Clinical Focus

Transgender and Nonbinary Adolescents: The Role of Voice and Communication Therapy

Meredith R. Russell\(^a\) and Mere Abrams\(^a\)

Purpose: Current literature to describe the role of voice and communication therapy in gender-affirming interdisciplinary care for transgender and nonbinary adolescents is very limited. As a result, professionals providing voice and communication therapy are not always integrated into gender clinics and treatment plans for patients seeking gender-affirming care. Using case studies to demonstrate the complexity and nuance of gender-affirming care, this clinical focus article provides education about gender identity, gender expression, and gender roles as well as rationale and outcomes for voice and communication therapy with transgender and nonbinary adolescents.

Conclusion: An interdisciplinary and gender-affirming approach is critical for adolescent voice and speech therapy success. Given the state of transgender health care and need for evidence-based interventions, this clinical focus article addresses gaps in training and research by recommending an interdisciplinary and culturally responsive approach to voice and communication therapy with transgender and nonbinary adolescents.

Gender

Gender is an important component of core identity, and adolescence is a dynamic time of gender exploration and consolidation. Adolescents who experience a discrepancy between their authentic gender identity and their perceived sex may experience dysphoria, distress, or discrimination. As a result, access to comprehensive gender-affirming care can improve their health and quality of life. While the focus has been on gender-affirming medications and surgeries, access to a full panel of social, psychological, medical, and legal services is critical to supporting an adolescent’s gender identity and expression. As part of a multidisciplinary team, speech and language therapists (SLTs) can assist adolescents to develop voice and communication that better reflect their experienced gender. Similar to adults, the evaluation and treatment of adolescents requires consideration of gender identity, gender expression, client goals, current voice and communication parameters, social environment, and gender-affirming medication history. In contrast to adults, the evaluation and treatment of transgender adolescents requires particular attention to pubertal stage at initial presentation, overall developmental stage, and ability to access care. Collaborating with a multidisciplinary team enables SLTs to affirm gender identity and equip adolescents to express their authentic self.

Gender Identity

Gender identity refers to a person’s fundamental internal sense of self as female, male, some combination or both female and male, neither female nor male, or something else altogether. In contrast, a person’s sex refers to a person’s biological and physical characteristics such external genitalia, internal reproductive structures, and sex chromosomes and is typically assigned at birth. Cisgender identity refers to a gender identity that is congruent with assigned sex, whereas trans or transgender identity refers to a gender identity different than assigned sex at birth. The terms trans and transgender have been used to describe the latter and have been defined differently by the American Psychiatric Association (APA) and by the World Professional Association for Transgender Health (WPATH). According to the APA, transgender refers to a person who transiently or persistently identifies with a gender different from their assigned sex (APA, 2013).

Disclosures

Financial: Meredith R. Russell has no relevant financial interests to disclose. Mere Abrams has no relevant financial interests to disclose.
Nonfinancial: Meredith R. Russell has no relevant nonfinancial interests to disclose. Mere Abrams has no relevant nonfinancial interests to disclose.
Similarly, WPATH Standards of Care use transgender to describe “a diverse group of individuals who cross or transcend culturally defined categories of gender” (Coleman et al., 2012). Both definitions include both binary (male or female) and nonbinary (not exclusively male or female) identities, acknowledging that gender identity is a spectrum and individual experiences of gender are diverse and varied.

A person’s gender includes gender identity and their relationship to their body, appearance, gender roles, gender norms, and gender stereotypes. Gender roles include the stereotypical behaviors that signal a person’s gender, often referred to as masculine or feminine, and include verbal and nonverbal communications. Characteristics such as body type, hairstyle, clothing style, peer relationships, and activity preference impact a person's ability to affirm their gender both individually and in society (Hancock & Helenius, 2012). By consulting with other providers on the treatment team, SLTs gain access to important history and context for considering relevant communication factors for transgender adolescents. These communication factors often include both verbal (voice pitch, resonance, vocabulary, intonation) and nonverbal (posture, gestures, social pragmatics, and proxemics) behaviors (Hancock & Helenius, 2012) and are important components to consider when thinking about congruence related to gender roles, gender expression, and gender identity. Therefore, voice and communication interventions by SLTs can significantly increase comfort in gender identity, gender roles, and gender expression and improve mental health and quality of life (Gelfer & Van Dong, 2013; Hancock & Garabedian, 2013; Hancock, Krisssinger, & Owen, 2011).

