	Gay

3.2 Materials

3.2.1 Screening Materials

All focus group participants provided written consent to participate prior to beginning the focus group. All participants also completed a demographic questionnaire (Appendix A for focus group 1 & Appendix B for focus groups 2 and 3) prior to the focus group to provide relevant personal information including age and gender identity.

3.2.2 Voice and Communication Satisfaction Questionnaire

A draft of the Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth ($VCSQ^{AFAB}$) (see Appendix C) was reviewed by the groups. It is of note that the demographic portion of the questionnaire is slightly different from what was used by the participants themselves; as such, some participants commented on the differences and stated preferences.

3.2.3 COREQ Checklist

The Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist is a formal reporting checklist which was designed to promote comprehensive and transparent reporting for qualitative health research, chiefly through in-depth interviews and focus groups. This checklist (see Appendix D) was used to control the transparency of reporting in this study across three domains: research team and reflexivity, study design, and analysis and findings (Tong, Sainsbury, & Craig, 2007).

3.2.4 Facilitator Training and Questioning Route

All focus group facilitators participated in a facilitator training session with the author prior to the focus groups in order to learn best practices for leading a focus group and have the 3 focus groups similar in structure. See Appendix E for the facilitator training guide. During this training, facilitators were given a questioning route (see Appendix F) to guide focus group discussions.

3.3 Procedure

3.3.1 Focus Group Protocol

Focus groups are designed to elicit opinions from participants, and several guidelines can help to best aid in the collection of this data. The group should be held in a permissive environment, so that individuals feel free to share opinions without the fear of needing to reach a consensus (Krueger and Casey, 2000). The ideal setting is somewhere that is neutral to all of the participants (Ruffet al., 2005). The participants in these groups are generally selected because they are alike in some way, or have certain characteristics in common, which allows them to disclose their opinions more comfortably (Krueger and Casey, 2000). Fern (2011) recommends that the members should be strangers, as individuals display greater inhibition in front of acquaintances. Additionally, Krueger and Casey (2000) recommend that the ideal focus group should include 5-10 people and be led by a skilled interviewer or moderator, and that multiple focus groups should be held in order to best identify trends and patterns.

After providing informed consent and being screened for inclusion and exclusion criteria, the focus group participants were guided by the facilitator to discuss their identities and the impacts of their voice on their lives. Best practices for focus groups involve a

warm-up in which moderators provide some information about the focus group and assure their confidentiality (Breen, 2007). The group began with warmup questions then progressed to more specific questions regarding voice, identity, and the $VCSQ^{AFAB}$.

The semi-structured discussions lasted about 90 minutes. Although guided by a particular question route (see Appendix F), the facilitator was able to probe about particular topics as needed.

At the end of the discussion, participants were asked to opt-in or opt-out of a follow-up phone interview regarding how they felt about the topics discussed. The phone interviews were conducted 2-4 weeks after the focus groups and lasted 5-15 minutes.

3.3.2 Focus Group Location

Two locations in Washington, D.C. were chosen to hold the focus groups. The first and third focus groups were held at a holistic wellness center specializing in LGBTQ care. The second focus group was held in a residence hall on the George Washington University campus. According to Ruff, Alexander, and McKie (2005), the ideal setting is one which is neutral, accessible, easy to find, and comfortable. Members of the research team were also present to conduct formal study protocols (e.g., informed consent) but were not present during the focus group discussion.

3.3.3 Facilitator Training

According to Smithson (2000), facilitator bias is reduced when the facilitator is from a background similar to that of the focus group participants. The facilitators of these focus groups both were assigned female at birth. Facilitators participated in a training session with the author regarding the best practices for guiding a focus group. See Appendix E for Facilitator Training Guide. The facilitator should lead the discussion with relevant topics;

however, they should allow the direction of the conversation to be guided by the group and remain neutral in their responses (McCafferty, 2004; Smithson, 2000). According to Robinson (1999), the facilitator ultimately has two roles: they should guide the discussion in order to fulfill the research aims, and they should ensure there is an environment conducive to all participants contributing.

3.3.4 Transcription

Focus groups discussions were audio-recorded and then transcribed by two research team members. One person transcribed the discussion, and the second person checked their transcription for any discrepancies, by word. A third listener broke any ties between any discrepancies.

3.3.5 Thematic Analysis and Coding

Salient themes from the focus group transcription were identified and defined by the research group in two phases following the consensual qualitative research (CQR) method (Hill, 2012). Before beginning the coding process, researchers met as a team and discussed their own biases and expectations surrounding the coding process. This disclosure process allows researchers to enter the experience of coding with an open and flexible mind. The research team also read and discussed the research literature that led to the development of the VCSQ^{AFAB} with three domains (i.e., voice function, sociocultural positioning, and communication-related wellbeing). Subsequently, the first phase of coding, which took a deductive reasoning approach, was developing a domain list. (. After reading all of the transcripts, research team members identified salient (i.e., emphasized, recurring) themes, all of which were able to be categorized into one of these three domains. Also, research team members unanimously agreed all three of the domains were needed in order to

comprehensively capture the themes they noted in their readings, and no themes were identified which could not fit into one of these three domains. Thus, the domain list was finalized without modifications.

In the second phase, which took an inductive reasoning approach, the research team engaged in identification of core ideas and cross-analysis within the domains. Researchers were divided into pairs and assigned to focus on one domain per pair. Each pair searched all of the transcripts comprehensively for utterances relating to one domain. The pair then worked together to analyze these utterances and identify subthemes within the domain. For example, vocal fatigue is a subtheme of voice function.

In order to ensure comprehensiveness and reliability, the subtheme coding done by one pair of researchers was subsequently reviewed, or audited, by a different pair of researchers. Minimal changes were suggested in the auditing process, which included the addition of previously unidentified statements into identified subthemes, deletion of inappropriate statements from subthemes, or movement of statements from one subtheme to a more fitting one. These changes were subsequently discussed by the entire research team to reach consensus. All discrepancies between the original coding team and auditing team were resolved to reach a consensus. This consensus version of the subtheme coding was then finalized. Of note, double coding was allowed in the process of coding if an item belonged to multiple domains. For instance, issues of voice function (e.g., vocal fatigue) can also be coded as a physical challenge to wellbeing.

One researcher analyzed the latter portion of the focus group discussions, which involved participants offering specific feedback on the questionnaire itself, including parameters such as terminology, user-friendliness, formatting, response-field options, and

items to be added. This researcher took an inductive approach to analysis and identified statements regarding the questionnaire, and then she categorized them into subthemes. To ensure comprehensiveness and reliability, this coding was audited by a different researcher. Changes made were approved by the initial researcher who performed the focused analysis and a finalized coding was agreed upon.

All six research team members completed a demographic questionnaire. The mean age of the research team at the time of coding was 26.7 years old (SD=6.3), ranging from 21 to 40 years old. Researchers' self-reported gender identities included female and non-binary. A summary of researcher demographic information is provided in Table 2.

Table 2. *Research Group Demographics.* Self-reported demographics of research team.

ID	Age	Assigned Sex at Birth	Current Gender Identity	Race/ Ethnicity	Highest Education Level	Sexual Orientation
A	28	Female	Female	Caucasian/ White	College	Other
B	40	Female	Female	Caucasian/ White	Graduate School	Straight
C	23	Female	Female	South Asian	College	Straight
D	24	Female	Female	Caucasian/ White	College	Other, Bi
E	24	Female	Female	Caucasian/ White	College	Straight
F	21	Female	Non-Binary	Asian	College	Gay/Other: Queer in General

Chapter 4: Results

Three domains regarding the common voice-related ideas and needs in the AFAB community emerged following thematic analysis of the three focus groups: voice function, speaker sociocultural positioning, and communication related wellbeing. Additionally, specific feedback regarding the $VCSQ^{AFAB}$ was obtained.

The first identified domain was voice function. Voice function refers to an individual's vocal ability, or the areas of assessment and treatment than an SLP may consider with a voice client. References to singing voice and speaking voice were analyzed separately. Five subthemes emerged within the category of singing vocal function: vocal endurance, vocal projection, pain, overall dissatisfaction with singing voice, and satisfaction with singing voice. Nine subthemes were identified within the category of speaking voice function: voice control, voice quality, vocal endurance, vocal projection, pitch variability, pitch range, pitch level, pain, and effort associated with aligning voice to self-presentation.

The second domain was sociocultural positioning. An individual's sociocultural positioning involves how a person views their identity, and how they wish to be perceived by others in a social space. This domain was divided into two categories: aspects important to self-identity and identity perceived by others and factors influencing presentation and perception of identity. 14 subthemes emerged within the category of aspects important to self-identity and identity perceived by others: gender identity, pronouns, occupation, visibility, age, hobbies, religion, education, sexual orientation, accent, race/ethnicity, personality, parenthood, ability/disability. Six subthemes emerged within the category of factors influencing presentation and perception of identity: relational contexts with cis peers, safety, relational contexts in general, relational contexts with children, language, and socioeconomic status. Three subthemes emerged within the category of flagging identity through presentation: voice, physical appearance, and hormones.

The third domain identified was wellbeing. Wellbeing involves not only how much stress is in an individual's life, but also how they are able to respond to that stress. This

domain was parsed into two categories: challenges and resources. Within the domain of challenges, four subthemes were identified: psychological challenges, social challenges, physical challenges, and professional practices. Within the domain of resources, four subthemes were found: psychological resources, social resources, physical resources, and professional practices.

4.1 Voice Function Subthemes

Of the 12 focus group participants, 100% made a statement that was categorized within the overall domain of voice function. 100% of participants made a statement that was characterized into the category of speaking voice function. 58% (7/12) of participants made a statement related to singing voice function. These statements were counted if they involved any kind of comment on an individual's vocal abilities, whether they were positive or negative.

4.1.1. Speaking Voice Function

Several subthemes emerged within the category of speaking voice function, and their salience was determined by the number of different participants who mentioned the subtheme. At least half focus group participants made comments related to the effort involved in using voice to aid self-presentation, voice control, and issues with pitch level.

