



The Effect of Combination Voice and Communication Therapy Approach on Voice Modification for Male-to-Female Transgender Individuals

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Introduction

- *Transgender* is “an umbrella term for people whose gender identity differs from what is typically associated with the sex they were assigned at birth.”
- Transitioning to the gender one identifies with can be a long and complicated process with many health and social complications (GLAAD, 2014).
- When a trans* woman is “clocked”, this experience has the potential to negatively impact her quality of life (Sevelius, 2013).
- One of the greatest obstacles that trans* women face in being perceived as female is the sound of their voice. Trans* women are often more likely to “pass” with their appearance than they are with their voice (Hancock, Krissingner, & Owen, 2011).
- Changes in pitch alone have not lead to the perception of a female voice (Bralley, Bull, Gore, & Edgerton, 1978).
- Although communication modification for trans* voice clients may include different components of language and communication, most clinicians focus on the vocal aspects (Adler, Hirsch, & Mordaunt, 2012). However, there is a lack of evidence that examines the combination of multiple approaches for voice modification.

Purpose

To determine the feasibility of a combination therapy approach to increase feminine qualities on the voice. The Combination Voice and Communication (CVC) Therapy approach targeted pitch, breathiness, oral resonance, as well as, feminine verbal and nonverbal communication skills.

Research Questions

Specific research questions for transgender MTF speakers were as follows:

1. How do **naïve listeners** perceive the effects of a CVC Therapy approach on pitch vocal femininity and gender?
2. Does CVC Therapy approach have a positive effect on a transgender MTF **individual’s vocal quality of life and perception** of their own voice?
3. Did CVC Therapy approach **change pitch** as shown by objective measures?

References

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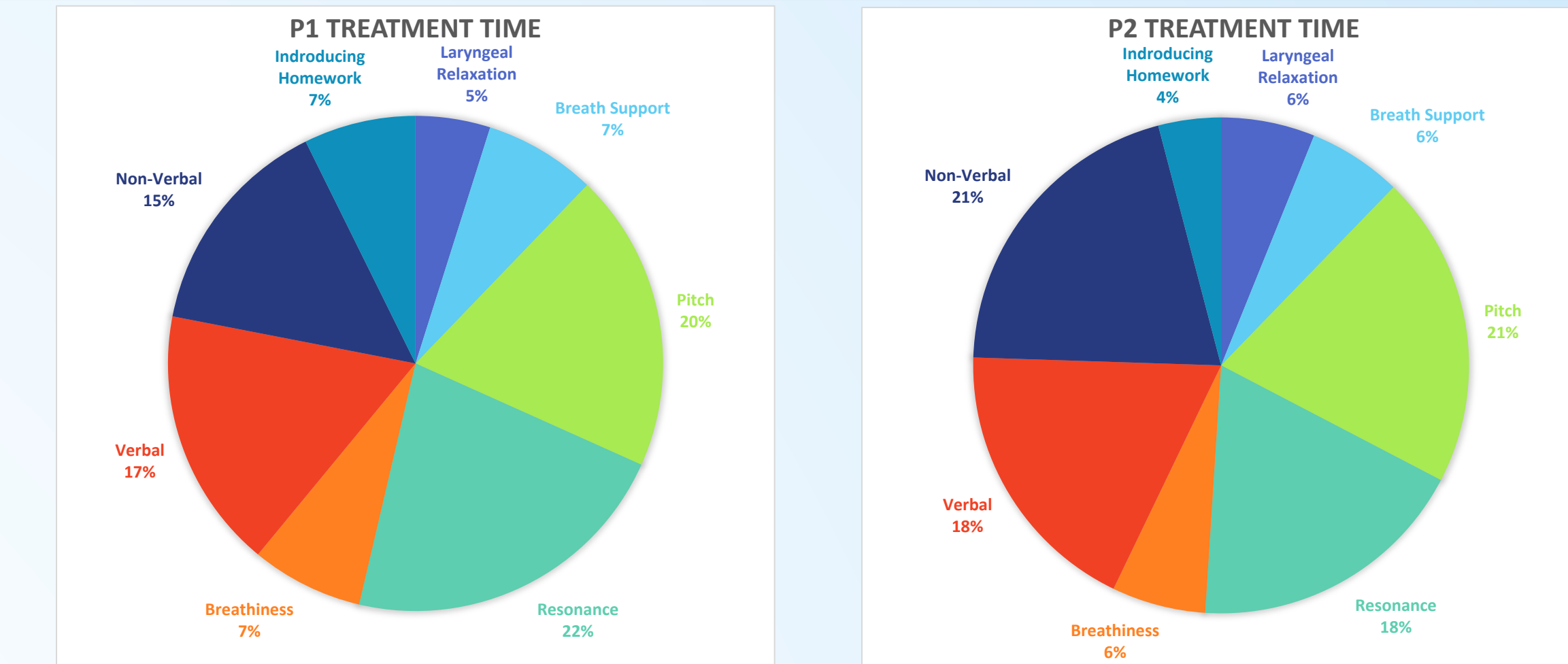
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Methods

Therapy: CVC Therapy approach was delivered to male-to-female (MTF) transgender individuals once a week for 60 minutes for seven weeks. It targeted pitch, breathiness, oral resonance, verbal communication, and nonverbal communication. Naïve listeners, clinicians, and participants judged vocal femininity and gender.