Gender dysphoria is a diagnosis related to distress and/or impaired functioning due to the incongruence between one’s gender identity and the assigned sex at birth (American Psychiatric Association, 2013; Fisk, 1974; Knudson, De Cuypere, & Bockting, 2010). However, not all adolescents have gender dysphoria, and transgender or nonbinary identities and gender-nonconforming presentations are a naturally occurring, culturally diverse set of human experiences and not a disorder. Unfortunately, there is stigma attached to trans, nonbinary, and gender-nonconforming experiences, leading to discrimination and prejudice. Minority stress theory postulates that this chronic social stress related to the stigma associated with having a marginalized identity leads to distress and has a negative impact on health (Hendricks & Testa, 2012; Katz-Wise et al., 2017; Meyer, 2003). In fact, several studies on the mental health and function of transgender youth consistently result in higher rates of depression, anxiety, suicidality, and poor function compared to cisgender youth (Bouman et al., 2017; Katz-Wise et al., 2017; Millet, Longworth, & Arcelus, 2017; Perez-Brumer, Hatzenbuehler, Oldenburg, & Bockting, 2015; Tebbe & Moradi, 2016; Warren, Smalley, & Barefoot, 2016). However, access to gender-affirming environments and care can improve gender dysphoria and mental health and function outcomes (de Vries et al., 2014; Durwood, McLaughlin, & Olson, 2017; Travers, Bauer, & Pyne, 2012).

**Gender Identity Development**

Adolescence is a time of dramatic psychosocial and physiological development, and this has a profound impact on a person’s gender identity, gender expression, and gender role. Classic gender identity theory includes models that describe stages of childhood development (Katz-Wise et al., 2017; Martin, Ruble, & Szkybalo, 2004). For example, Kohlberg’s (1966) classic stage theory of gender development proposed that children can identify their gender by the age of 2 years, understand that their gender is stable over time by the age of 4 years, and understand their gender to be constant and independent of external factors by 7 years of age (Katz-Wise et al., 2017). Some children as young as 2 years of age may exhibit symptoms of gender dysphoria, but this dysphoria will disappear by puberty in the majority of children (Rosenthal, 2014). Furthermore, many adolescents (and adults) who identify as trans or transgender have no history of childhood gender nonconformity (Landén, Wålinder, Hambert, & Lundstöm, 1998; WPATH, 2011).

Recent models of children and adolescent gender identity development propose that gender identity development is a nonlinear transactional process between individuals and caregivers and is inexorably linked to the biological process of puberty (Katz-Wise et al., 2017). Puberty can intensify gender dysphoria as secondary sex characteristics can emphasize the discrepancy between gender identity and assigned sex at birth (Hembree et al., 2017). In addition, adolescence and puberty have a profound effect on voice, which is critical in expressing authentic self and affects the way an individual’s gender is perceived. It is during this time that the vocal folds increase most rapidly and dramatically (Hancock & Helenius, 2012; Van Gelder, 1974), leading to voice changes that may become a source of gender dysphoria or be incongruent with gender identity or gender expression. For example, Kahane (1978) found that the physical growth of the speech mechanism increases between 10 and 16 years by 62% in males and 34% in females. Others have found that the vocal folds, or the portion most responsible for pitch differences, continue to increase until about 20 years of age. This suggests that voice feminization interventions for adolescents should continue until young adulthood, when the vocal fold length is stable.

**Gender-Affirming Health Care**

Treatment of adolescent gender dysphoria/incongruence is outlined in the Hembree et al. (2017) “Endocrine Treatment of Gender-Dysphoric/Gender-Incongruent Persons” guideline and the WPATH (2011) Standards of Care Version 7. Both guidelines describe the gender-affirmative model of care, or the process of having one’s authentic gender affirmed and recognized across the social, psychological, medical, and legal domains (Wylie et al., 2016). Medical interventions include primary care, hormone medications, fertility options, and voice and communication therapies. Timely access to medication treatments
has a significant impact on future voice and communication needs, especially for transgender females. Providing gender-affirming services, including voice and communication therapy via telehealth, can help address the challenges and obstacles many transgender and nonbinary adolescents encounter when attempting to access care in their local communities.

According to the Endocrine Society (2017) guidelines, adolescents who meet eligibility criteria can be treated with gonadotropin-releasing hormone agonists, which block the secretion of pubertal levels of luteinizing and follicle-stimulating hormones from the pituitary gland, thereby suppressing rising estrogen or testosterone and the progression of secondary sex characteristics. If started early in puberty (sexual maturity rating Stage 2), then this prevents the lowering of pitch for transgender females. Hormone replacement therapy (HRT) can be initiated at 16 years of age or earlier, depending on the individual’s need as evaluated by medical and mental health providers. While testosterone HRT will lower the voice pitch for transgender males, estrogen HRT does not have a significant impact on pitch. As a result, adolescent transgender females who start medical treatment after early puberty when their voice pitch has lowered may benefit tremendously from voice and communication therapy. While testosterone therapy lowers voice in those assigned female at birth, testosterone therapy alone is not always sufficient in treating gender dysphoria related to voice. Transgender males who wish to speak at a pitch or in a tone that conforms with the norms and stereotypes observed in cisgender males may also benefit from voice and communication therapy.

