

Original Article

Vocal self-perception in Spanish-speaking Trans Women from Santiago: the first study in Chile

Carolina Orellana Venegas ^a, Fabiola Marín Garrido ^a, Luciana Daniela Muñoz ^{b, c, *}

^a *Speech and Language Therapy School, Faculty of Medicine, Universidad del Desarrollo - Clínica Alemana, Chile*

^b *UAPORRINO room, Chile*

^c *CESFAM [Family Health Center] Dr. Luis Ferrada Urzúa, Chile*

ABSTRACT

At an international level, it is recognized that transgender women experience psychosocial consequences daily due to their voice. In Chile, however, no background information can be found on this issue, making it necessary to collect data that allow verifying information from the international literature. Therefore, the objective of this work is to describe the vocal self-perception of a group of transgender women from the Metropolitan Region, according to the instrument Trans Woman Voice Questionnaire (TWVQ). For this, an observational, descriptive correlational, and cross-sectional study with a quantitative approach was carried out, which was approved by the Ethics Committee of the Faculty of Medicine - *Clínica Alemana Universidad del Desarrollo* (GP-70/2018). Thirty transgender women participated, responding first to a medical history questionnaire and then to the TWVQ. The latter was analyzed based on the total score as well as its three items (anxiety and avoidance, vocal function, and vocal identity). The results show that vocal self-perception is affected first by the vocal function item, second by the anxiety and avoidance item, and finally by the vocal identity item, according to perceived difficulty. The data also provide preliminary evidence that vocal self-perception could be associated with attendance to a voice specialist and with the length of hormone therapy. Finally, this study provides an empirical way to analyze the TWVQ in detail, based on the proposal of three items.

Keywords:

Vocal Self-perception;
Voice; Trans women;
TWVQ

Autopercepción de la voz en Mujeres Trans de la Región Metropolitana: primer estudio chileno

RESUMEN

A nivel internacional se reconoce que las mujeres transgénero, debido a su voz, experimentan diariamente consecuencias psicosociales. En Chile no se cuenta con antecedentes sobre esta temática, por lo que se requiere recabar información que permita constatar los antecedentes obtenidos en la literatura internacional. Por ello, el objetivo de este trabajo es describir la autopercepción de la voz de un grupo de mujeres transgénero de la Región Metropolitana, según el instrumento Trans Woman Voice Questionnaire (TWVQ). Para ello, se realizó un estudio observacional, descriptivo correlacional de corte transversal con enfoque cuantitativo, el cual fue aprobado por el Comité de Ética de la Facultad de Medicina – *Clínica Alemana Universidad del Desarrollo* (GP-70/2018). Participaron 30 mujeres transgénero que respondieron en primer lugar un cuestionario de antecedentes clínicos y luego el TWVQ. Este último se analizó en base al puntaje total y por sus tres ítems (ansiedad y evitación, función vocal e identidad vocal). Los resultados muestran que la autopercepción de la voz se ve afectada en primer lugar por el ítem de función vocal, posteriormente por el ítem de ansiedad y evitación y por último por el de identidad vocal, según la dificultad percibida. Los datos también proporcionan evidencia preliminar de que la autopercepción de la voz podría asociarse con la asistencia al especialista de la voz y con el tiempo de terapia hormonal cursado. Finalmente, el estudio proporciona una forma empírica de analizar detalladamente el TWVQ, en base a la propuesta de tres ítems.

Palabras clave:

Autopercepción de la voz;
Voz; Mujeres trans;
TWVQ

* *Corresponding Author:* Luciana Daniela Muñoz

E-mail: flga.lucianamunoz@gmail.com

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INTRODUCTION

The terminology for transgender people in the health care context is rapidly evolving, which implies a constant introduction of new terms and changes for existing definitions. The World Professional Association for Transgender Health (WPATH) is a multidisciplinary international organization that promotes care based on evidence, education, research, public policy, and respect for transgender health. Furthermore, it recognizes that there may exist differences according to culture, community, and context (WPATH, 2012). This article is framed within the definitions provided by the said association, which delivers a series of concepts that aim to enable quality health care for transgender people.