The highest number of participants, 8 people (67%), mentioned the effort involved in modifying their voice to aid in their self-presentation. For example, participant 8 stated, "somebody reads me as male and calls me sir, or he, and I immediately just try and make my voice go as low as it possibly can, and again it doesn't really work." Half of the participants (50%) mentioned vocal control and pitch level. The remaining subthemes were mentioned by less than half of the participants: vocal projection and vocal quality (33%),

pitch variability and range (25%), vocal endurance (17%), and pain (8%). All of these comments referred to aspects of voice function that participants disliked or wanted to change, except for two positive comments about pitch level (33%), one positive comment related to voice quality (25%), and one positive comment related to vocal endurance (25%). An example of a positive comment related to pitch level is participant 12's statement that "I'm pretty happy about my voice, like, it's deepened considerably since I've started on Testosterone, so I'm just like, happy about it."

4.1.2. Singing Voice Function

Five subthemes emerged within the category of singing voice function, and their salience was determined by the number of different participants who mentioned the subtheme. The two most common subthemes involved dis/satisfaction with singing voice: 3 people expressed satisfaction; 3 people expressed dissatisfaction. An example of someone generally satisfied with their singing voice is participant 11 stating "when I'm singing, I feel very confident." An example of general dissatisfaction with singing voice is participant 1 stating "I can't sing my favorite songs anymore and it sucks." The remaining three subthemes are comprised of a comment by 1 person each (8%): vocal projection, vocal endurance, and pain.

See table 3 for a summary of the subthemes which emerged within the domain of voice function.

Table 3. *Voice Function Subthemes.* Frequency and examples of voice function subthemes

Subtheme	Frequency	Participant IDs	Example
Speaking Voice Function			
Effort involved in self-presentation	8/12 (67%)	2, 4, 5, 6, 7, 8, 10, 11	"I definitely have tried to throw my voice lower at times, and it, it's never been good. It's always laughable." 7.

Vocal control	6/12 (50%)	1, 3, 4, 5, 7, 12	"But it would be interesting to like have guidance or just, yeah training on how to control it, and like figure out what my voice can do." 5.
Pitch Level	6/12 (50%)	3, 5, 7, 8, 11, 12	"I think I would definitely want my voice to be lower." 7.
Vocal Projection	4/12 (33%)	3, 5, 9, 10	"I just wanted to echo the comments about being told to speak up is a frequent, recurring thing for me." 10.
Vocal Quality	4/12 (33%)	3, 5, 6, 11	"It's not just the pitch. You know, and I think that, that, that variation and tonality, um, factors in, and so, I don't know." 3.
Pitch Variability	3/12 (25%)	2, 5, 12	"I just wish it was more consistent because, like, I don't know, it's still all over the place. I get excited and my voice cracks and goes up, like you know, it gets high and cracks all over the place." 5.
Pitch Range	3/12 (25%)	1, 3, 8	"I had this really limited range for a long, like, years." 3.
Vocal Endurance	2/12 (17%)	1, 3	"I will get tired, like my voice will like, cut out, like, we, when we pray together there's like this long, like, dhikr that we read after each prayer, and it's like at least thirty minutes to an hour, and I will find myself getting fatigued." 1.
Pain	1/12 (8%)	6	"I just can't sustain it and it hurts." 6.
Singing Voice Function			
Dissatisfaction with Singing	3/12 (25%)	1, 5, 7	"Trying to learn how to like sing again is a whole thing." 5.
Satisfaction with Singing	3/12 (25%)	4, 8, 11	"I know how I can sing now, I know how that works now." 8.
Vocal Endurance	1/12 (8%)	1	"Have you noticed, that, um, when you go to hold notes, you can't hold them nearly as long as you used to?" 1.
Vocal Projection	1/12 (8%)	3	"My voice would get loud, and, beyond my control, like if I was, especially if I was, speaking a lot, I don't know, it happened more during singing."
Pain	1/12 (8%)	1	"I just want to be able to sing, like Hamilton's ?? again without having, like, to fucking, like, hurt." 1.

4.2 Sociocultural Positioning Subthemes

All 12 focus group participants made a statement which was categorized within the overall domain of speaker sociocultural positioning. All 12 additionally made a statement which was considered part of the category of aspects important to self-identity and identity

perceived by others. Eleven participants (92%) made comments which were characterized as part of the category factors influencing presentation and perception of identity. Statements in this domain were counted if they involved any kind of comment on an individual's perception of their identity or how they wish to convey it, whether it was positive or negative.

4.2.1. Aspects Important to Self-Identity and Identity Perceived by Others

Multiple subthemes were identified within the category of aspects important to self-identity and identity perceived by others. Their salience was determined by the number of different participants who mentioned the subtheme.

The most salient subthemes, those identified by more than half of the participants, included gender identity (100%), age (58%), hobbies (58%), and queer visibility (50%). All participants made statements about their gender identity. For example, participant 11 stated, "if somebody just casually looks at me and sees a man, that's them seeing my gender identity, they don't know my trans status, I'm happy they know my gender identity." The gender identities people made statements about being important to their identities included Assigned Female at Birth (17%), Transmasculine/Transman (17%), Male (33%), Non-Binary (17%), and Agender (8%). They also discussed their pronouns: 9 people noted that their pronouns are important to them, and 2 participants made comments that it did not feel important to them to reinforce their pronouns to others. Seven participants discussed age as an important aspect of their identity. This included people who did not feel their chronological age, who did not want to be perceived as younger than they were, and who enjoyed being perceived as younger than they were. Seven participants also discussed their hobbies in reference to their identity. These hobbies were all voice-related, including

music/singing and podcasting. Queer visibility was an aspect of identity discussed by half of the focus group participants. Participants discussed a spectrum of visibility, including wanting to be visible to other queer/trans people, to everybody, not to cis-het people, and a desire to be invisible.

The remaining subthemes were mentioned by less than half of the focus group participants: sexual orientation (42%), religion (33%), place of origin (33%), education level (25%), race/ethnicity (17%), parenthood (8%), and ability/disability (8%). 5 people discussed their sexual orientation when speaking about their identity, including adjusting to new terms for their sexual orientation, desiring others to perceive their queer sexual orientation, and desiring others to perceive them as male, not gay. In terms of desiring others to perceive them as male, not gay, participant 8 stated "I get afraid that I'm gonna come across like I have the gay lisp." Four people mentioned religion, or a desire to belong to their religious community, when discussing their identity. Four people also discussed place of origin and regional dialect (e.g., sounding midwestern) as important parts of their identity. Two people mentioned their education level: they wanted to convey their accomplishments/intelligence to others in their interactions. Two people mentioned their race/ethnicity when discussing identity. Personality (i.e. open-minded), parenthood, and ability/disability were each mentioned by one person each as important to identity.

4.2.2. Factors Influencing Presentation and Perception of Identity

Ten subthemes were identified within the category of factors influencing presentation and perception of identity. The salience of these themes was again determined by the number of different people who made a comment that was identified as belonging to a particular subtheme.

The most salient subthemes were presence at work/school (83%), safety (50%), relational contexts (42%), listener attributes with cis peers (42%), and speaker's voice (42%). Ten people commented on the way being at work or school influences their identity. This included 5 comments about feeling ambivalent about identity at work, 4 comments about needing to adjust identity due to the expectations of a role, 3 comments about difficulty communicating gender identity initially, and 3 comments about finding value in visibility. Six individuals made comments about safety affecting their identity. Within this subtheme, 5 people noted changing their identity for themselves to feel safe, and 2 people mentioned changing their identity to make others feel safe. Five people made comments regarding the way relational contexts can affect their identity. In this subtheme, 3 people mentioned their identity changing around family/friends, and 3 people referenced modifying their identity around strangers. Five individuals also made comments about the listener attribute of cis peers impacting their identity, including assimilating and differentiating behaviors around cis peers. Five people commented on the way their voice, including the amount and manner of use, impacts their presentation of identity.

The remaining subthemes identified included the listener attribute of children (25%), language background (25%), speaker's physical appearance (25%), hormone use (25%), and stereotypes (17%). Three people mentioned modifying their identity around kids. Three people discussed the way language affects their identity, including languages with binary pronouns and speaking English as a second language. Three people also mentioned utilizing their physical appearance to convey queerness. Another three people found that hormones helped or hindered their presentation. Finally, two people noted the

way stereotypes impact their identity, including feeling confined to binaries and judged based on socioeconomic status.

See table 4 for a summary of subthemes which emerged within the domain of sociocultural positioning.

Table 4. *Sociocultural Positioning Subthemes.* Frequency and examples of sociocultural positioning subthemes

Subtheme	Type of Comment	Frequency	Participant IDs	Example
Important to Self-Identity or Identity Perceived by Others				
Gender Identity 12/12 (100%)	Using a particular pronoun	9/12 (75%)	3, 5, 6, 7, 8, 9, 10, 11, 12	"I prefer they/them." 10.
	Male	4/12 (33%)	2, 5, 10, 11	"If somebody just casually looks at me and sees a man, that's them seeing my gender identity." 11.
	Not reinforcing pronouns	2/12 (17%)	1, 2	"Again, I'm not very big on like reinforcing my pronouns with anybody." 1.
	Assigned Female at Birth	2/12 (17%)	3, 4	"I'm open about being AFAB." 3.
	Transmasculine/ Transman	2/12 (17%)	2, 11	"For instance, me as a transman." 11.
	Non-Binary	2/12 (17%)	7, 12	"I want to like, appear as more non-binary so as not to like have people just like assume that I'm female." 12.
	Agender	1/12 (8%)	9	"I mean most of the time I feel relatively agender." 9.
Hobbies 7/12 (58%)	Music/Singing	6/12 (50%)	1, 3, 4, 5, 7, 8	"That's not as important to me as like, maybe singing." 1.
	Podcasting	1/12 (8%)	11	"I have a, a, podcast actually

				with my roommate." 11.
Age 7/12 (58%)	Not wanting to be perceived as younger	4/12 (33%)	7, 9, 10, 12	"I have like a lot of like work and life experience, and like degrees and stuff that like, people just like don't assume by looking at my face." 12.
	Not feeling chronological age	3/12 (25%)	5, 7, 8	"I always feel like I'm catching up to my actual age, I'm like really I'm twenty three now, mm, okay." 8.
	Enjoying being perceived as younger	2/12 (17%)	11, 12	"When I started passing at all, people tended to think I was like eighteen, nineteen, twenty. And I loved it because I never got to be an eighteen, nineteen, twenty year old guy." 11.
Queer Visibility 6/12 (50%)	To other queer/trans people	4/12 (33%)	5, 6, 9, 11	"It's very important to be visible with my queer people out in the world." 9.
	To all	2/12 (17%)	5, 7	"I wanna be the kind of person that's just visible 100% of the time." 7.
	Not to cis-het people	1/12 (8%)	7	"A cis-het person doing that is someone identifying someone who's different than them rather than someone who's the same as them." 7.
	Desire to be invisible	1/12 (8%)	11	"Uh, I wanted to be invisible [...] I