SLTs are an important component of the multidisciplinary care team because they help clients communicate in a way that is both safe and authentic (WPATH, 2011). The overall goal of voice and communication therapy is to help clients adapt their voice and communication patterns in a way that is congruent with their gender identity or gender expression, enabling them to express authentic self, reduce gender dysphoria, and improve mental health and quality of life (Hancock & Garabedian, 2013; Hancock et al., 2011). In order to meet this goal, SLTs should work in collaboration with a multidisciplinary team of gender specialists to discuss the physical, hormonal, social, and mental health factors that influence voice and communication, as well as the adolescent’s self-perception and goals. This enables the SLT to develop a more comprehensive voice and communication treatment plan informed by research and clinical expertise across disciplines and the adolescent’s goals and values (American Speech-Language-Hearing Association, 2011; WPATH, 2011). Treatment teams should address whether or not adolescents are engaging in nonhabitual use of the voice production mechanism in an effort to masculinize, feminize, or neutralize the voice, which could not only lead to vocal damage if continued long term but also be an important aspect of their safety and presentation. Therefore, the treatment plan should consider and affirm the ways this behavior is protective alongside proposed interventions that help prevent future vocal damage (WPATH, 2011). Finally, the voice and communication treatment efficacy should be evaluated by the multidisciplinary team during the therapy to ensure that the adolescent has realistic expectations and goals are met.

**Adolescent Voice Feminization**

**Case 1: J. C.**

J. C. is a 16-year-old transgender female presenting for voice feminization therapy. She reports feeling early age gender nonconformity but had a gender-neutral expression due to concern for social stigmatization from peers and adults in her rural, socially conservative community in California. However, pubertal onset at the age of 12 years resulted in severe gender dysphoria and associated depression and anxiety. She came out as female to her parents at the age of 14 years, and they were ultimately supportive of her desire for social and medical transition with family therapy. By the time she accessed care and started puberty blockers and estradiol, she was in sexual maturity rating Stage 4 puberty with a deepened voice and increased laryngeal prominence. She gradually gained confidence with culturally feminine hair and clothing styles and increasing satisfaction with the body changes resulting from 1 year of estradiol therapy. She recently transferred to a new high school, where no one knows of her gender history. J. C. reports that her voice is not reflective of her true self and she is concerned about being “outed” and “bullied” at school. She hopes that voice feminization therapy will help her express her authentic gender and increase safety in her community.

WPATH’s (2015) “Voice and Communication Change for Gender Nonconforming Individuals: Giving Voice to the Person Inside” guides the evaluation and treatment of gender-nonconforming clients seeking to better communicate their authentic self (Davis, Papp, & Antoni, 2015). While not focused on adolescents, many of the principles can be applied. When embarking on a voice feminization treatment path, a consultation with the primary care provider, endocrinologist, or mental health professional who is also involved in treatment can help to inform the evaluation of the history and clinical assessment of speech and voice (Adler, Hirsch, & Mordaunt, 2012; Davis et al., 2015). Discussing gender history, pubertal history, and sociocultural history with providers prior to an initial consult can help build rapport and prevent the adolescent from having to discuss uncomfortable or sensitive topics that are relevant to, but not the focus of, treatment. This collaborative approach can help center the SLT’s treatment plan around the client’s gender identity, impact of testosterone on voice, severity of gender dysphoria both in gender and specifically as it relates to voice, and perceived gender. Although many of the current guidelines require that adolescents reach the age of majority before having bottom surgery, such as a phalloplasty or vaginoplasty, some adolescents have hopes of having those surgical procedures to affirm gender and decrease
genital dysphoria. With these adolescents, voice and communication therapy is a vital component and primary intervention that supports the management of gender dysphoria and progress toward gender affirmation.

While adolescents may not have engaged in voice misuse for years in an attempt to feminize, they may be engaging in strategies that can damage the vocal apparatus or have pre-existing voice disorders. The adolescent may be involved in singing/acting or participate in activities with public speech such as debate teams. The medical history can reveal disorders such as asthma or physical trauma that may impact speech and communication. History of gender-affirming medications is useful in determining hormonal factors influencing voice. While estrogen will not feminize the voice, the adolescent may experience changes to their emotions and self-perception, altering the ways in which she communicates. Puberty blockers (gonadotropin-releasing hormone agonists) or androgen receptor blockers started early in puberty will prevent the lowering of pitch, and they will stop progression if initiated before completion of puberty. By communicating with other providers on the multidisciplinary treatment team, SLTs can develop a thorough understanding of the sociocultural and medical history of the adolescent that is a critical part of evaluating the factors that impact voice and communication.