When talking about transgender people, it is necessary to be aware of terminologies such as gender identity, which refers to an internal perception of being a man, woman, or any other gender. It is argued that this may or may not correspond to the sex assigned at birth. The latter is determined according to the appearance of external genitals, chromosomal or hormonal sex. A transgender person is one whose gender identity differs in different degrees from the sex they were assigned at birth (WPATH, 2012). The National Educational Center for LGBTQIA+ Health [*Centro Educacional Nacional de la Salud LGBTQIA+*] (2020) complements this definition indicating that transgender people may frame their gender identity within a binary (feminine – masculine) or a non-binary structure. In addition, they indicate that it is allowed to use the abbreviation “trans” to refer to transgender people. In this way, a trans man is a person whose gender identity is masculine, a trans woman is a person whose gender identity is feminine, and a non-binary person is someone whose gender identity is not found within the dichotomy of feminine and masculine.

When the difference between gender identity and sex assigned at birth generates significant discomfort in a person, it is referred to as Gender Dysphoria (WPATH, 2012). It is important to mention that not all trans people suffer from gender dysphoria (Adler et al., 2019).

Another important concept to consider is gender expression, which refers to how a person communicates their gender identity through physical appearance, gestures, manner of speaking, and behavioral patterns in interaction with others. Communication, whether verbal or non-verbal, is an important aspect of human behavior and a part of gender expression.

A trans person could seek support from professional experts to accomplish a way of communicating that fits their gender identity.

In this context, the voice constitutes an important aspect for consultation (WPATH, 2012). In respect to this, the literature maintains that the main group who consult for vocal training are trans women, which is why more evidence can be found concerning this population (Davies et al., 2015).

Recommendations provided by the (WPATH, 2012) highlight the importance of voice specialists knowing and respecting the individual communication preferences of women who consult for vocal training. They also recommend not advising to adopt behaviors that take them away from their comfort and/or authenticity. They argue that the vocal training experience is enhanced by understanding the concerns and goals of trans women with regard to their voice. It is for this reason that the voice specialist should be aware of the vocal self-perception of trans women who want to start vocal training (WPATH, 2012).

Vocal self-perception is measured through a self-applied questionnaire. The information obtained provides important data for the vocal training process, since vocal self-perception may not correlate to acoustic-perceptual changes. Inconsistencies have been reported between measurements made by the voice specialist, the perception from listeners, and the communication of trans women. Therefore, the results of vocal self-perception help the professional to better appreciate the areas that are most problematic for trans women at the time of training (Dacakis et al., 2016a, 2016b; Geneid et al., 2015).

Other authors emphasize that a self-perception evaluation is important for the investigation of physiological difficulties, such as poor quality and restricted vocal range. These difficulties generate emotional afflictions, interpersonal difficulties both in the workplace and private life, and avoidance of social activities, among others (Hancock, 2016; Hardy et al., 2014). The World Health Organization (WHO) recognizes that these communicative aspects, especially those related to vocal function and the consequent restrictions in daily activities, could facilitate or complicate the quality of life of a trans woman, and because of this they pose the need for them to be considered both in the evaluation and in vocal training (Adler et al., 2019).

The Transsexual Voice Questionnaire Male to Female (TVQmtf) was created with the aim of assessing possible difficulties that trans women may present due to their voice. This questionnaire evaluates vocal self-perception in trans women (Dacakis et al., 2013, 2016b; Davies & Johnston, 2015).