				was trying to just communicate literally male, and that's it." 11.
Sexual Orientation 5/12 (42%)	Desire to be seen as gay man	3/12 (25%)	11, 12	"It's not always like obvious that I'm like a guy whose attracted to guys"12.
	Desire to convey male, not gay	2/12 (17%)	5, 8	"I get afraid that I'm gonna come across like I have the gay lisp." 8.
	Adjusting to new term for sexual orientation	1/12 (8%)	3	"Where I was think-identifying as lesbian and/or bi for a while and now it's like, I don't know it's just weird." 3.
Religion 4/12 (33%)	Desire to belong to religious community	4/12 (33%)	1, 6, 7, 11	"It's important that, you know, I have these religious identities, and this ethnic identity." 7.
Place of Origin 4/12 (33%)	Regional Dialect	4/12 (33%)	6, 10, 11, 12	"I'm from the Midwest and I worry sometimes that I have like too much of like a midwestern accent." 12.
Education Level 2/12 (17%)	Desire to convey accomplishments	2/12 (17%)	10, 12	"I mean like I hope that I like come across as a more like complex and intelligent person." 12.
Race/ Ethnicity 2/12 (17%)	Desire to convey ethnicity	2/12 (17%)	1, 7	"So it's really important to me that like I'm always trying to constantly like flag brown and flag as queer." 1.
Personality 1/12 (8%)	Open-Minded	1/12 (8%)	3	"I want to come across as open-minded." 3.

Parenthood 1/12 (8%)	Fatherhood	1/12 (8%)	11	"What I would do is like very early on be like, oh yeah, well I'm a dad, my kid's over there." 11.
Ability/ Disability 1/12 (8%)	Disability	1/12 (5%)	3	"I'm mostly able-bodied, but given my past I have what I—I deal with issues that could fall into disability realm." 3.
Factors Influencing Presentation and Perception				
At work/school 10/12 (83%)	Ambivalent	5/12 (42%)	1, 3, 4, 6, 8	"At work it's not about me anyway." 3. "Where I am right now, as a student, I feel comfortable not dealing with it as much." 4.
	Expectations of role	4/12 (33%)	5, 6, 11, 12	"Just the customer service voice is difficult because so many of the things that are coded feminine are also coded friendly and helpful." 11.
	Initially	3/12 (25%)	6, 8, 12	"When I like come to new spaces, especially like professional ones, like, with like, professors, or at work, I, don't know how to communicate, my like, gender" 8.
	Value of visibility	3/12 (25%)	2, 3, 7	"It makes sense for me to want my like queer non-conforming identities to be at the forefront." 7.
Safety 6/12	Of self	5/12 (42%)	3, 4, 5, 6, 8	"Back home with my family, I tend to try and

(50%)				dress more femininely because they're not the most accepting people in the world." 4.
	Accommodating for others' comfort	2/12 (17%)	1, 5	"Sometimes clients will call in and then be like, who am I speaking to, a man or a woman, and I'm like, in a split second I have to decide what's going to make them feel safer." 1.
Listener attributes: cisgender 5/12 (42%)	Assimilating/ Differentiating behavior	5/12 (42%)	4, 5, 6, 7, 8	"Hanging around cis guys versus cis girls, like I definitely communicate in two very different ways, like, where you sorta try to - assimilate." 7. "I would say that like, the way I maybe the way that I would explain something would be different, depending on the group." 8.
Relational Contexts 5/12 (42%)	Family and friends 3/12 (25%)	3/12 (25%)	4, 6, 8	"But then again, I find, when I'm like with my group of friends, I don't pay attention at all to my voice. It doesn't matter because they already know who I am and accept me as I am." 4.
	Strangers 3/12 (25%)	3/12 (25%)	3, 4, 11	"Yeah, 'cause like I've been using the women's bathroom, but

				there was a girl in there fixing her hijab the other day, and I felt like I was intruding." 4.
Listener attribute: child 3/12 (25%)	Value of Visibility	3/12 (25%)	2, 3, 4	"But there's like kids around, that's always very wholesome time be visible, I don't know, you know." 4.
	Higher voice	2/12 (17%)	2, 3	"When I'm like, when I'm like interacting with kids is when I'm most self-conscious about my voice because I know that I'm like going to a higher register." 2.
Language background 3/12 (25%)	Listener attribute: English not first language	2/12 (17%)	3, 8	"I prefer they/them, but I usually get he/him, and to be honest they're—these are people who often for people who there's no reason to have any wish to get it wrong because of the language." 3.
	Speaker attribute: English not first language	1/12 (8%)	1	"English isn't my first language." 1.
Stereotypes 2/12 (17%)	Feeling confinement to binaries	1/12 (8%)	8	"I just remember being in elementary school, and the boys and the girls were always so divided for some reason…" 8.
	Socio-economic status	1/12 (8%)	3	"I grew up poor." 3.
Speaker's Voice 5/12	Amount/manner of use	5/12 (42%)	2, 3, 4, 5, 8	"I also have days where I like, I won't talk

(42%)				because my voice is just so feminine, and I can't stand to hear it." 4.
Speaker's Physical Appearance 3/12 (25%)	Conveying queerness	3/12 (25%)	2, 7, 9	"You know and like I have, I have my ears pierced, I have some tattoos, like some things that are kind of typically queer or, or whatever." 9.
Professional Practices: Hormones 3/12 (25%)	Testosterone	3/12 (25%)	1, 2, 3	"And like, a lot of like, studies are always like, oh transmen can just go on testosterone, but that's not something that I want to do." 2.

4.3 Communication Related Wellbeing Subthemes

100% of focus group participants made a comment that belonged to the overall domain of communication-related wellbeing. All 12 made a statement which was placed in the category of challenges to wellbeing. 11 out of 12 participants (92%) made contributions to the focus group which were identified as part of the category of resources for wellbeing. Statements in this domain were counted if they involved any kind of comment on an individual's wellbeing.

4.3.1 Challenges to Wellbeing

Four subthemes emerged within the category of challenges to wellbeing. They comprised psychological challenges (100%), social challenges (92%), physical challenges (100%), and professional practices (25%).

All 12 focus group participants made comments which could be categorized as part of the psychological challenges subtheme. These included comments that referenced acceptance by others (83%), struggle to have self-acceptance (42%), stress caused by visibility (42%), and stress caused by invisibility (17%). When discussing acceptance by others, a distal stressor, participants discussed ideas including anxiety/discomfort about communicating gender, lack of confidence, disconnecting from enjoyable things, feelings of unsafety, self-consciousness, jealousy, frustration, shame, and fear. In their comments regarding struggle with self-acceptance, participants grappled with trying to figure out how parts of their identity fit in and how to signal as nonbinary. Stress caused by visibility included feelings of loss about not being able to be seen as not queer, feelings of nervousness, feelings of frustration and hassle, and experiencing differential treatment. Stress caused by invisibility involved annoyance when people questioned their identity and experiencing dysphoria.

11 out of 12 focus group participants made comments which were considered references to social challenges to wellbeing. These included comments about non-affirmation, rejection, and discrimination at work/school (50%), negative expectations about being read as desired (50%), self-pressures to make others comfortable (42%), restrictions due to voice function (25%), and non-affirming family (17%). Challenges in work/school included feeling uncomfortable in certain female-dominated workspaces, not being taken seriously, misgendering themselves in language classes, elevating pitch for customer-service voice, and worrying about others' perceptions. Challenges caused by physical appearance included having to deal with the assumptions of others, engaging in behaviors to compensate for appearance, grappling with visibility and invisibility, and

feeling limited in spiritual practices by appearance. Self-pressures included feeling the need to make others comfortable or disclose their gender identity. Social challenges caused by voice included misgendering and limitations to social activities. Social challenges caused by family included concealment of gender and non-understanding.

Twelve participants made comments regarding the challenges that voice has on their wellbeing, including issues with vocal fatigue, holding out notes, projecting voice, and limited pitch range. Three participants also discussed challenges with professional practices, including doctors' inability to predict the outcomes/effects of testosterone and gatekeeping practices.

4.3.2 Resources for Wellbeing

The same four subthemes were identified within the category of resources for wellbeing. These were psychological resources (75%), social resources (58%), professional practices (25%), and physical resources (50%).

Six people made comments which were categorized as psychological resources to wellbeing. These included strategies for protecting self-acceptance (e.g., resilience, mindfulness/mindset strategies, and humor) and the effects of time since starting presentation changes. Seven people referenced social resources for wellbeing, including support from the gender diverse community, friends, family, school, the actions of others, and showing pride through visibility. Three people mentioned the positive impacts of professional practices, including the benefits of having guidance or training on how to control and access voice, the impact of testosterone, and speech therapy. Six people referenced physical resources, including strategies for self-compassion, such as seeing

positives in transition (e.g., awareness of voice, improvements to endurance and strength, and experiencing youth), pride, and concealment.

See table 5 for a summary of the subthemes which emerged within the domain of communication related wellbeing.

Table 5. *Wellbeing Subthemes.* Frequency and examples of wellbeing subthemes

Subtheme	Type of Comment	Frequency	Participant IDs	Example
Challenges to Wellbeing				
Psychological 12/12 (100%)	Acceptance by others	10/12 (83%)	1, 2, 4, 5, 6, 7, 8, 10, 11, 12	"I'm self-conscious about my voice." 2.
	Struggle to have self-acceptance	5/12 (42%)	3, 5, 6, 7, 8	"And trying to figure out how that you know fits in, and is that, it just I, I'm still exploring and this is the beginning…" 5.
	Visibility	5/12 (42%)	4, 6, 7, 9, 10	"Nervous about what people might assume about me." 6.
	Effects of Invisibility	2/12 (17%)	10, 12	"I've gotten asked on trains or buses like, are you old enough to ride this train or this bus, or you know, even when I'm with other people, I get sort of asked, like oh are you going to school, and it's just things that sort of annoy me." 10.
Social 11/12 (92%)	Non-Affirmation, Rejection, and Discrimination at Work/School	6/12 (50%)	2, 8, 9, 10, 11, 12	"Guys at work don't take me seriously because I'm a 'woman', but I'm not." 2.
	Negative Expectations about being read as desired	6/12 (50%)	4, 7, 9, 10, 11, 12	"I find myself not trying to smile as much 'cause I feel like my smile makes me look incredibly feminine." 10.
	Self-Pressures to make others comfortable	5/12 (42%)	1, 5, 8, 11, 12	"If I'm walking down the street and I see other queer folks or women even who seem to be hyperaware of my presence 'cause like I'm read as man." 5.