Before developing a treatment plan, a clinical evaluation of speech and voice parameters associated with gender is required. This includes the adolescent’s subjective assessment, as well as formal evaluations examining the acoustic elements pertinent to gender. By gaining an understanding of how they and others perceive their voice when communicating, how well their voice expresses their true self, and any safety issues or concerns, the treatment plan can be tailored to address and prioritize each individual’s specific needs and goals. It is important to discuss the young person’s opportunities for communication. Some transgender adolescents may be communicating with peers primarily online if they are doing independent study for school, or they may be participating in lesbian, gay, bisexual, transgender, and queer student organizations or support groups, which may provide an accepting environment to practice voice techniques. In addition, questions about previous efforts to alter voice can be helpful. Inquiring about specific things they would like to change about their voice to better reflect their sense of self provides insight into the adolescent’s goals. Finally, a formal evaluation using “The Transsexual Voice Questionnaire” can be used to evaluate the self-perception of voice and how well it functions in the real world (Dacakis, Davies, Oates, Douglas, & Johnston, 2013). While not validated for the adolescent population, it provides a tool for both the pretreatment and outcome evaluation of voice.

Once the subjective evaluation is complete, a detailed acoustic analysis of the parameters of speech and voice relevant to gender is required in order to develop an effective treatment plan. Communicating the findings and proposed treatment plan to the multidisciplinary treatment team involved in the youth’s care allows voice and communication practices and goals to become easily integrated into conversations and care the adolescent receives from other providers. SLTs can inform other providers about key information and relevant research findings such as frequency range transgender females must speak at in order to be perceived as female (Gelfer & Schofield, 2000). This can be considered a gender-neutral range. While pitch elevation is often considered the most important factor in voice feminization, alteration of fundamental frequency alone is not sufficient to achieve the perception of feminine voice and communication (Hancock & Helenius, 2012). In addition, SLTs can explain that females typically have higher vowel formant frequencies than males, which corresponds to a shorter vocal tract and open articulatory posture. Offering other providers on the care team the opportunity to better understand the ways upward gliding infections are more feminine compared to flatter, masculine speaking patterns improves their knowledge of this important aspect of gender care (Davies, Papp, & Antoni, 2015). Working with mental health providers to facilitate conversations about why feminine voice quality has also been described as more breathy and soft, with the articulation more precise, helps the adolescent understand the socio-cultural factors that guide voice and communication therapy. Examples include conversations about the underlying reasons why female voice intensity is generally quieter compared to men and how nonverbal communication (posture and hand gestures) influences the perception of femininity (Hancock & Helenius, 2012).

The treatment plan should always include collaboration with other providers, the adolescent’s goals and expectations, and informal and formal evaluations of speech and voice. This allows it to be adjusted based on the adolescent’s progress in other areas of gender care, readiness for change, and resources. Working with the multidisciplinary treatment team to manage expectations helps adolescents and families understand that feminization can be a lengthy process requiring considerable effort and opportunities to practice the skills. Exploring the extent to which this adolescent may not be ready to commit to this process once educated about the treatment options, or they may be socially isolated, thereby lacking a safe environment for practice, is critical. As a result, a successful treatment plan will account for these psychosocial factors and be flexible as re-evaluations reveal factors that necessitate adjustment.

WPATH’s (2015) Voice and Communication document summarizes the principles of the treatment plan (Davies et al., 2015). In addition, there are complete protocols for speech/voice feminization such as Voice and Communication Therapy for the Transgender/Transsexual Client: A Comprehensive Clinical Guide (Adler, Hirsh, & Mordaunt, 2012) and in Davies and Goldberg (2006). However, these protocols are not evidence based, and they are not focused on adolescents. They can be used to educate other providers on the treatment team and serve as a guideline to develop an adolescent-focused plan that includes the format, voice preparation strategies, and voice feminization techniques to help the client meet their goals.
Speaking with other providers about positive and challenging interactions with both the adolescent and family can help the SLT design the treatment plan’s overall format. Treatment format can include individual, family, and/or group sessions. Adolescents may particularly benefit from peer group sessions since peer influence can be motivating and can create an environment of safety for practice. However, some adolescents may have social anxiety and prefer initial practice during online chats with peers or video visits with clinicians. In addition, language and discourse pragmatics (e.g., slang) and nonverbal communication can be incorporated into the treatment plan. However, social stereotypes about gender norms and language evolve over time and depend on the age of the client and community sociocultural context. As a result, it is beneficial for both the SLT and mental health or primary care providers to facilitate conversations that provide insight into the adolescent’s observations about gender markers in their context, while helping the client sort gender stereotypes from observed behavior in their community. Together, these voice and communication strategies can help the adolescent express their authentic gender, improving mental health and safety.

The evaluation of J. C. revealed that she had a long-standing female gender identity, felt affirmed taking estrogen, but perceived that her voice did not adequately express her authentic gender. Due to her conservative social environment, she was also motivated for others to perceive her as female when communicating to avoid harassment. She previously participated in singing/theater but primarily communicates with online peers. J. C.’s goals include reducing voice strain, raising the pitch, and learning communication techniques to better express her female identity. The TVQ self-evaluation was administered to quantify voice self-perception, the s/z ratio test was administered to assess respiratory and phonatory efficiency, and an assessment of pitch and intensity was made using Praat measurement tools. Baseline evaluation resulted in evidence that J. C. produces sounds within a male pitch.