During the same year, the authors changed its name from Transsexual Voice Questionnaire Male to Female to Trans Woman Voice Questionnaire (TWVQ), because they considered

that the terms “transsexual” and “man to woman” were no longer acceptable and may even be offensive. Additionally, they clarified that the modification does not compromise the validity of the questionnaire (La Trobe University, 2020). This article will use the name adopted in 2020 as a way of supporting said change (Trans Woman Voice Questionnaire o TWVQ).

Despite the obvious importance of knowing about self-perception evaluation in trans women, in our country no studies are found that explore this aspect. The consequence of this absence of information may imply that only the specialist’s opinion and evaluation are taken into account, without considering the input of the woman who is being trained. It is for this reason that the objective of this study is to describe the vocal self-perception in a group of women, using the TWVQ instrument.

METHOD

This is an observational, descriptive correlational, and cross-sectional study with a quantitative approach (Hernández Sampieri et al., 2014). It was approved by the (accredited) Ethics Committee of the Faculty of Medicine - *Clínica Alemana Universidad del Desarrollo* GP-70/2018.

Participants

The participants were 30 trans women of Chilean nationality residing in the city of Santiago, Metropolitan Region, with an average age of 28 years (minimum 18 years and maximum 57 years). 60% of them had completed high school education and the remaining 40% had a professional or technical level of education. None of them had a history of vocal surgery for pitch modification and/or chronic laryngeal, auditory, or respiratory pathologies diagnosed by an ear, nose, and throat specialist (ENT).

The selection was made using a non-probabilistic snowball sampling method. During the first contact three trans women were invited to participate through social media: Facebook and Instagram. After agreeing to be part of the sample, they helped to contact other women who met the inclusion criteria. Thus, 34 people were invited, of which 30 were willing to collaborate. All the participants signed an informed consent, where confidentiality and anonymity were ensured.

Instruments

Two instruments were applied. The first one was a medical history questionnaire, which gathers information related to gender transition, attendance, and duration of hormone therapy, gender

affirmation surgery, and attendance to a voice specialist. The second was the Trans Woman Voice Questionnaire [TWVQ], validated by Dacakis et al. (2016a). It has been translated into Spanish by Mora et al. (2018), with the name *Cuestionario de voz transexual de hombre a mujer*.

The TWVQ is structured in two sections. The first section consists of 30 questions that address the psychosocial consequences experienced daily by trans women concerning their voice, through a 4-point Likert scale with the following options: 1=never or rarely; 2=Sometimes; 3=Often, and 4= Frequently or always. It assigns a total score with a minimum of 30 and a maximum of 120 points. According to the instrument’s authors, the higher the score, the greater the perceived difficulties and psychosocial impact of the participant’s voice (Dacakis et al., 2016b).

Dacakis et al. (2016b) proposed two groups or items for detailed analysis: “Vocal Function” (14 questions) and “Social Participation” (12 questions), with the remaining 4 questions left uncategorized. For a better interpretation and report of results, the authors Bultynck et al. (2017) and Bultynck et al. (2020) applied a factor analysis to the first 30 questions, which allowed distributing them into 3 groups (Table 1). The *Anxiety and Avoidance* group is made up of questions about feeling anxious or uncomfortable in social or work contexts (11 questions, minimum score=11, maximum= 14). The *Vocal Identity* item includes questions about dissatisfaction due to vocal characteristics and the incongruency between gender identity and gender expression (8 questions; minimum score=8, maximum=32). Lastly, the *Vocal Function* item includes questions about vocal characteristics (11 questions; minimum score=11, maximum=44).

Table 1. Distribution of questions by item of the TWVQ.

Anxiety and Avoidance Item
I feel anxiety when I know I have to use my voice.
I avoid using the telephone due to my voice.
I feel tense when I talk to other people due to my voice.
I feel uncomfortable when I talk to friends, neighbors, and family due to my voice.
I avoid speaking in public due to my voice.
I feel frustrated when I try to change my voice.
My vocal difficulties restrict my social life.
My voice restricts the type of work I do.
I am less extroverted because of my voice.
I feel self-conscious because of the way strangers perceive my voice.