	Hobbies restricted by Voice function	3/12 (25%)	1, 3, 5	"On the phone at work, being mis-gendered as female." 3.
	Non-Affirming Family	2/12 (17%)	1, 8	"They do think I'm just a very gender nonconforming girl. And I don't know how to like get across to them that I'm really not." 8.
Physical 12/12 (100%)	Voice Function Limitations	12/12 (100%)	1-12*	"I'm actually quite stressed about how my voice has changed since hormones." 1.
Professional Practices 3/12 (25%)	Professionals' lack of knowledge and gatekeeping practices	3/12 (25%)	1, 3, 7	"Doctor's offices like to gatekeep." 1.
Resources for Wellbeing				
Psychological 6/12 (50%)	Mindfulness and Positive Mindset Strategies	6/12 (50%)	1, 2, 3, 4, 5, 8	"I'm just gonna keep going forward every day, so we'll see." 8.
	Time since starting presentation changes	1/12 (8%)	5	"It's definitely a lot less stressful now than it was a year ago." 5.
Social 7/12 (58%)	Showing pride through visibility as queer	5/12 (42%)	3, 6, 7, 8, 9	"Visibility is so important just for all of us." 9.
	Acceptance by Friends	3/12 (25%)	4, 6, 8	"My friends were just fine with just me being me." 8.
	Acceptance by Gender Diverse Community	2/12 (17%)	3, 6	"I feel safe with the people I'm around." 6.
	Acceptance in School Setting	2/12 (17%)	4, 8	"As a student, I feel comfortable not dealing with it as much, because I've been in the same routine for the past three years." 4.
	Acceptance by Others	2/12 (17%)	8, 1	"Knowing it's not as much of a battle with this person." 8.
	Acceptance by Family	1/12 (8%)	1	"My mom is aware, but like she wasn't in the beginning, and she was like what's wrong with your voice are you sick, and I'm like, this is just my voice now, and she was like okay." 1.

Professional Practices 3/12 (25%)	Speech therapy/ voice training	2/12 (17%)	5, 11	"Speech therapy made a huge difference." 11.
	Testosterone	2/12 (17%)	5, 12	"I'm pretty happy about my voice, like, it's deepened considerably since I've started on Testosterone." 12.
Physical 6/12 (50%)	Self-compassion strategies	2/12 (17%)	3, 11	"My awareness level around voice has definitely increased." 3.
	Pride	3/12 (25%)	6, 7, 8	"Show them like hey, this is fine. You're fine." 6.
	Concealment	2/12 (17%)	1, 8	Work remotely. 8.

*See Table 3 for details

4.4 Suggestions to Improve Questionnaire

All focus group participants made comments offering their feedback, suggestions, comments, and criticisms of the VCSQ^{AFAB}. These comments were grouped into 5 categories, including issues concerning terminology/language (100%), issues concerning user-friendliness (83%), comments on formatting (75%), comments on response field options (75%), and comments about items to be added (58%).

4.4.1 Issues Concerning Terminology and Language

All 12 participants made comments which offered feedback on the terminology and language used in the VCSQ^{AFAB}. 3 subthemes were identified in this category, which included issues concerning use of language that is sensitive to this population, issues concerning the use of jargon, and issues concerning use of vague/non-specific terminology.

75% of individuals in the focus groups referenced issues in the questionnaire with the use of vague/non-specific terminology. This included individuals questioning words like difficult, too, upper body, health/wellbeing, and importance.

67% of focus group participants referenced the use of jargon in the assessment tool. Specifically, they suggested that jargon be reduced, or unfamiliar terms be defined. Examples of jargon that included the terms speech melody, pitch, and stable voice.

50% of focus group participants made comments about language that was sensitive to this population. This included issues with the use of the phrase body/appearance, the word self-identified, the modifier too, the word problem, and the phrase education/profession.

4.4.2 Issues Concerning User-friendliness

Ten focus group members commented on the user-friendliness of the VCSQ^{AFAB}. Three subthemes emerged within this category, which included issues concerning users with limited voice knowledge, content areas perceived with skepticism, and content areas perceived as difficult to understand.

50% of individuals had comments about content areas which they perceived were difficult to understand or non-specific. This included confusion about why certain aspects of identity were being addressed, difficulty following what is being asked, context-dependence of questions, and distinguishing between the phone and Internet.

42% of focus group participants had comments about content-areas in the questionnaire which could be viewed with skepticism or negativity. This included the consideration of binder use, the inclusion of the body appearance page, and questions addressing religion/faith.

25% of focus group members mentioned issues concerning users with limited voice knowledge. They suggested that the questionnaire assumes that the person filling out the assessment tool has the ability to identify specific vocal functioning issues.

4.4.3 Comments on Formatting

Nine individuals offered feedback on the formatting of the VCSQ^{AFAB}. Three subthemes were identified within this category. They included comments about the use of dark gray (25%), spacing (42%), and formatting consistency (33%).

Five people made comments about the spacing of the questionnaire, including putting space after ordinal numbers, adding space between each question, and replacing some numbers with spaces.

Four people made comments about formatting consistency, including use of capital letters and wording of questions.

Three people made comments about the use of dark gray and its accessibility.

4.4.4 Comments on Response Field Options

Nine participants made comments about the response field options in the VCSQ^{AFAB}. This included 2 subthemes, which were clarity of the scales (67%) and issues with a lack of adequate detail in response items (50%).

Eight people made comments about the clarity of the scales, which included feedback on the scale key's use of often and usually/always, disliking the 1-10 system, wanting a definition for the number 5, a suggestion to replace numbers with words, and a suggestion to have separate scales for intensity and frequency.

Six people made comments about the lack of adequate detail in response items. This included issues with binary responses, desire for an n/a option, and a desire for an option to rank priority on page 1.

4.4.5 Comments on Items to be Added

Seven focus group members commented about items that could be added to the VCSQ^{AFAB}. Items to be added were organized by page: page 1 (demographic page), page

2 (vocal function), page 3 (voice and sociocultural positioning), page 6 (summary), and overall.

On page 1, participants suggested adding information about regional background, place of origin, and a prompt at the beginning to debrief users on the questionnaire.

For page 2, focus group members suggested adding speaking with a quiet voice, controlling volume, and addressing other aspects of singing

For page 3, participants suggested a question addressing use of hormones.

For page 6, focus group members commented it could be useful to add a summary question or a goal to address personal expectations.

Overall, participants commented that the questionnaire could address hormone usage and intentions, address communication outside of voice, and address gender/age in terms of self-identified and what others perceive you as.

See table 6 for a comprehensive summary of the feedback offered on the VCSQ^{AFAB}.

Table 6. *Assessment Tool Feedback.* Frequency and examples of suggestions.

Comment	Specific Feedback	Frequency	Participant IDs	Example
Issues Concerning Language and Terminology				
Use of Vague/Non-specific terminology 9/12 (75%)	Page 2: What is the difference between something being difficult and a problem?	4/12 (33%)	2, 7, 8, 10	"A definition about the words "difficult" and "problem" is what's needed." 8.
	Question 16: Health and wellbeing status	3/12 (25%)	9, 11, 12	"what does health and wellbeing mean, is this some sort of ableist way of saying like, do you have a disability?" 9.
	Page 1: Confusion about 'age you feel.'	3/12 (25%)	4, 5, 7	"I didn't get the age you feel, but then I think I got it, at least part of what they're asking…" 7.

	Page 5: Distinguish experiences versus perceptions	2/12 (17%)	4, 7	"I think it's really important to make a distinction do you want people to answer, how they think people are misunderstanding them, or is it stuff that you've actually experienced" 4.
	Question 11: Use of term "upper part of the body."	2/12 (17%)	6, 7	"At what point is it upper body?" 7.
	Question 3 and 4: Use of 'too' is subjective	1/12 (8%)	12	"Maybe like a question that like defines like what a person thinks if their pitch is like too high or too low." 12.
	Page 1: Positive or negative connotation for 'importance.'	1/12 (8%)	12	"I was also unsure like, is this an important of your identity, like, in, in like a good way or like a bad way." 12.
Use of Jargon 7/12 (58%)	Question 7: Use of "variable speech melody."	6/12 (50%)	5, 8, 9, 10, 11, 12	"Speaking with a variable speech melody, I have no clue what that means." 8.
	Question 8: Use of "stable voice" and "puberty"	2/12 (17%)	9, 11	"I would suggest a rephrase of um, voice breaking or cracking, um, just the, the, I don't know the puberty phrasing strikes me as weird and I can't quite articulate why." 11.
	Provide a working list of definitions	2/12 (17%)	7, 8	"Even if just at the beginning of everything they had like a list of working definitions." 7.
	Define pitch.	1/12 (8%)	5	"Like define the word pitch." 5.
Language Sensitive to Population 6/12 (50%)	Questions 3, 4: Use of 'too.'	3/12 (25%)	9, 11, 12	"Suggest removing the word too, because particularly I think in our community, we're always charged with being too something, and I don't think we should have that language in the survey." 9.
	Use of 'problem.'	3/12 (25%)	1, 2, 3	"Also, yeah, and also like maybe taking problem out of it, so that like the clients decide whether or not this is a problem." 1.
	Page 4: Body/Appearance implies personal	2/12 (17%)	1, 2	"It's not necessarily like my body or my bodily appearance that makes it difficult for me to present

	dysphoria. Suggested people's perceptions of body instead.			that way. It's people's perceptions of my body." 2.
	Use of "self-identified gender."	1/12 (8%)	11	"As trans people we're always like, oh well they're a self-identified and it feels a little patronizing." 11
	Use of education/ profession. Suggest including job/work.	1/12 (8%)	3	"Maybe including work or, I mean, I guess, I'm just thinking of the educational and vocabulary assumption around the category for the education slash profession." 3.
Issues Concerning User-Friendliness				
Content areas perceived as difficult to understand 6/12 (50%)	Page 1: Confusion regarding why aspects of identity (voice, religion, etc.) were being addressed	6/12 (50%)	1, 4, 5, 6, 7, 8	"But for something like sexual orientation or uh, I don't know, education, profession, like that I don't see how the pitch of my voice is gonna have anything to do with people getting what my job is." 6.
	Question 13: too vague	4/12 (33%)	4, 7, 11, 12	"I think the "using my voice as needed to…" is also particularly vague. Like, what does that mean?" 7.
	Page 5: Distinguish phone and Internet.	3/12 (25%)	10, 11, 12	"I put an exclamation point by when I speak over the phone/Internet because it conflates the two." 10.
	Page 1: Define others	3/12 (25%)	5, 7, 8	"I could just say about page one really quick, they should, they should define others, like, is this an aspect of your identity that you would like to convey to others? Well, who is that?" 8.
	Question 12: too context-dependent	1/12 (8%)	10	"If I had to fill this out and answer 0-10 I wouldn't know what to put because I just, it's so context-dependent that I can't just pin it down with one representative number." 10.