J. C.’s treatment plan included consultation with her other providers, individual sessions with clinic and video visits, and a monthly group visit with peers. The group visits included singing, which helped J. C. practice a feminine singing voice in preparation for returning to participation in high school theater. Techniques focusing on raising speaking fundamental frequency (SFF) and resonance, as well as practicing stereotypically adolescent female language and nonverbal communication behaviors, were integrated into the treatment plan. At treatment completion, both J. C.’s self-perception of the negative consequences of her voice decreased on interview and by transsexual voice questionnaire (TVQ) re-evaluation, and the objective measures resulted in voice and speech parameters in the female range. J. C. was counseled to return to clinic in 1 year for follow-up to evaluate whether change was sustained and to determine if further voice changes had occurred with development.

**Adolescent Voice Masculinization**

**Case 2: C. H.**

C. H. is a 15-year-old transgender male presenting for voice masculinization therapy. He reports having a nonbinary gender identity in childhood with a gender-neutral expression, often labeled a "tomboy." He began to feel increasing body dysphoria and anxiety after starting breast development, which increased dramatically with menarche at the age of 12 years. He came out as male to close peers and parents shortly after menarche, which was followed by a period of depression. His parents and school staff/peers were supportive of a social transition to male at 12.5 years of age, affirming his right to be referred to using the name and pronoun that reflects his identity. He is currently president of his school’s Gender and Sexualities Alliance (GSA) club. He has been binding his breasts daily for 3 years and has been taking testosterone hormone replacement for 1 year. He is planning chest masculinization surgery, but his insurance had denied coverage until he is 18 years of age. C. H. reports that he likes his deeper voice and facial/body hair but reports that his friends sometimes say the way he communicates is feminine. In addition, he is starting to date girls and wants to increase confidence and present his authentic self. C. H. is interested in learning techniques to align his communication with his male gender identity.

There is a scarcity of research on the evaluation and treatment of transgender males, especially for adolescents. Given that exogenous androgen therapy decreases the pitch in the first year of therapy, it has often been assumed that transgender males do not need voice and communication therapy. However, there may be a discrepancy between habitual and “passing” pitch, leading to gender dysphoria and poor mental health and function outcomes. There is substantial evidence that androgens in adolescent cisgender men, cisgender women with conditions causing hyperandrogenism, and transfeminine individuals who completed male puberty experience a permanent lower SFF (Davies et al., 2015). In addition, transmasculine adults who transitioned with testosterone have a substantial lowering of SFF (Adler, Constansis, & van Borsel, 2012). Yet, some transgender men continue to have problems being perceived as male after prolonged testosterone treatment when their optimal pitch base on their pitch floor or habitual pitch was in the masculine range (Davis et al., 2015). As a result, these clients would benefit from voice masculinization treatment.

The voice and communication evaluation and treatment of transgender males follow the same general principles outlined for transgender females or gender-nonconforming clients. Given the impact of testosterone therapy on SFF and maximum phonation range, particular attention should be paid to the length and degree of testosterone therapy. Testosterone therapy can lead to a temporary decrease in maximum phonation range, which is regained or even surpassed by 1 year of therapy (Papp, 2011). In addition, testosterone dose may influence SFF.
For example, subjects in Papp (2011) who took larger amounts of testosterone perceived that they demonstrated an increased hyperbolic SFF. This suggests that the speed, but not necessarily the magnitude of mean SFF, is influenced by the degree of testosterone exposure. However, this has not been confirmed with empirical data. Finally, the treatment must be evaluated and the plan must be adjusted as the adolescent males progress with testosterone therapy, since both their gender identity and voice and communication parameters may evolve over time.

C. H. has a male gender identity and has been on testosterone for 1 year. His current dose is within normal limits for a 15-year-old male. C. H. wears a breast binder daily and complains of shortness of breath with physical education and intermittent chest pain. He has a supportive environment and regular opportunities for communication at school and during GSA club activities. His wants to learn techniques to communicate in a more masculine manner to increase comfort with peers and confidence with dating. TVQ results indicated that his voice often impacts his social interaction, emotion, and gender identity, while the effort, physical aspects, and pitch rarely impact his quality of life. His speaking SFF is in the normal male range (110 Hz).

The initial stages of treatment included consultation with C. H.’s other providers; conversation with C. H. to gain an understanding about his gender identity and gender expression; and introduction to techniques aimed at optimizing pitch, resonance, language pragmatics, and nonverbal communication. He continued practice with peers and staff at school and with friends in the GSA. Education about chest binding was done, and the phonation intensity and spirometry values improved after a properly fitting binder was utilized. At treatment completion, C. H.’s perceived voice and communication more effectively reflected his gender identity and expression as measured by interview, and the negative effects of voice on quality of life reduced as measured by the TVQ. Participating in continued consultation with the treatment team and suggesting patient follow-up in 1 year help evaluate whether the changes were sustained and whether further development and time on testosterone impacted C. H.’s voice experience and goals.