I feel discriminated against because of my voice.

Vocal Identity Item

My voice makes me feel less feminine than I would like.

The pitch of my voice is too low.

My voice is an obstacle to live as a woman.

My voice hinders being identified as a woman.

When I laugh I sound like a man.

My voice does not correspond to my physical aspect.

I feel that my voice does not reflect my 'real self'.

Being perceived as a man due to my voice distresses me.

Vocal Function Item

People have difficulties hearing me in noisy places.

The pitch of my voice is unpredictable.

My voice sounds rough, hoarse, or dry when I try to speak with a feminine voice.

The pitch of my voice does not vary enough when I speak.

My voice sounds artificial.

I have to concentrate to make my voice sound like I want it to.

When I do not pay attention, the pitch of my voice becomes lower.

I make a lot of effort to produce my voice.

My voice gets tired quickly.

My voice fails in the middle of the conversation.

My vocal pitch range is too limited.

The second part of the TWVQ questionnaire consists of 2 questions, corresponding to what the authors call a global assessment of the current voice and the ideal voice. The response options are: very feminine, somewhat feminine, neutral, somewhat masculine, and very masculine (Dacakis et al., 2016b).

Assessment procedures

The medical history questionnaire was carried out verbally, while the TWVQ was handed to the participants for self-assessment.

Statistical analysis

The data were analyzed using IBM SPSS Statistics software, version 2.0. Initially, a descriptive statistical analysis was carried out. Mean, median, minimum and maximum values, and standard deviation of the first part of the TWVQ were calculated for the

quantitative variables, including the score of the 30 questions, as well as of each item. For the second part of the TWVQ which focuses on current and ideal voice perception, frequencies and percentages of the results were calculated.

For the hormone therapy medical history questionnaire mean, minimum and maximum values, and standard deviation were calculated. For the variables: hormone therapy, gender affirmation surgery, and attendance to a voice specialist, frequencies and percentages were calculated.

Subsequently, the global and item scores of the TWVQ were analyzed according to age, length of hormone therapy, and attendance to the voice specialist. First, the Shapiro-Wilk test was applied to the scores obtained from the main instrument, reporting a normal distribution. Then the Pearson Correlation test was used for the quantitative variables of age and hormone therapy duration. For qualitative variables such as attendance to a voice specialist, the t Student test was applied, considering a p-value <0.05.

No analyzes were carried out on the variables hormone therapy and gender affirmation surgery since the responses were 100% unanimous. This means that all the participants were on hormone treatment and none had undergone surgery.

RESULTS

Participants

The descriptive analysis of the medical history questionnaire showed that the hormone therapy length was 29.33 months on average, with a minimum of 1 month and a maximum of 96 months. It was also found that 43.3% of the participants attended a voice specialist to train their voice for greater accordance between their gender identity and expression. Some participants even mentioned "vocal feminization".

Table 2 shows the descriptive statistics of the first part of the instrument which measures vocal self-perception. The Vocal Function item is the one that shows the greatest difficulties, followed by the Anxiety and Avoidance item, and finally the Vocal Identity item.

Table 2. Descriptive Statistics of the scores obtained from the TWVQ.

	Mean	Median	Minimum	Maximum	Standard Deviation	N°
TWVQ total score	61,47	63	36	100	16,972	30
Anxiety and Avoidance Item	21,07	21	11	35	6,992	30
Vocal Function Item	20,6	21	12	36	6,173	30
Vocal Identity Item	20,9	22	10	30	6,105	30

Total TWVQ (30 questions; minimum score= 30, maximum score=120), Anxiety and Avoidance Item (11 questions; minimum score= 11, maximum score=44), Vocal Identity Item (8 questions; minimum score= 8, maximum score= 32), and Vocal Function Item (11 questions; minimum score= 11, maximum score=44).