Treatment Fidelity: CVC Therapy approach was implemented with 97% or better fidelity. Participant 1 and Participant 2 participated in therapy tasks with 98% or better participation.



Results

Naïve Listener:

Ten female and five male individuals who were blinded to the purpose of the study participated as naïve listeners. Naïve listeners judged the speech samples of the two participants, as well as, ten decoy speakers (5 cis male, 5 cis female). Naïve listeners perceived participants’ voices to be more feminine after CVC Therapy approach. Perceptions of gender were varied between participants.

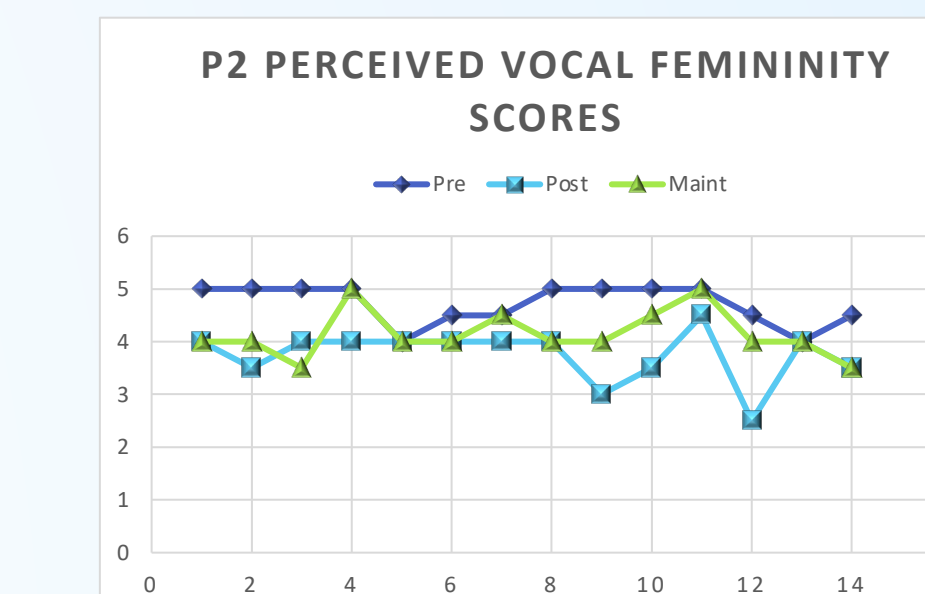
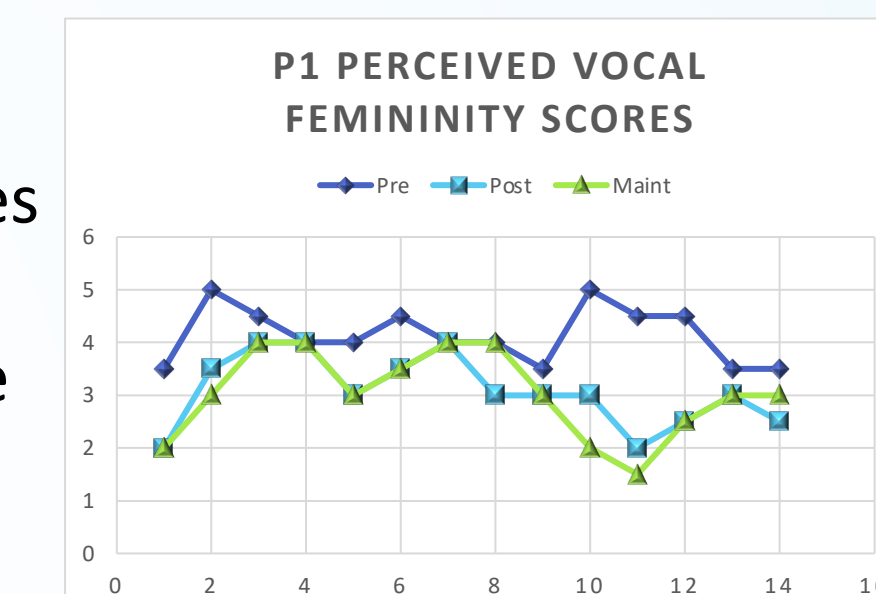


Figure 1. Scatter plot representing the average rating for each of the fourteen naïve listeners. "1" = Very Female; "2" = Somewhat Female; "3" = Gender Neutral; "4" = Somewhat Male; "5" = Very Male.