Nonbinary Voice Therapy

Case 3: S. M.

S. M. is a 14-year-old assigned female at birth who has a nonbinary gender identity and prefers they/them pronouns. They are interested in voice and communication therapy to better reflect their gender identity, which they describe as fluid and masculine. Parents recall that S. M. played with all toys and did not always adhere to traditional gender norms or stereotypes related to peers, colors, and clothing. The home, school, and community members have been overall supportive of S. M.’s gender identity, using their chosen name consistently, though S. M. reports people struggle and make mistake with their pronouns. Their physical and mental health has been excellent. Menarche occurred at 12.5 years of age, and the establishment of regular menses resulted in monthly distress and anxiety. They started continuous oral contraceptive pills at the age of 13 years to reduce gender dysphoria related to menses, which resolved much of their distress. S. M. experiences significant dysphoria around their voice being perceived as “girly” or “too feminine” but is not interested in starting testosterone at this time. They hope to learn techniques that will result in a gender-neutral to gender-masculine voice that conveys their authentic nonbinary gender.

Historically, individuals with nonbinary gender identities have been relatively invisible in the literature. As the complexity of gender identity has been increasingly recognized, researchers are collecting data on adults and youth with a diversity of gender identities in an effort to improve access to gender-affirmative care. For example, Papp (2012) and Zimman (2012) results of transmasculine adults’ vocal transitioning suggest that many transgender men view gender along a spectrum rather than as a binary construct, and their voice and communication goals include a desire to move toward the masculine end of the spectrum, while still maintaining fluidity that can be adjusted depending on context. Similarly, research of adolescents is revealing diverse gender identities. Olson, Schrag, Belzer, Simons, and Clark (2015) described baseline characteristics of 101 aged 12–24 years in a prospective study of transgender youth seeking care for gender dysphoria at a large urban clinic and found that 10 identified their gender as nonbinary. As a result, voice and communication evaluation requires particular attention to the complexity of gender identity, and assumptions cannot be made that the individual’s goals are to “switch” from one vocal gender category to another. Some transmasculine nonbinary patients may pursue HRT in addition to voice therapy, while others may want voice changes but do not want other physical changes associated with testosterone such as increased body hair or balding. Many nonbinary patients do not identify as exclusively male or female; therefore, it is important to use gender-inclusive terms such as masculine, feminine, or affirming, as opposed to male or female, to describe pitch, tone, and desired outcomes. Current methods of evaluation such as the TVQ may be inadequate to accurately define the nonbinary experience, and current treatment strategies may require adjustment to successfully meet the adolescent’s goals.

The treatment plan for S. M. included an initial session aimed at understanding S. M.’s relationship to gender roles and gender expression, which S. M. described as a combination of masculine and feminine. S. M. articulated the desire to speak more “like a guy” without the use of testosterone. Following treatment sessions included education for S. M. on the treatment options and their anticipated outcomes given S. M. does not have the desire to use testosterone treatment to lower pitch. S. M.’s treatment plan included education about vocal health, as well as
nonverbal forms of communication and pragmatics. Strategies to lower pitch without causing long-term damage or harm were also explored. S. M. reported that daily practice at home with family increased confidence in their voice and gender expression in social situations at school and with peers. At treatment completion, S. M. stated their voice and communication more effectively conveyed their nonbinary gender, though the pitch was sometimes still perceived as female. Outcomes were measured by interview, and the negative effects of voice on quality of life reduced as measured by the TVQ. Consultation with S. M.’s other providers and annual follow-up were implemented to explore any changes in treatment goals and evaluate vocal health and whether changes were sustained over time.

Outcomes

Research on the outcomes of adolescent voice and communication therapy is scarce and focused on voice feminization therapy. Hancock and Helenius (2012) described a case study of a 14-year-old transfeminine adolescent diagnosed with gender dysphoria who presented for care in late, Tanner 4 stage puberty. She began hormone therapy with estradiol and spironolactone shortly after socially transitioning to female. She presented for voice and communication therapy at the age of 15 years after completing her first year of high school. She used her lower voice the majority of time and produced a higher pitched feminine voice during social outings with friends. Her goal was to learn techniques to better reflect her female gender identity. After receiving 15 sessions of voice therapy over 7 months in which there are techniques to improve vocal health, oral resonance, intonation, pitch, voice quality, rate, generalization, and stabilization, results showed a positive change in the adolescent’s self-perception of voice as measured by the Transgender Self-Evaluation Questionnaire (Davies & Goldberg, 2006). In addition, measures of mean SFF, frequency range, and resonance resulted in improvement, and the clinician and recruited listener perceptions resulted in a change in voice quality from masculine to feminine. The researchers concluded that standard voice and communication therapy can be effective for transgender female adolescents.