	Difficulty understanding how often do you have difficulty with	1/12 (8%)	6	"And then, also, so the way that they've written, I guess this is the second page, where it says how often do you have difficulty with the following, if you read that, and then you read, how, so if you read how often do you have difficulty with, speaking with a loud voice, that's very different than just looking at speaking with a loud voice." 6.
	Difficulty understanding question 9	1/12 (8%)	9	"I had, yeah, a question on that." 9.
Content areas perceived negatively or with skepticism 5/12 (42%)	Body appearance page	3/12 (25%)	1, 5, 8	"I didn't know what to think about this page is why I was asking." 8.
	Questions addressing religion/faith	1/12 (8%)	6	"So, so, if it's a consistency thing, I kind of understand it being throughout the entire thing, but if it doesn't have to be throughout the entire thing, it doesn't really make sense in certain parts of it." 6.
	Questions 10-12: Considerate of binder use?	1/12 (8%)	9	"I'm assuming that speech therapists, or speech pathologists that are helping an AFAB population would be conscious of trans needs but perhaps if someone is wearing a binder, if they have like the trans slouch, um, to be sensitive about, um, treating people that are slouching because of a certain reason." 9.
Issues concerning users with limited voice knowledge 3/12 (25%)	Assumes ability to identify vocal functioning issues	3/12 (25%)	9, 11, 12	"My global comment is that these questions pretty much all assume that the person filling it out knows what their problems are." 11.
Comments on Formatting				
Spacing 5/12	Add space after ordinal numbers	2/12 (17%)	7, 12	"Um, this is just formatting, but I don't like that there isn't, there isn't a

(42%)				space after like the ordinal numbers." 12.
	Replace some numbers with spaces	2/12 (17%)	1, 3	"I was gonna say leave out a couple of numbers, like, uh and, just keep the space where the number was." 3.
	Add space between each question	1/12 (8%)	2	"Just having, like, a little bit of space in between those two rows, in each question, just so that there's like, there's visually a space in between there, so they're a little bit more separated, would be easier to read." 2.
Formatting Consistency 4/12 (33%)	Wording of Questions 3 and 4 is inconsistent	3/12 (25%)	9, 11, 12	"The question is how often did you have difficulty with x, y, z, and questions one through you know, whatever, forty-four, are all in the same, uh format or tense, except for questions three and four, which say, such and such is too high, or too low." 9.
	Capital Letters	2/12 (17%)	4, 12	"And then like you know, everywhere else was like, the beginning of, of, you know like the questions was with like a capital letter, so I just feel like it should be, it should be consistent." 12.
Use of Dark Gray 3/12 (25%)	Use a lighter gray	3/12 (25%)	4, 7, 8	"The lighter gray is better accessibility wise." 4.
Comments about Response Field Options				
Clarity of Scales 8/12 (67%)	Scale Key: confusion about use of often and usually/always	2/12 (17%)	2, 3	"I would have a hard time seeing, understanding what the difference between often and usually is." 2.
	Define 5 in scale key.	2/12 (17%)	9, 10	"But maybe also just defining five, in the little like, key." 10.
	Separate scales for intensity and frequency	2/12 (17%)	7, 8	"I would go straight from like zero to ten, like how I feel about it, like um, on a scale of zero to ten am I dissatisfied with my voice, and then, not, how often am I dissatisfied with my voice, so that was my issue with this question." 8.

	Replace numbers with words.	1/12 (8%)	12	"It could probably work to just have the words never, rarely, sometimes, often, usually, always, or like no response." 12
	Dislike 1-10 system.	1/12 (8%)	1	"All the 10s, throw me, but I'm sure there's a reason why the scale is 1-10, er, like 0-10 instead of 0-5." 1.
Lack of adequate detail in response items 6/12 (50%)	Issue with binary responses: need an n/a or unsure option	4/12 (33%)	1, 2, 9, 12	"If there's just like an option to just, just like an n/a or like not sure." 12.
	Option to rank priority on page 1	3/12 (25%)	5, 10, 12	"For this part of the survey, maybe having a ranking option somewhere." 10.
	Issue with binary responses: answers too context dependent for yes/no.	2/12 (17%)	10, 12	"I was really kind of like unsure and kinda, not really like confused by like the yes or no, but like a lot of my answers were like, you know, like, something in-between, or like, context-like-dependent." 12.
Comments on Items to be Added				
Page 1 5/12 (42%)	Regional Background	1/12 (8%)	11	"Regional background can be very important, um and that regional accents can vary by gender, so, if for instance, you are a trans woman from Alabama and you want to learn how to sound like a woman from Alabama, instead of a man from Alabama." 11.
	Place of Origin	2/12 (17%)	11, 12	"Also, like, there's like, place of residence, but also I think um, like, jumping off of that, like a significant thing could be like, your, like place of origin, like I'm from the Midwest and I worry sometimes that I have like too much of like a midwestern accent." 12.
	Prompt to debrief users on questionnaire	3/12 (25%)	1, 2, 3	"So like, I don't know, maybe even like a small summary on top, or something being like, these are the things that we're gonna ask you." 1.

Page 2 3/12 (25%)	Add speaking with a quiet voice	1/12 (8%)	3	"Adding in speaking with a quiet voice or have a soft voice maybe, um, is would be a good addition." 3.
	Add ability to adequately control volume	1/12 (8%)	3	"I was wondering about voluntarily speaking with a, 'cause I, there were times where like, my voice would get loud, and, beyond my control, like if I was, especially if I was, speaking a lot." 3.
	Address other aspects of singing (e.g. sustaining pitch)	3/12 (25%)	1, 2, 3	"I mean, I guess, there are other, like, aspects of singing voice that aren't in regard to pitch too." 2.
Page 3 1/12 (8%)	Question addressing hormones	1/12 (8%)	1	"I agree hormones should be included somewhere on there Are you on hormones? 'Cause I don't want, like, I don't want to have filled this all out, hand it to my clinician, and my clinician look over and be like, oh, go on hormones." 3.
Page 6 4/12 (33%)	Add a place to add a goal or personal expectations	3/12 (25%)	1, 9, 11	"Maybe even like an open-ended question kind of at the end, like where it's like tell us what you were trying to present, maybe, instead of just assuming." 1.
	Add a summary question about the ease of speaking	2/12 (17%)	9, 12	"So, um, just one more summary question that gets to more of like, the ease of use, maybe." 9.
Overall 5/12 (42%)	Address hormone usage and intentions to take hormones	2/12 (17%)	1, 2	"A lot of like, studies are always like, oh transmen can just go on testosterone, but that's not something that I want to do, so I guess like that would be something that I would want a clinician to know and not suggest for me." 2.
	Address communication outside of voice (e.g., nonverbal communication)	3/12 (25%)	10, 11, 12	"We kind of made the distinction between like nonverbal and verbal, I feel like making that more explicit in the survey, of like, you know how I feel about my body language is different from how I feel

				about my speech, is different from how I feel when I type on the internet." 10.
	Address gender/age in terms of self and what others perceive you as	1/12 (8%)	11	"There were two questions on the forms we actually filled out about how strangers perceive you both in terms of gender and age that seem to be missing here, and I think those are very good and important." 11.

Chapter 5: Discussion

The purpose of this study was to establish the face validity of the VCSQ^{AFAB} through focus groups with the transmasculine community. This was to ensure that the VCSQ^{AFAB} adequately incorporated information derived from a synthesis of clinical expertise, research literature, and the lived experiences of transmasculine people. Previous research demonstrated that input from the intended population is critical for content validity. Focus groups provided two types of information: their lived experience and their critique of the tool. The information led to minor modifications to the VCSQ^{AFAB}

5.1 Major Themes of Voice Related Ideas and Needs in the AFAB Community

The first aim of the study was to explore the common voice-related ideas and needs in the AFAB community. Based on previous interview research, we hypothesized that common voice-related ideas and needs in the AFAB community could be categorized into three domains: voice and communication function, sociocultural positioning, and communication-related well-being (Azul 2015; Azul et al., 2017). Indeed, 100% of focus group participants made comments within each of these domains, and no pertinent comments were made which could not be categorized into one of the three domains. The second study question asked whether the VCSQ^{AFAB} would be an adequate tool to help a clinician understand the desires and needs that a transmasculine client may have about communicating. We hypothesized that all of the concerns that transmasculine individuals have about their voice would be captured by items existing on the VCSQ^{AFAB}. While the majority of concerns transmasculine individuals had about their voice were captured by existing items on the VCSQ^{AFAB}, some subthemes identified concerns that transmasculine individuals had about their voice which were not represented in the questionnaire.

Gathering information about the lived experiences of the AFAB population was valuable in ensuring that the VCSQ^{AFAB} was a tool that could enable a clinician to understand a client from a person-centered approach. Information from their discussions was used to modify the questionnaire to be pertinent to their experiences.

5.2 Face Validity of Questionnaire Items

Within the three primary domains, subthemes were identified which were mostly captured by items existing on the VCSQ^{AFAB}. Minor modifications were made to the questionnaire to include subthemes not represented in the questionnaire.