Table 3 shows the descriptive statistics of the second part of the TWVQ, referring to ‘current voice’ and ‘ideal voice’. When observing the highest percentages for each of the assessments,

consistency can be found between the current voice perceived as “very masculine” and the ideal “very feminine” voice reported by the participants.

Table 3. Descriptive Statistics of the global assessment of current and ideal voice.

	Very Feminine	Somewhat Feminine	Neutral	Somewhat Masculine	Very Masculine	Total
Global Assessment of “my current voice”						
Frequency	1	6	3	12	8	30
Percentage	3,3	20	10	40	26,7	100
Global Assessment of “my ideal voice”						
Frequency	8	15	6	1	0	30
Percentage	26,7	50	20	3,3	0	100

Table 4 shows the correlation between scores obtained from the TWVQ, according to the length of hormone therapy. The Anxiety and Avoidance item is the only one where a possible relation is reported, with $p = 0.017$.

Table 4. Scores obtained from the TWVQ according to hormone therapy duration.

Scores obtained from the TWVQ	Pearson Correlation
Total Score of the TWVQ	0,117
Anxiety and Avoidance Item	0,017 *
Vocal Function Item	0,094
Vocal Identity Item	0,109

* Significant results with $p < 0,05$.

Table 5 shows the difference between the means obtained from the TWVQ scores of the participants who attended a voice

specialist and those who did not. The Vocal Function item is the one that presents a difference, with $p = 0.009$.

Table 5. Scores obtained from the TWVQ according to attendance to a voice specialist.

Scores obtained from the TWVQ	Attendance to a voice specialist	N°	Mean	Standard Deviation	t Student Test
Total Score of the TWVQ	Yes	13	64,92	20,127	0,363
	No	17	58,82	14,183	
Anxiety and Avoidance Item	Yes	13	21,31	8,45	0,878
	No	17	20,88	5,915	
Vocal Function Item	Yes	13	24	6,298	0,009 *
	No	17	18	4,77	
Vocal Identity Item	Yes	13	19,08	7,205	0,181
	No	17	22,29	4,883	

* Significant results with $p < 0,05$.

DISCUSSION

The objective of this study was to describe the vocal self-perception in a group of trans women from the Metropolitan Region, according to the TWVQ. A questionnaire was used because the WPATH (2012) recommends this type of tool since they help the therapist to understand the influence of the voice on various areas of daily life.

According to the results obtained from the total score of the TWVQ (mean 61.47 points and median 63 points), there is a psychosocial impact on the participants related to their vocal self-perception. According to Diamant & Amir (2020), vocal self-assessment is affected by elements that include self-satisfaction and personal experience.

For therapists, the fact that there is a psychosocial impact on users related to their vocal self-perception is relevant in general terms but nonspecific for the approach. It is for this reason that the results were analyzed based on the 3 items proposed by Bultynck et al. (2017) and Bultynck et al. (2020). From what was observed in the sample, the difficulties observed in the global score of the TWVQ are found primarily in the Vocal Function item. This is followed by the Anxiety and Avoidance item, and lastly the Vocal Identity item.

When analyzing the Anxiety and Avoidance item it is observed that trans women experience discomfort or anxiety due to their voice. They experience these sensations at work and in social contexts, resulting in a restriction in their participation. This coincides with what Hardy et al. (2014) and Hancock (2016) propose based on the ICF. On the other hand, Gómez-Raya (2018) adds that it also affects the family context (Davies et al., 2006).

Davies & Johnston (2015) state that the score of the Anxiety and Avoidance item is given by the level of social activity that a trans

woman may have. A woman can have a low score due to two very different situations. The first is having an active and healthy social life without difficulties but at the expense of their voice, and the second is being socially isolated, rarely having social interactions due to fear of ridicule or violence, without perceiving their voice as a problem.