Figure 2. Scatter plot representing the average rating for each of the fourteen naïve listeners. "1" = Very Female; "2" = Somewhat Female; "3" = Gender Neutral; "4" = Somewhat Male; "5" = Very Male.

	Mean	SD	Range
Decoy Speakers			
Male	2.00	0.00	2-2
Female	1.91	0.03	1-1.5
Participant 1			
Pre	2.00	0.00	2-2
Post	1.54	0.46	1-2
Maintenance	1.63	0.45	1-2
Participant 2			
Pre	2.00	0.00	2-2
Post	2.00	0.00	2-2
Maintenance	2.00	0.00	2-2

Note: "1" = Female; "2" = Male.

Self:

Vocal quality of life (VQoL) is a measure of how happy each participant was with her voice and how well her voice matched her identity. The participants completed the Transgender Voice Questionnaire (TVQ) by Shelagh Davies related to vocal self-perceptions and voice related quality of life. On the 4-point scale, scores of “1” were the best score possible in relation to quality of life and higher scores (e.g., “3” or “4”) were related to lower voice related quality of life. Potential total scores were between 30 and 120, with 30 being the best possible VQoL score and 120 being the worst possible VQoL score. After CVC Therapy, TVQ scores were better for both participants, indicating higher VQoL. In addition, participants perceived their voice as sounding closer to their ideal voice after CVC Therapy.

	Pre	Post	Maintenance
Total Score			
Participant 1	69	61	41
Participant 2	90	48	54
Average Score			
Participant 1	2.3	2.1	1.3
Participant 2	3	1.6	1.8

Note: Total Score: All potential scores fell between 30-120; with 30 representing the best possible quality of life score and 120 representing the worst possible quality of life score; Average Scores: Potential rating of voice issues (1-4, with 1 representing the best vocal option and 4 representing the worst vocal option; "1" = Never or Rarely, "2" = Sometimes, "3" = Often, "4" = Usually or Always; See Appendix A for sample questions.

	Pre	Post	Maintenance
Ideal Voice			
Participant 1		1	Very Female
Participant 2		2	Somewhat Female
Perception of Voice			
Participant 1	3	2	2
	Gender Neutral	Somewhat Female	Somewhat Female
Participant 2	5	3	3
	Very Male	Gender Neutral	Gender Neutral

Note: "1" = Very Female; "2" = Somewhat Female; "3" = Gender Neutral; "4" = Somewhat Male; "5" = Very Male.

VisiPitch:

The VisiPitch is a software program, which was used to determine fundamental frequency F₀. The fundamental frequency of a typical male is around 118 Hz, whereas the average fundamental frequency of a typical female is around 205 Hz (Gelfer & Bennett, 2012). Both participants increased their F₀ after CVC Therapy.

	Pre	Post	Maintenance
Average Pitch			
Participant 1	173 Hz	211 Hz	205 Hz
Participant 2	111 Hz	124 Hz	130 Hz
Pitch Range			
Participant 1	30 Hz	25 Hz	10 Hz
Participant 2	10 Hz	12 Hz	15 Hz

Note: Pitch was objectively measured using the Real Time Pitch program of the KeyPunch VisiPitch; Hz = Hertz; Average male pitch: 118; Average female pitch: 205.

Discussion

- **Naïve Listeners.** CVC Therapy approach was successful in creating a “**modified voice**” based on the perception of naïve listeners. CVC Therapy approach has the potential to change a listener’s perception of gender based on voice only, further research is warranted.
- **Self.** A comprehensive therapy approach that included pitch, resonance, breathiness, verbal communication targets, non-verbal communication, and practice improved the vocal quality of life and a **healthy voice** (breath support, vocal relaxation, vocal hygiene) after participating in CVC Therapy. Consistent with McNeill et al. (2008), changes in self-perception of the voice were related to increased vocal quality of life.
- **VisiPitch.** With just six, one-hour sessions of a comprehensive therapy approach, over the course of seven weeks (in combination with weekly homework assignments) participants were able to raise their fundamental frequency.

Clinical Implications:

Findings from this study indicated that targeting verbal and nonverbal communication skills facilitated a modified voice that was perceived by naïve listeners and a higher VQoL for MTF trans individuals. Clinicians can use an empirically supported CVC Therapy approach when targeting the modification of verbal and nonverbal communication skills for MTF trans individuals