In previous literature validating the validity of questionnaires, different approaches have been taken to determine the inclusion and exclusion criterion of items. The Voice Handicap Index (VHI) originally consisted of 85 items (Jacobson et al., 1997). In the process of validation, all items were included, unless 50% or more of participants responded to the item with "never," indicating the item did not represent their experiences. These items were removed. During the development of the TVQ^{MTF}, items were evaluated in two realms: feedback regarding the overall questionnaire and thematic analysis of interviews from the transgender community (Dacakis et al., 2013). Comments regarding the overall questionnaire were examined by authors, and individual items were modified to reduce ambiguity as needed. All items from the TSEQ were included, unless individuals said they were not representative of their experiences or the items were not represented in thematic analysis. Items were only added if researchers reached consensus on their importance following thematic analysis.

Modifications to the VCSQ^{AFAB} were based on previous methodology. Focus group participants noted in general that the questionnaire was a comprehensive and thorough tool,

and previous research shows all items are included, unless there is a reason for exclusion; thus, all items existing on the questionnaire with a corresponding subtheme from thematic analysis remained in the questionnaire. Items with no corresponding subtheme were individually analyzed to determine whether they should be deleted based on clinical expertise and research literature. No consensus was reached among focus group participants on items that did not represent their experiences; thus, no items were eliminated on that basis. Items were added to the questionnaire if thematic analysis revealed their importance: the criterion for this was more than 50% of individuals mentioning it. This criterion was based on the simple majority criterion used in the process of eliminating items from the VHI.

Ten subthemes regarding voice function were identified during the focus groups, and nine of them were captured by existing items on the VCSQ^{AFAB}. The most commonly discussed subtheme, vocal effort, is captured throughout the questionnaire through the system of ranking difficulty for aspects of voice function. The next most common subtheme was singing (58%), which is captured by two questions on the VCSQ^{AFAB}. Of note, a small percentage of people provided feedback that they would have preferred more questions surrounding singing voice on the questionnaire. The two existing questions can be a starting point for clinicians to ask follow up questions about their clients' singing abilities as needed. The next most common theme, mentioned by 50% of the group, was speaking pitch, which is captured by two items on the questionnaire. Vocal control was also mentioned by 50% of participants, but it does not clearly appear on the VCSQ^{AFAB}. Thus, a modification was made to item 13, "Using my voice as I need to," which was deemed by participants to be too vague, to "Using or controlling my voice as I need to."

The remaining voice function items were mentioned by less than half of focus group participants, but still represented by items in the questionnaire: voice projection, vocal quality, pitch variability, pitch range, vocal endurance, and discomfort. Two items in the VCSQ^{AFAB} about voice function were not mentioned by focus group participants. These are item 10, which asks about breathing while speaking, and item 12, which asks about aligned posture while speaking. Although none of the focus group participants mentioned their own binding practices, some did indicate that binding was relevant to GD-AFAB. Additionally, these questions address relevant aspects of physiology which can affect voice in transmasculine individuals who are practicing binding (Azul et al., 2017; Davies et al., 2015). Because of this, it was deemed important to keep these items in the questionnaire.

Twelve subthemes were identified as relevant to self-identity and identity perceived by others within the domain of sociocultural positioning. The demographic portion of the questionnaire captured some of the most commonly discussed subthemes: gender identity and pronouns (92%) and age (58%). However, it did not have a section for individuals to indicate their hobbies or queer visibility, which were discussed by 58% of people. All of the hobbies people mentioned involved their voice (e.g., singing, podcasting); therefore, this information can be relevant for clinicians to know to help clients participate in activities of daily living. Thus, a place to indicate important hobbies was added to the demographic section of the questionnaire. Queer visibility can impact the way an individual wants their voice to sound. Some people wanted to make sure that their voice did not sound queer to cis-het people, others wanted to be visible to all, and others wanted to only convey male in their interactions. Thus, a place to indicate the importance of queer visibility was added to the demographic section of the questionnaire. The remaining subthemes were

mentioned by half or less than half of participants. Six of these are captured by the questionnaire: sexual orientation, religion, education, race/ethnicity, ability/disability, and parenthood. Two items were not included: place of origin (33%) and personality (8%). These final two items were not added because they were not mentioned by more than half of the focus group participants.

92% of participants made comments about factors influencing presentation and perception of their identity. This included modifying their identity for their own safety or the safety of others or finding themselves behaving differently based on relational contexts, presence at work/school, or listener attributes. These distinctions are not made in the original questionnaire; however, they clearly have thematic salience from focus group discussions. Repeatedly, people noted the way that context impacts identity. Thus, a note was added to the questionnaire which states "Feel free to star or circle items which you feel are dependent on context (e.g., being at work/school, being around family/friends) and leave comments in the space below." Additional factors that influence presentation and perception of identity were language background, stereotypes, speaker's voice/physical appearance, and professional practices. The questionnaire addresses language background and speaker voice/physical appearance. It does not address stereotypes or professional practices (e.g., hormone usage), but these were not salient (i.e., not mentioned by at least 50% of people), so they were not added to the questionnaire.

The wellbeing domain contained challenges and resources for wellbeing, each with the same four subthemes. The VCSQ^{AFAB} addresses psychological, social, and physical challenges with the follow-up item "and this is a problem for me" found throughout the questionnaire. This aspect of the questionnaire allows for targeted analysis of the stressors

in a client's life. The fourth challenges subtheme, professional practices, may interact with the others. Professional practices addressing vocal function, sociocultural positioning, and wellbeing are not always well-received. Clients may be reticent to share or be honest with clinicians due to a deeply entrenched mistrust of the medical community. Thus, clinicians should work to build a rapport with their clients prior to administration of the questionnaire, and the questionnaire should be given with the reminder that it is not a tool designed to provide a number that could be used for gatekeeping purposes. The questionnaire does not address the resources that an individual has for wellbeing, but it was clearly thematically salient, with 92% of individuals mentioning wellbeing resources. In a person-centered approach to treating a client, it is important to treat an individual holistically. Therefore, it is relevant to have an understanding not only of the stressors in an individual's life, but also of their resources. Thus, a checklist was added to the questionnaire for individuals to indicate resources to their wellbeing.

5.3 Critique from the Transmasculine Community

The final study question asked how a sample of the transmasculine community views the questionnaire. We hypothesized the transmasculine community would view the VCSQ^{AFAB} as an appropriate and comprehensive questionnaire to quantify their vocal situations. Nevertheless, we expected constructive feedback from participants regarding the questionnaire.

As expected, the questionnaire was viewed as generally appropriate and comprehensive. After viewing the questionnaire, participant 1 stated, "I feel like it's very thorough," and participant 3 stated, regarding speech-language pathologists and medical

professionals, “they’ve come a long way.” Thus, participants seemed to express a sense of satisfaction with the assessment tool.

Modifications were warranted based on constructive feedback regarding the overall user-friendliness of the questionnaire. These modifications were made using similar methodology to the development of the TVQ^{MTF}, in which comments regarding the overall questionnaire were examined by the author, and individual items were modified to reduce ambiguity or improve user-friendliness as needed.

First, the $VCSQ^{AFAB}$ was modified to include the demographic questionnaire that participants filled out, not the one that they reviewed, as participants indicated that they felt the items on the one they filled out were important and should not be excluded.

In terms of aesthetics, 17% of individuals made comments about the lack of spaces and capital letters following numbers in the original questionnaire; thus, the tool was modified to be consistent throughout.

An issue with the user-friendliness of the tool was that 67% of individuals expressed some kind of concern regarding the scale key. Thus, the terms rarely and usually were deleted from the anchor numbers 0 and 10, to make these values have only one term each.

Issues concerning terminology and language were brought up by all focus group participants; thus, definitions were provided and culturally sensitive language was implemented through modifications of the questionnaire for items the researchers thought should be clarified. This included a definition of the phrase variable speech melody, which was mentioned by half of participants to be confusing. The remaining modifications involved population-specific language. 25% of people did not like questions 3 and 4 for

their use of the word ‘too,’ which they claim is charged terminology. 25% of participants also did not like questions 3 or 4 because of their lack of consistency with surrounding questions. Thus, items 3 and 4 about speaking pitch level were modified to align with items 5 and 6, respectively, about singing pitch level. 17% of individuals felt uncomfortable with the use of the term puberty in question 8; thus, puberty was replaced with voice cracking/breaking. In the demographic portion of the questionnaire, the word self-define was modified to define, when referencing peoples’ description of their gender.

Regardless of these clarifications and modifications, individuals generally also desired an n/a or unsure option on items that they felt unsure about. Thus, the direction “Please star items you are unsure about, so the clinician can discuss with you” was added to the questionnaire. This can allow the clinician to explain items that a client feels unsure about.

Additional feedback given by participants, but which did not warrant modifications to the questionnaire, are as follows. 33% of individuals felt they did not understand the distinction between something being difficult and a problem for them. This can be a discussion that the clinician administering the assessment has with the client prior to administration. This discussion can aim to separate issues of vocal functioning from issues of wellbeing. 25% of individuals wanted ‘others’ in the first page to be defined. This can be resolved by a conversation between the clinician and the client regarding what others they imagine when answering the questions, and how different ‘others’ changes their answers. Finally, 25% of individuals felt asking about health/wellbeing status was an ableist way to ask if they had a disability. Historical discrimination against the transgender community by the medical community has justifiably high level of criticalness and

sensitivity in this population. Thus, it is important for service providers to emphasize that the assessment tool is not designed to be scored or used as a criterion measure for gatekeeping. Rather, it is designed to be a holistic tool which can assist clinicians to better understand the well-being and needs of GD-AFAB clients.

Overall, the sample of the transmasculine community who attended these focus groups viewed the assessment tool as comprehensive, but they offered constructive feedback which resulted in minor modifications to the $VCSQ^{AFAB}$. These modifications are summarized in Table 7 below.

Table 7. *Modifications to Questionnaire.* List of modifications and rationales.