Future Research

Given the lack of validated adolescent measures and protocols for voice and communication therapy, future research is needed to develop evidence-based practice. Adolescence can be a time of rapid development, and this may exert a tremendous influence on gender identity and treatment goals. Adolescents may be more amenable to voice therapy given their developmental stage and relative voice health to adults. In addition, adolescents present for care having experienced various stages of endogenous puberty and hormone treatment exposure. This influences the voice mechanism and perception of voice on quality of life. As a result, the evaluation must include these parameters, and the treatment plan must be adjusted to account for these dynamic factors. Furthermore, parents, guardians, teachers, peers, and others in the social environment can have a tremendous impact on adolescent gender identity, as well as the treatment goals. An interdisciplinary and gender-affirming approach is critical for adolescent voice and speech therapy success. Finally, adolescents with non-binary gender identities need to be included in research, as their voice experiences and goals may differ from binary transgender individuals. An understanding of gender diversity is critical for improving access to inclusive health care for nonbinary people (Frohard-Dourlent, Dobson, Clark, Doull, & Saewyc, 2016). As culture evolves to accept diverse gender identities and expressions, voice and communication therapy must evolve too in order to best support gender diversity.

References

Adler, R. K., Constansisis, A. N., & van Borsel, J. (2012). Female-to-male considerations. In R. K. Adler, S. Hirsch, & M. Mordaunt (Eds.), Voice and communication therapy for the transgender/transsexual client: A comprehensive clinical guide (2nd ed., pp. 153–187). San Diego, CA: Plural.

Adler, R. K., Hirsch, S., & Mordaunt, M. (Eds.). (2012). Voice and communication therapy for the transgender/transsexual client: A comprehensive clinical guide (2nd ed.). San Diego, CA: Plural.

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Arlington, VA: American Psychiatric Publishing.

American Speech-Language-Hearing Association. (2011). Scope of practice. Retrieved from http://www.asha.org

Bouman, W. P., Claes, L., Brewin, N., Crawford, J. R., Millet, N., Fernandez-Aranda, F., & Arcelus, J. (2017). Transgender and anxiety: A comparative study between transgender people and the general population. International Journal of Transgenderism, 18, 16–26.

Coleman, E., Bockting, W., Botzer, M., Cohen-Kettenis, P., DeCupere, G., Feldman, J., … Zucker, K. (2012). Standards of care for the health of transsexual, transgender and gender-nonconforming people, version 7. International Journal of Transgenderism, 13(4), 165–232.

Dacakis, G., Davies, S., Oates, J. M., Douglas, J. M., & Johnston, J. R. (2013). Development and preliminary evaluation of the transsexual voice questionnaire for male-to-female transsexuals. Journal of Voice, 27(3), 312–320.

Davies, S., & Goldberg, J. M. (2006). Clinical aspects of transgender speech feminization and masculinization. International Journal of Transgenderism, 9(3–4), 167–196.

Davies, S., Papp, V. G., & Antoni, C. (2015). Voice and communication change or gender nonconforming individuals: Giving voice to the person inside. International Journal of Transgenderism, 16(3), 117–159.

de Vries, A. L. C., McGuire, J. K., Steensma, T. D., Wagenaar, E. C. F., Doreleijers, T. A. H., & Cohen-Kettenis, P. T. (2014). Young adult psychological outcome after puberty suppression and gender reassignment. Pediatrics, 134(4), 1–9.

Durwood, L., McLaughlin, K. A., & Olson, K. R. (2017). Mental health and self-worth in socially transitioned transgender youth. Journal of the American Academy of Child and Adolescent...
Perspectives of the ASHA Special Interest Groups  

SIG 3 Voice and Upper Airway Disorders

Psychiatry, 56(2), 116–123. https://doi.org/10.1016/j.jaac.2016.10.016

Fisk, N. (1974). Gender dysphoria syndrome. Western Journal of Medicine, 120(5), 386–391.

Frohard-Dourlent, H., Dobson, S., Clark, B. A., Doull, M., & Saewyc, E. M. (2016). “I would have preferred more options”: Accounting for non-binary youth in health research. Nursing Inquiry, 24(1). https://doi.org/10.1111/ni.12150

Gelfer, M. P., & Schofield, K. J. (2000). Comparison of acoustic and perceptual measures of voice in male-to-female transsexuals perceived as female versus those perceived as male. Journal of Voice, 14(1), 22–33.

Gelfer, M. P., & Van Dong, B. R. (2013). A preliminary study on the use of vocal function exercises to improve voice in male-to-female transgender clients. Journal of Voice, 27(3), 321–334.

Hancock, A. B., & Garabedian, L. M. (2013). Transgender voice and communication treatment: A retrospective chart review of 25 cases. International Journal of Language & Communication Disorders, 48(1), 54–65.

Hancock, A. B., & Helenius, L. (2012). Adolescent male-to-female transgender voice and communication therapy. Journal of Communication Disorders, 45, 313–324.