Regarding the results obtained for the Vocal Identity item, the participants show a high disagreement between gender identity and gender expression related to their voice. In the literature, there is a fairly robust description (based on the opinions of trans women, expert appraisal, and empirical evidence) that justifies their going to voice specialists for vocal training (Adler et al., 2012; Bultynck et al., 2017; Cárdenas et al., 2019; Dacakis et al., 2017; Davies et al., 2015; Diamant & Amir, 2020; Gómez-Raya, 2018; Hyung-Tae, 2020; Leyns et al., 2021; Shefcik & Tsai, 2021).

Regarding the Vocal Function item, the participants perceive difficulties when it comes to their vocal function and its characteristics, which would pose a limitation in their communication. Hardy et al. (2014) clarify, based on the ICF, that trans women present continuous communicative limitations in their daily lives, whether at a verbal or non-verbal level. In addition, they describe elements related to concentration, effort, and vocal fatigue that users present when trying to maintain the desired vocal pitch.

It should be noted that in the aforementioned studies the section corresponding to the perception of current and ideal voice was not analyzed in depth. However, in the present sample, predominant values are observed for the current voice as "somewhat masculine" and the ideal voice as "somewhat feminine". Also, there is an equal percentage of responses for the current voice as "very masculine" and the ideal voice as "very feminine", both

26.7%. This information provides the therapist with the aspirations of trans women in relation to their voice so that their gender expression is congruent with their gender identity.

The aforementioned is in line with the WPATH (2012) which proposes the information that a self-perception questionnaire should provide and states that voice specialists should respect and know the individual communication preferences of the people who consult for their services. It is argued that vocal training improves by understanding the users' concerns and goals around their voice (Davies, 2017; Davies et al., 2015; Davies & Johnston, 2015; Leyns et al., 2021).

There is a relation between the score of the Anxiety and Avoidance item and the length of hormone therapy. Thus, the more time elapsed in hormone therapy, the less anxiety and need to avoid using the voice. This relationship coincides with what was found by the authors Bultynck et al. (2017) who noticed an improvement in this item related to the duration of hormone therapy. However, they state that there is no linear relationship between the decrease in testosterone levels and vocal self-perception.

The score of the Vocal Function item varies according to attendance to a voice specialist for vocal training. This coincides with what is found in the literature, which indicates that attending vocal training with a consequent improvement in vocal function has a positive impact on quality of life. This is because the oral expression of trans women becomes more natural (Davies et al., 2006; Diamant & Amir, 2020; Gelfer & Tice, 2013; Gelfer & Van Dong, 2013; Hancock & Pool, 2017; Jones et al., 2019; Leyns et al., 2021; Owen & Hancock, 2011).

Concerning the naturalness of communication in trans women, Mills et al. (2017) propose a series of aspects that contribute to achieving this, namely: elements related to pitch flexibility, increase in fundamental frequency, and correct use of resonators of the vocal tract, supported by non-verbal elements.

Finally, three limitations can be highlighted in this study: the first limitation is the small sample size. Despite the small number of participants, relevant results were obtained, which could be replicated in further research with larger samples. The second limitation could be the procedure used to detect or discard chronic laryngeal, auditory, and/or respiratory pathologies that could affect the voice. This is due to the fact that most of the participants reported financial limitations that prevented them to access a specialized professional. The third limitation is related to the analysis of the TWVQ instrument. Dacakis et al. (2016a, 2016b) propose ranges of global minimums and maximums without

hierarchically classifying the person based on their vocal self-perception. Furthermore, they do not include the 30 questions in the item distribution, for a detailed analysis of the instrument.

CONCLUSION

The results of this study suggest that vocal self-perception is affected first by the Vocal Function item, second by the Anxiety and Avoidance item, and finally by the Vocal Identity item. The results also provide preliminary evidence that vocal self-perception could be associated with attending a voice specialist for vocal training, and with the time that has elapsed on hormone therapy. Finally, this study provides an empirical way to analyze the TVWQ in detail, based on the proposal of three items.

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