Modification	Where/What	Rationale
Modifications Based on Thematic analysis		
Using my voice as I need to → Using or **controlling** my voice as I need to	Item 13 Modification	Vocal control mentioned by 50%. Item 13 deemed too vague by 33%.
Added **hobbies**	Demographic Page Addition	Mentioned by 58%
Added **queer visibility**	Demographic Page Addition	Mentioned by 58%
Note: Feel free to star or circle items which you feel are dependent on context (e.g., being at work/school, being around family/friends) and leave comments in the space below.	Instructions Addition	Thematic salience of factors influencing presentation and perception of identity
Resources to wellbeing checklist	Final Page Addition	Thematic salience of resources to wellbeing
Modifications Based on Population Suggestions		
Using demographic questionnaire participants filled out, not reviewed	Demographic Page Modification	Participants reported it was more comprehensive
Added spaces & capital letters after numbers	Questionnaire Modification	Improve aesthetics
Remove rarely and usually from anchor numbers 0 and 10	Scale Key Deletion	Improve user-friendliness
Defined variable speech melody	Item 7 Modification	Improve user-friendliness

Voice pitch when speaking is too high/low → Speaking with high/low enough pitch	Item 3 and 4 Modification	Removal of charged terminology: "too" Improve consistency
Redefine stable voice: (i.e., speaking without voice breaking/cracking)	Item 8 Modification	Removal of problematic terminology: "puberty"
Self-Define → Define	Demographic Page Modification	Removal of problematic terminology

5.4 Study Limitations

It is important to note some limitations of this study. First, the representativeness of this sample to the broader population must be considered. The participants in this study represented only individuals who live in the DC metropolitan area, which should be considered when assessing the assessment tool's broader national and international applicability. The DC metropolitan area tends to be more diverse and liberal than other parts of the United States. For example, the District of Columbia Human Rights Act of 1977 was modified in 2006 to explicitly include gender identity in non-discrimination protections for housing, public accommodations, and employment. Thus, participants in this area may have different experiences than individuals in less liberal parts of the world. Additionally, the participants were not diverse in terms of their level of education. All had at least some college education; thus, they may have experiences, perspectives, and opinions which differ from their counterparts with less education whose opinions were not captured.

Another limitation is that in two of the three focus groups, some participants knew one another. This familiarity between focus group members is not an ideal characteristic of focus groups, as it can cause an increase in reluctance to share perspectives or ideas. Additionally, while participants were interviewed via follow-up phone calls to make sure

their opinions were included, they did not have the opportunity to review the results and make sure they felt represented. This could have been useful in ensuring comprehensiveness of the data.

5.5 Future Directions and Clinical Implications

Overall, the focus groups have shown that the VCSQ^{AFAB} appears to have adequate face validity. All three domains which are addressed in the questionnaire are areas which focus group participants independently brought up as important to their voice-related desires and needs. Additionally, some focus group participants made comments on the progress and thoroughness that the questionnaire displays.

Nevertheless, based on some constructive feedback from participants, some specific changes needed to be made to the questionnaire to improve its applicability to this population and its user-friendliness. To be more comprehensive with regard to voice function, a modification was made to ask about vocal control specifically. To be more comprehensive with regard to sociocultural positioning, a category for hobbies was added to the demographic questionnaire. To improve the aesthetics of the questionnaire, spaces were added after all ordinal numbers, and all letters after these spaces were capitalized. Also, questions 3 and 4 were modified to maintain consistency with surrounding questions and remove language that did not resonate with participants. Finally, to enhance the user-friendliness of the questionnaire, definitions were added for variable speech melody and stable voice in questions 7 and 8 respectively. Also, the scale key was modified to better anchor the numbers 0 and 10 as never and always respectively, rather than inclusive of rarely and usually.

The questionnaire proposed in Appendix G has demonstrated face validity and is ready for clinical use. Of note, clinicians using this questionnaire are strongly recommended to do the questionnaire with their client, rather than having them simply fill it out independently. Actively engaging, or at least being present, as the client answers allows for clients to have their questions answered as they are filling out the questionnaire, and it can lead to less of a sense that the questionnaire is designed as a gatekeeping measure from services. It is also important for clinicians to understand and to emphasize prior to administering the questionnaire that the survey is not meant to garner numerical or quantitative data that will be used to gatekeep in any way. Participants also felt uneasy about answering some questions because of how relational contexts impact their identity. It is important for clinicians to understand and to emphasize to clients that identity is never stagnant, and that they can answer the questions based on how they would like to present in most situations, and the information garnered from these answers can be used flexibly.

Future studies can further examine the psychometric properties of the questionnaire, including analyses of its reliability and analyses of its content validity.

5.6 Conclusion

Overall, the VCSQ^{AFAB} in Appendix G demonstrates good face validity and is user-friendly. This questionnaire is ready for clinical use in a person-centered care model addressing vocal function, sociocultural positioning, and communication-based wellbeing.

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Appendix A

Demographic Questionnaire

Age:

Race/Ethnicity:
African American/Black
Asian
Caucasian/White
Hispanic/Latino/White
Hispanic/Latino/Black
Hispanic/Latino/Declined
Native American
Native Hawaiian/Pacific Islander
Multiracial
Declined
Unavailable/Unknown

Highest Level of Education
College
High School
Middle School
Elementary School
None

Sexual Orientation
Lesbian
Gay
Straight
Asexual
Other

Assigned Sex at Birth
Male
Female

Current Gender Identity:

Desired Gender Attribution from Voice:

Have you had/do you plan on having surgery for gender affirmation?

Have you had/do you plan on taking hormones for gender affirmation?

Appendix B

VCSQ^{AFAB} Demographic Questionnaire

	Please describe	**Is this an important aspect of your identity? (yes/no)**	**Is this an aspect of your identity you would like to communicate to others? (yes/no)**
How you self-define your gender			
How others perceive your gender			
How others refer to you/address you (pronouns)			
Chronological age			
Age you feel			
Age others perceive you as			
Sexual orientation			
Relationship status			
(Sub-)cultural affiliations/race/ethnicity			
Languages spoken			
Place of residence			
Religion / faith			
Health/well-being status			
Highest level of education			
Profession / occupation			
Family role (parent, etc)			
Any other aspects?			

Appendix C

Voice and Communication Satisfaction Questionnaire for Gender-Diverse People Assigned Female at Birth (VCSQ^{AFAB})

Please describe:		**Is this an important aspect of your identity? (yes/no)**	**Is this an aspect of your identity you would like to convey to others? (yes/no)**
Your self-identified gender			
How others refer to you/address you (pronouns)			
Chronological age			
Age you feel			
Sexual orientation			
Relationship status			
Cultural affiliations/race/ethnicity			
Languages spoken			
Place of residence			
Religion / faith			
Health/well-being status			
Highest level of education			
Profession / occupation			
Family role (parent, etc)			
Any other aspects?			

Consider the **last two weeks.** **How often** did you have **difficulty** with the following?	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

1. Speaking with a loud voice	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

2. Speaking with a clear voice (not hoarse)	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

3. Voice pitch while speaking is too high	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

4. Voice pitch while speaking is too low	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

5. Singing with high enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

6. Singing with low enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

7. Speaking with a variable speech melody	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

8. Speaking with a stable voice, not unstable as during puberty	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

9. My voice getting tired after talking a long time	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

10. Breathing while I speak	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

11. Pain or discomfort from muscle tension in the upper part of the body	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

12. Having aligned posture when I sit or stand, not slouched	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

13. Using my voice as I need to	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** **How often did your VOICE make it difficult for you to present your…**	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

14.self-identified gender	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

15.age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

16.health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

17.cultural affiliation/ race/ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

18.sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

19.education/profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

20.religion/faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** **How often did your BODY/APPEARANCE make it difficult for you to present your…**	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

21.self-identified gender	0 1 2 3 4 5 6 7 8 9 10

and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

22.age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

23.health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

24.cultural affiliation/ race/ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

25.sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

26.education/profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

27.religion/faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** When I speak over the phone/internet, where **people only hear my voice**, I think they misunderstand my…	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

28. self-identified gender	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
29. age	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
30. health and well-being	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
31. cultural affiliation/ race/ethnicity	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
32. sexual orientation	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
33. education/profession	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
34. religion/faith	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** When I speak face-to-face, and people **hear my voice AND see my body/appearance**, I think they misunderstand my…	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

28. self-identified gender	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
29. age	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
30. health and well-being	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
31. cultural affiliation/ race/ethnicity	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
32. sexual orientation	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
33. education/profession	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10
34. religion/faith	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.**	**0 = Never/Rarely** **3= Sometimes** **7= Often** **10= Usually/Always**

42. I am dissatisfied with my voice	0 1 2 3 4 5 6 7 8 9 10
43. I wish my voice sounded differently	0 1 2 3 4 5 6 7 8 9 10
44. My voice distresses me	0 1 2 3 4 5 6 7 8 9 10

Does your voice cause other difficulties that are of concern to you? Please list them here:

Appendix D

COREQ Checklist (Tong et al., 2007)

Table 1 Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist

No	Item	Guide questions/description
Domain 1: Research team and reflexivity		
Personal Characteristics		
1.	Interviewer/facilitator	Which author/s conducted the interview or focus group?
2.	Credentials	What were the researcher's credentials? *E.g. PhD, MD*
3.	Occupation	What was their occupation at the time of the study?
4.	Gender	Was the researcher male or female?
5.	Experience and training	What experience or training did the researcher have?
Relationship with participants		
6.	Relationship established	Was a relationship established prior to study commencement?
7.	Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. *personal goals, reasons for doing the research*
8.	Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. *Bias, assumptions, reasons and interests in the research topic*
Domain 2: study design		
Theoretical framework		
9.	Methodological orientation and Theory	What methodological orientation was stated to underpin the study? *e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis*
Participant selection		
10.	Sampling	How were participants selected? *e.g. purposive, convenience, consecutive, snowball*
11.	Method of approach	How were participants approached? e.g. *face-to-face, telephone, mail, email*
12.	Sample size	How many participants were in the study?
13.	Non-participation	How many people refused to participate or dropped out? Reasons?
Setting		
14.	Setting of data collection	Where was the data collected? e.g. *home, clinic, workplace*
15.	Presence of non-participants	Was anyone else present besides the participants and researchers?
16.	Description of sample	What are the important characteristics of the sample? *e.g. demographic data, date*
Data collection		
17.	Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?
18.	Repeat interviews	Were repeat interviews carried out? If yes, how many?
19.	Audio/visual recording	Did the research use audio or visual recording to collect the data?
20.	Field notes	Were field notes made during and/or after the interview or focus group?
21.	Duration	What was the duration of the interviews or focus group?
22.	Data saturation	Was data saturation discussed?
23.	Transcripts returned	Were transcripts returned to participants for comment and/or correction?
Domain 3: analysis and findingsz		
Data analysis		
24.	Number of data coders	How many data coders coded the data?
25.	Description of the coding tree	Did authors provide a description of the coding tree?
26.	Derivation of themes	Were themes identified in advance or derived from the data?
27.	Software	What software, if applicable, was used to manage the data?
28.	Participant checking	Did participants provide feedback on the findings?
Reporting		
29.	Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. *participant number*
30.	Data and findings consistent	Was there consistency between the data presented and the findings?
31.	Clarity of major themes	Were major themes clearly presented in the findings?
32.	Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?