Hancock, A. B., Krissinger, J., & Owen, K. (2011). Voice perceptions and quality of life of transgender people. Journal of Voice, 25(5), 553–558.

Hembree, W. C., Cohen-Kettenis, P. T., Gooren, L., Hannema, S. E., Meyer, W. J., Murad, M. H., ... T’Sjoen, G. G. (2017). Endocrine treatment of gender dysphoric/gender-incongruent persons: An Endocrine Society clinical practice guideline. Journal of Endocrinology and Metabolism, 102(11), 3869–3903.

Hendricks, M. L., & Testa, R. J. (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. Professional Psychology: Research and Practice, 43(5), 460–467. https://doi.org/10.1037/a0029597

Katz-Wise, S. L., Budge, S. L., Fugate, E., Flanagan, K., Toulomtzis, C., Rood, B., ... Leibowitz, S. (2017). Transactional pathways of transgender identity development in transgender and gender-nonconforming youth and caregivers from the Trans Youth Family Study. International Journal of Transgenderism, 18(3), 243–263.

Knudson, G., De Cuypere, G., & Bockting, W. (2010). Recommendations for revision of the DSM diagnosis of gender identity disorders: Consensus statement of the World Professional Association for Transgender Health. International Journal of Transgenderism, 12(2), 115–118.

Kahane, J. (1978). A morphological study of the human prepubertal and pubertal larynx. American Journal of Anatomy, 151, 11–19.

Kohlberg, L. A. (1966). A cognitive-developmental analysis of children’s sex role concepts and attitudes. In E. E. Maccoby (Ed.), The development of sex differences (pp. 82–173). Stanford, CA: Stanford University Press.

Landén, M., Wålinder, J., Hamberg, G., & Lundstöm, B. (1998). Factors predictive of regret in sex reassignment. Acta Psychiatrica Scandinavica, 97, 284–289.

Martin, C. L., Ruble, D. N., & Szkietylo, J. (2004). Recognizing the centrality of gender identity and stereotype knowledge in gender development and moving toward theoretical integration: Reply to Bandura and Bussey (2004). Psychological Bulletin, 130(5), 702–710. https://doi.org/10.1037/0033-2909.130.5.702

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. Psychological Bulletin, 129(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

Millet, N., Longworth, J., & Arcelus, J. (2017). Prevalence of anxiety symptoms and disorders in the transgender population: A systematic review of the literature. International Journal of Transgenderism, 18(1), 27–38. https://doi.org/10.1080/15532739.2016.1258353

Olson, J., Schrager, S. M., Belzer, M., Simons, L. K., & Clark, L. F. (2015). Baseline physiologic and psychosocial characteristics of transgender youth seeking care for gender dysphoria. Journal of Adolescent Health, 57, 374–380.

Papp, V. G. (2012). The female-to-male transsexual voice: Physiology vs. performance in production (Unpublished doctoral dissertation). Rice University, Houston, TX.

Perez-Brunner, A., Hatzenbuehler, M. L., Oldenburg, C. E., & Bockting, W. (2015). Individual- and structural-level risk factors for suicide attempts among transgender adults. Behavioral Medicine, 41(3), 164–171. https://doi.org/10.1080/08964289.2015.1028322

Rosenthal, S. M. (2014). Approach to the patient: Transgender youth: Endocrine considerations. Journal of Clinical Endocrinology and Metabolism, 99(12), 4379–4389.

Tebbe, E. A., & Moradi, B. (2016). Suicide risk in trans populations: An application of minority stress theory. Journal of Counseling Psychology, 63(5), 520–533. https://doi.org/10.1037/cou000152

Travers, R., Bauer, G., & Pyne, J. (2012). Impacts of strong parental support for trans youth: A report prepared for Children’s Aid Society of Toronto and Delisle Youth Services. Retrieved from http://transpulsetraining.ca/wp-content/uploads/2012/10/Impacts-of-Strong-Parental-Support-for-Trans-Youth-vFINAL.pdf

Van Gelder, L. (1974). Psychosomatic aspects of endocrine disorders of the voice. Journal of Communication Disorders, 7(3), 257–262.

Warren, J. C., Smalley, K. B., & Barefoot, K. N. (2016). Psychological well-being among transgender and genderqueer individuals. International Journal of Transgenderism, 17(3–4), 114–123. https://doi.org/10.1080/15532739.2016.1216344

World Professional Association for Transgender Health. (2011). Standards of care for the health of transgender, transgender, and gender nonconforming people. (7th version). http://www.wpath.org

Wylie, K., Knudson, G., Khan, S. I., Bonierbale, M., Watanyusakul, S., & Baral, S. (2016). Serving transgender people: Clinical care considerations and service delivery models in transgender health. The Lancet, 388(10042), 401–411.

Zimmern, L. (2012). Voices in transition: Testosterone, transmasculininity, and the gendered voice among female-to-male transgender people (Unpublished doctoral dissertation). University of Colorado, Boulder, CO.