Appendix E

Facilitator Training Guide

1. Roles of the Facilitator
2. Tips on Running Focus Group
3. Questioning Route Methodology & Discuss the Questioning Route
4. Opportunity for Role Play
5. Questions

Roles of the Facilitator:

- Basch: 'create a non-threatening supportive climate that encourages all participants to share views; facilitating interaction among members; interjecting probing comments, transitional questions, and summaries without interfering too brusquely with the dialogue; covering important topics and questions'
- Reiskin: ask questions and seek elaboration, but stay neutral
- Powell: facilitate open, uninhibited dialogue; appear relaxed, non-judgmental

Tips:

Opening the Focus Group

- Welcome everybody to the focus group (e.g., thank you all for coming; we are interested to hear about your experiences)
- Establish your role
    - You'll ask questions and try to stimulate discussion among the group, but you won't contribute to the discussion
- Disclaimers
    - Session is recorded
    - Assure confidentiality

Your Body Language

- Engage in listening behaviors (e.g., nod as appropriate, face body toward speaker, eye contact)

How to Encourage Discussion

- Have participants think back to "specific experiences"
- Encourage quieter individuals to speak
    - This is also a useful way to discourage a *dominant voice*
- Be receptive to issues brought up that are not in the discussion outline
- Return to difficult issues if needed
    - Don't be afraid to circle back to a particular topic that got dropped!

Things to Avoid

- Asking 'why' as it can inadvertently lead the discussion
- Too many listening noises
    - Can interfere with the process of transcription

Field notes

- Feel free to jot down notes throughout the discussion
- You can write down:
    - Your impressions of categories of questions overall
    - Group dynamics
    - Non-verbal communication you think is relevant
    - Distractions that were present
    - Main ideas from various topics

Methodology of Our Questioning Route:

- Opening Questions
    - Used to break the ice & encourage everyone's participation in discussion
    - Not designed to give us any data for analysis
    - Usually factual questions about something participants have in common
    - Feel free to encourage small talk here!
- Introductory Questions (*Identity Questions)*
    - Begin to focus the discussion
    - Bring the topic (e.g., is voice an important part of your identity) to the surface
    - Provide opportunity for participants to share experiences & hear experiences of others
- Transition Questions (*Communication Questions* and *Impact Questions*)
    - Move discussion toward key questions
    - Set the stage for key questions
- Key Questions (*Questionnaire)*
    - Heart of the focus group
    - More time and attention should be spent with these questions, answering and discussing them
- Ending Question (*Ending Questions)*
    - Try to leave about 10 minutes for ending questions discussion, if you can
    - The insurance of the focus group
    - Facilitator can give a short overview of the focus group (e.g., the purpose of this focus group is to validate a questionnaire for transmasculine individuals that clinical voice professionals can use to assess their vocal situations) and ask if anything has been missed

Discuss the Questioning Route:

- Try to have a good sense of the questions that are going to be asked in each category
    - This will help the flow of your discussion

Opportunity for Role Play

Questions?

References

Breen, R. L. (2007). A practical guide to focus-group research: A practical guide to focus-group research, *8265*(2006).

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Appendix F

Focus Group Questioning Route

Opening Questions:

1. Tell us your name & preferred pronouns.

Identity Questions:

2. What aspects of yourself/identity do you find particularly important to convey?
    a. (follow up if needed) feel free to say any/all aspects! Most people would have more than 1!
    b. (follow-up question if needed) I didn't hear anyone mention the aspect of gender/age/health/culture/race/sexual orientation/education/profession/faith… would you include this or not? Why/why not?
3. Would your answer always be the same or change? If change, based on what?

Communication Questions:

4. How do you communicate these aspects?
    a. (follow-up if need) Does how your voice sounds, or communication style play a role in helping you convey your identity?
        i. (follow up if needed) How so? (In what ways does your voice affect how you convey your identity to others and yourself?)
        ii. To what extent? Was it a big deal or not really?
    b. How did/would you have liked your voice/communication style to be?
        i. What aspects of your voice/communication were **helpful**?
        ii. What aspects of your voice/communication were **difficult**?

Impact Questions:

5. What impact did voice have on communicating these important aspects of yourself?
6. What impact did communication style have on your transition?
7. What impact did any issues with your voice/communication have on your own well-being or stress level?

-- *introduce questionnaire –*
If you were to want and need help changing your voice sound/communication style, the professional might start with a questionnaire to learn about you and your concerns. This is a draft of such a questionnaire.

8. What do you think of it?
9. Anything missing? What else would you want them to know about your communication?
10. Anything not important?
    a. (follow-up if needed) Do you think it covers what we just talked about before I handed this out?

11. What are aspects of this questionnaire that you like the most, or that you feel really capture experiences you had?
12. What are aspects of this questionnaire that you do not like?
    a. (if they say too long—what could be taken out?)
13. How would you change this questionnaire? (if at all)
14. (follow-ups if needed)
    a. Any comments on the format?
    b. question prompts clear?
    c. Do you understand the specific terms they use?
    d. rating scale understandable?

Ending Questions:

15. Finally, is there anything you'd like to say about
    a. the proposed questionnaire?
    b. how professionals could assess the vocal situation of transmasculine people?

Follow-up phone call:

"May we ask your permission to monitor/record this conversation for quality assurance related to this research study?"

If No, conversation may continue without being recorded.

If Yes, continue while recording conversation:

1. What was your overall impression of the focus group?
    A. Have any of your opinions regarding voice and communication changed in any way?
    B. Do you have any additional thoughts about how professionals could assess the vocal situation of transmasculine people?
    C. On a scale of 1-5, how comfortable did you feel sharing your opinions/experiences during the focus group? (with 1=Very uncomfortable and 5=Very comfortable)?

    Very uncomfortable 1 2 3 4 5 *Very comfortable*

2. [If elaboration is needed regarding specific quote from the participant during either focus group, specific quote may be reiterated for further reflection.]
3. Is there anything that you feel was not mentioned during either focus group?
4. Do you have any questions for us?

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Appendix G

Proposed VCSQ^{AFAB}

	Please describe	Is this an important aspect of your identity? (yes/no)	Is this an aspect of your identity you would like to communicate to others? (yes/no)
How you define your gender			
How others perceive your gender			
How others refer to you/address you (pronouns)			
Chronological age			
Age you feel			
Age others perceive you as			
Sexual orientation			
Relationship status			
(Sub-)cultural affiliations/race/ethnicity			
Languages spoken			
Place of residence			
Religion / faith			
Health/well-being status			
Highest level of education			
Profession / occupation			
Family role (parent, etc.)			
Important hobbies			
Queer Visibility			
Any other aspects?			

DRAFT

Consider the **last two weeks.** **How often** did you have **difficulty** with the following? Please star items you are unsure about, so the clinician can discuss with you.	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

1. Speaking with a loud voice	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

2. Speaking with a clear voice (not hoarse)	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

3. Speaking with high enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

4. Speaking with low enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

5. Singing with high enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

6. Singing with low enough pitch	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

7. Speaking with a variable speech melody (i.e., speaking with enough pitch variation)	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

8. Speaking with a stable voice (i.e., speaking without voice breaking/cracking)	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

9. My voice getting tired after talking a long time	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

10. Breathing while I speak	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

11. Pain or discomfort from muscle tension in the upper part of the body	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

12. Having aligned posture when I sit or stand, not slouched	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

13. Using or controlling my voice as I need to	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** **How often did your VOICE make it difficult for you to present your…** Feel free to star or circle items which you feel are dependent on context (e.g., being at work/school, being around family/friends) and leave comments in the space below.	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

14. Self-identified gender	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

15. Age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

16. Health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

17. Cultural affiliation/ race/ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

18. Sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

19. Education/profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

20. Religion/faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** **How often did your BODY/APPEARANCE make it difficult for you to present your…** Feel free to star or circle items which you feel are dependent on context (e.g., being at work/school, being around family/friends) and leave comments in the space below.	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

21. Self-identified gender	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

22. Age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

23. Health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

24. Cultural affiliation/Race/Ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

25. Sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

26. Education/Profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

27. Religion/Faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** When I speak over the phone/internet, where **people only hear my voice**, I think they misunderstand my… Feel free to star or circle items which you feel are dependent on context (e.g., being at work/school, being around family/friends) and leave comments in the space below.	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

28. Self-identified gender	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

29. Age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

30. Health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

31. Cultural affiliation/Race/Ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

32. Sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

33. Education/Profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

34. Religion/Faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.** When I speak face-to-face, and people **hear my voice AND see my body/appearance**, I think they misunderstand my…	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

35. Self-identified gender	0 1 2 3 4 5 6 7 8 9 10
…and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

36. Age	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

37. Health and well-being	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

38. Cultural affiliation/Race/Ethnicity	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

39. Sexual orientation	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

40. Education/Profession	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

41. Religion/Faith	0 1 2 3 4 5 6 7 8 9 10
and this is a problem for me	0 1 2 3 4 5 6 7 8 9 10

Consider the **last two weeks.**	**0 = Never** **3= Sometimes** **7= Often** **10= Always**

42. I am dissatisfied with my voice	0 1 2 3 4 5 6 7 8 9 10
43. I wish my voice sounded differently	0 1 2 3 4 5 6 7 8 9 10
44. My voice distresses me	0 1 2 3 4 5 6 7 8 9 10

Does your voice cause other difficulties that are of concern to you? Please list them here:

What helps your wellbeing? Check all that apply:

☐ Mindfulness
☐ Positive Mindset Strategies
☐ Time passing since presentation changes
☐ Showing pride through queer visiblility
☐ Acceptance by friends
☐ Acceptance by the gender diverse community
☐ Acceptance in school/work
☐ Acceptance by others
☐ Acceptance by family
☐ Speech therapy or voice training
☐ Hormone therapy
☐ Self-compassion strategies
☐ Concealment strategies

Does anything else help your wellbeing? Please list here: