

The background of the slide is a stylized, light yellow map of Ghent, Belgium. The map shows the city's layout with a network of white lines representing streets and canals. The text is overlaid on this map.

The year in review: Voice and communication

Evelien D'haeseleer, SLP, PhD, assistant professor
Ghent University, Belgium



11-13 AUGUST 2021
GOTHENBURG, SWEDEN

LITERATURE REVIEW

Databases:

- MEDLINE PubMed
- Embase
- Web of Science

Search strategy

- Time period: 2019- July 1st, 2021
- Two concepts (MeSH terms + free context words) combined with AND
 - terms related to *“transgender”*
 - terms related to *“voice”, “speech”, “communication”, “gender perception”*

STUDY SELECTION

identification

Records identified through database screening:
2018

Records after duplicates removed:
1567

screening

Records selected after title and abstract screening:
102

Records selected after full-text data extraction:
83

Data extraction

Voice changes under
HT (n=6)

Voice intervention
(n=9)

Gender perception
(n=17)

Training, attitudes,
knowledge of SLPs
(n=5)

Laryngeal surgery
(n=25)

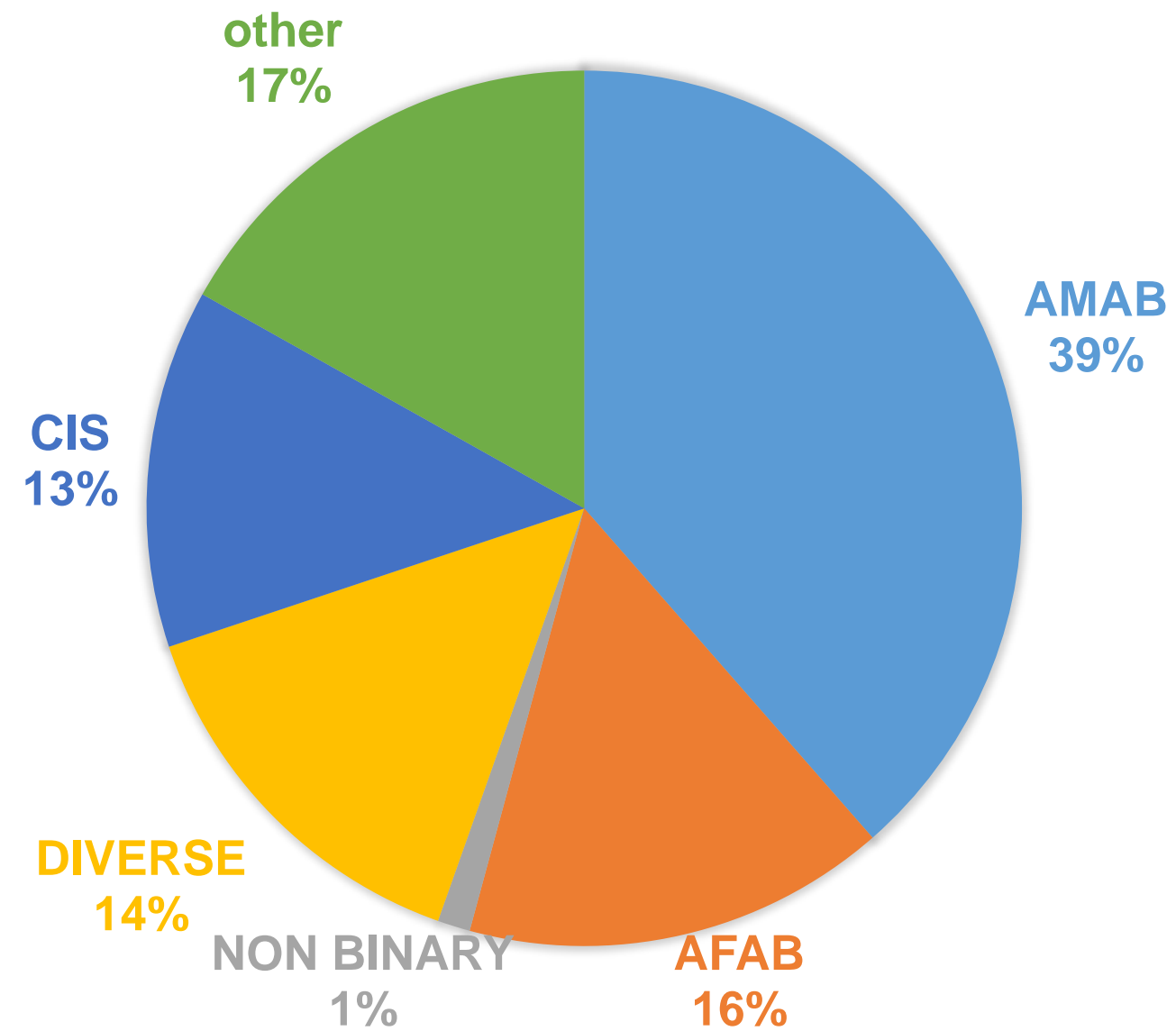
Voice function
(n=12)

Questionnaires &
tools (n=8)

Theoretical
framework (n= 1)

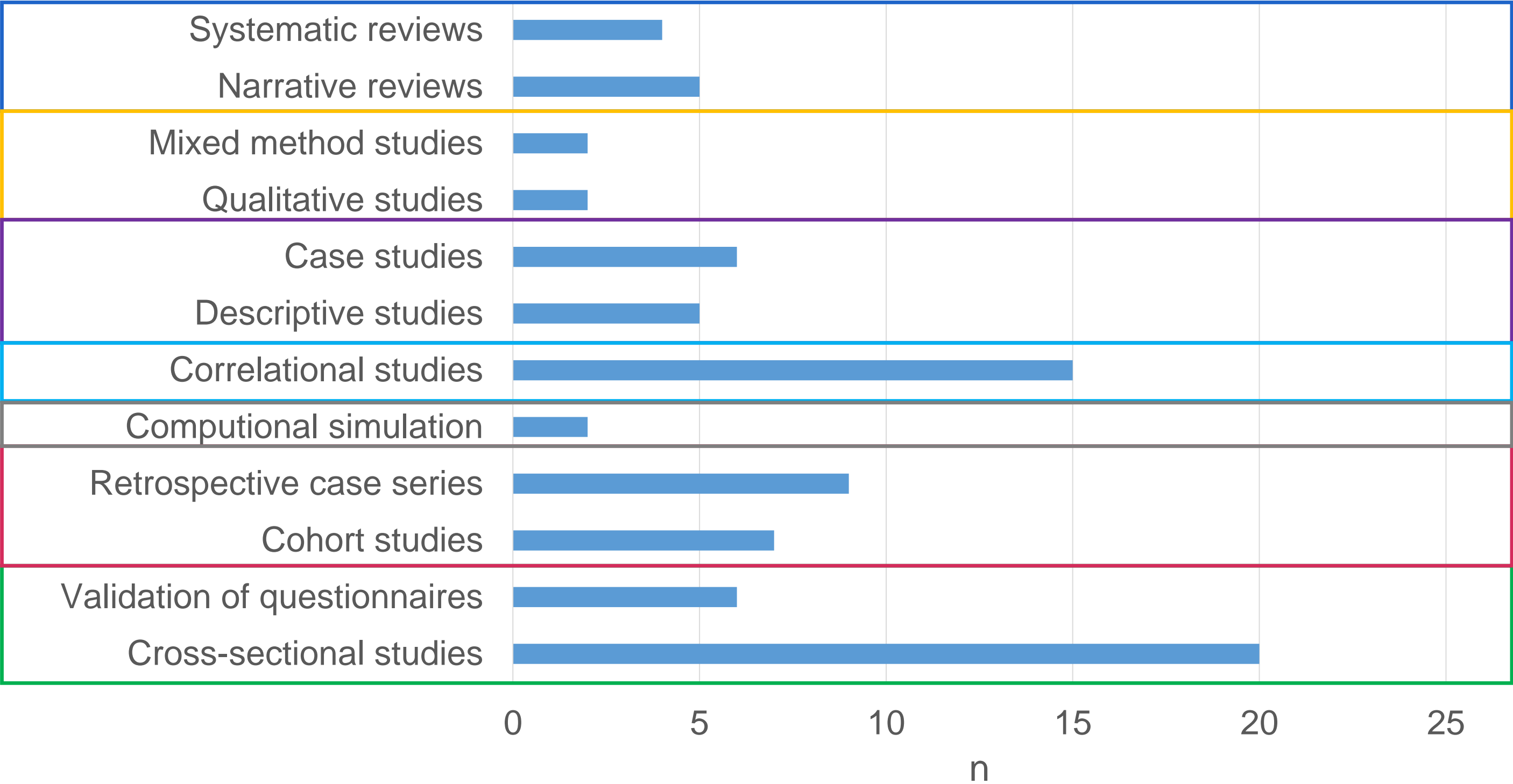
STUDY POPULATION

STUDY POPULATION OF 83 STUDIES

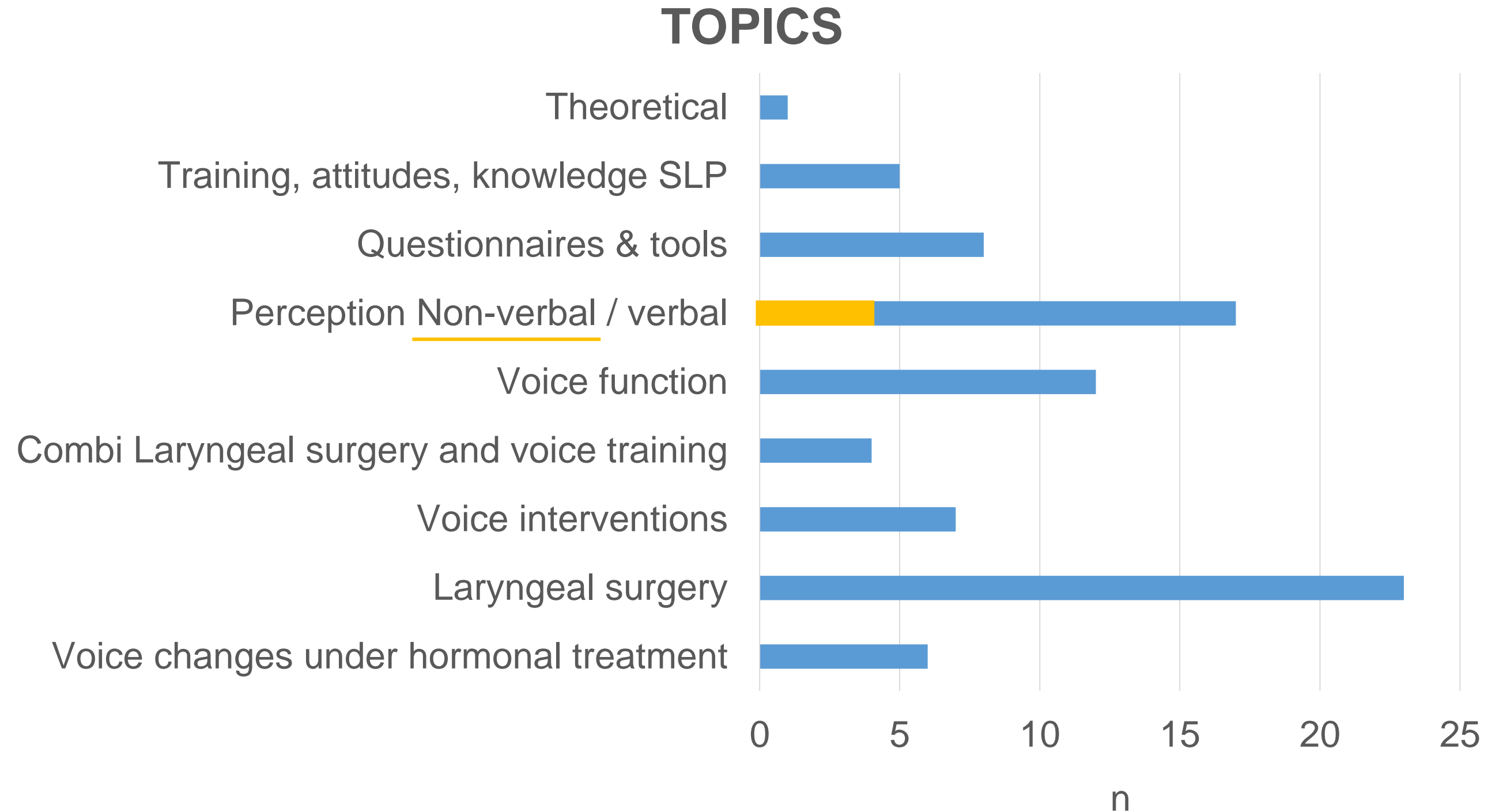


STUDY DESIGN

STUDY DESIGNS



STUDY TOPICS



FOCUS

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Theoretical
framework (n= 1)

NEW TRANSDISCIPLINARY THEORETICAL MODEL

Traditional model vocology

- Biological determinist perspective on voice function

Azul & Hancock ASSEMBLE model (2020)

- Biocultural assemblage view on voice
- Interactive process through which voice is constructed during communication, between material forces, the speaker, the listener, the environment, the intervention and the sociocultural context

Clinical implications (Oates, 2020)

- Communication of identity (“sociocultural positioning”) is complex
- Many aspects of identity: gender might not be client’s only, or most important concern; it doesn’t exist in isolation from other aspects of identity (‘intersectionality’)

International Journal of Speech-Language Pathology, 2020; Early Online: 1–12



**Who or what has the capacity to influence voice production?
Development of a transdisciplinary theoretical approach to clinical
practice addressing voice and the communication of speaker
socio-cultural positioning**

DAVID AZUL¹ & ADRIENNE B. HANCOCK²

¹*Discipline of Speech Pathology, Rural Department of Allied Health, La Trobe Rural Health School, College of Science, Health and Engineering, La Trobe University, Bendigo, VIC, Australia,* ²*Department of Speech, Language, and Hearing Sciences, The George Washington University, Washington, DC, USA*

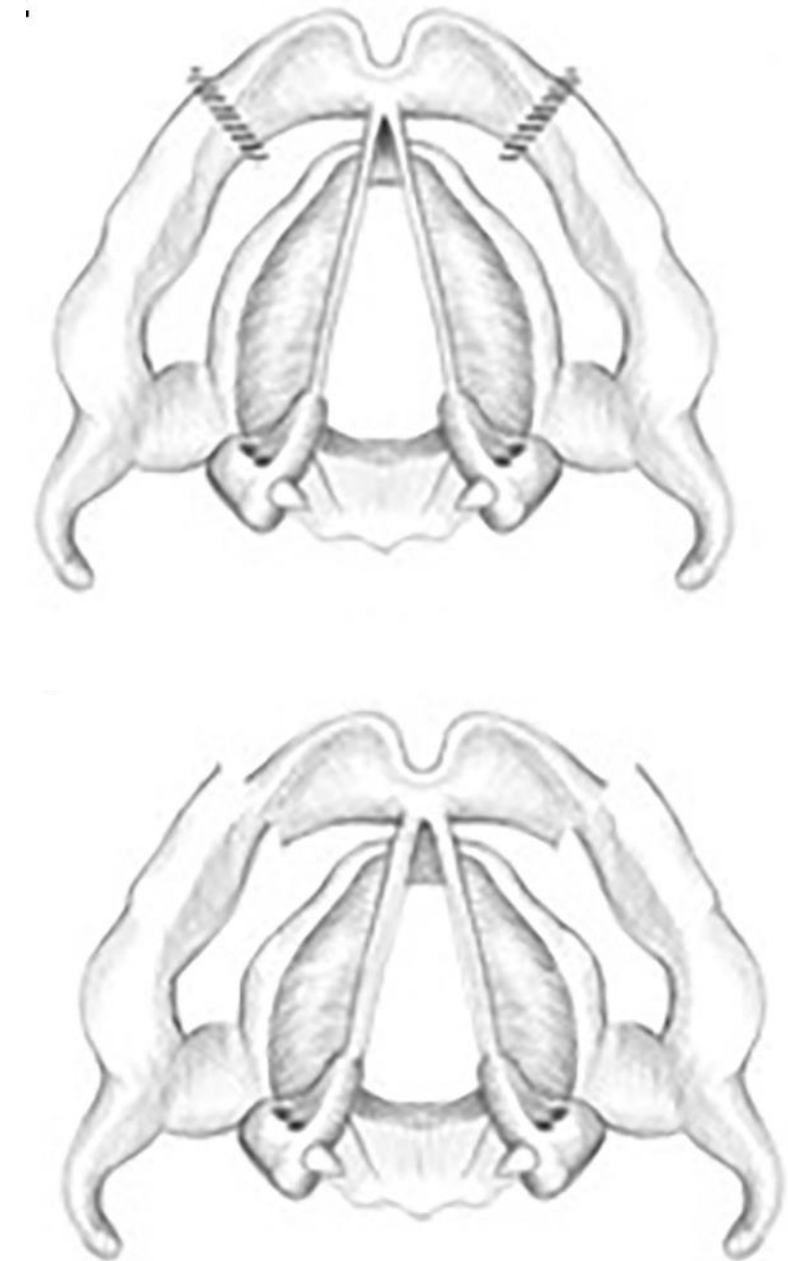
Pitch lowering surgery in AFAB

Short Scientific Communication—Laryngology and Neurolaryngology

Thyroplasty Type III to Lower the Vocal Pitch in Trans Men

**Charlotte Bultynck, MD^{1,2}, Marjan Cosyns, PhD³,
Guy T'Sjoen, MD, PhD^{4,5}, John Van Borsel, PhD³,
and Katrien Bonte, MD²**

Mean f_0 decreased from 155Hz (preoperative)
to 105Hz (postoperative) in a group of 8 trans men.



LARYNGEAL SURGERY

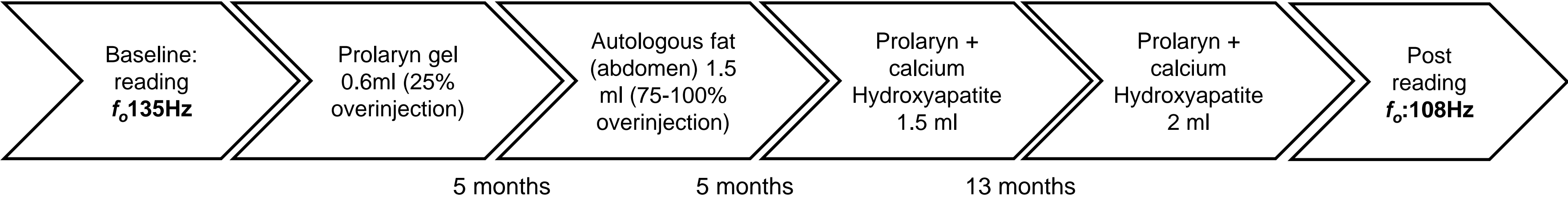
Pitch lowering surgery in AFAB



FIGURE 2. Immediately postautologous fat injection augmentation.
Webb et al., 2021 Journal of Voice

The Use of Vocal Fold Injection Augmentation in a Transmasculine Patient Unsatisfied With Voice Following Testosterone Therapy and Voice Training

*Howard Webb, †,|| Nicole Free, § Jennifer Oates, and *,|| Paul Paddle, *Melbourne, †East Melbourne, §, and || Clayton, Australia



LARYNGEAL SURGERY

Pitch raising surgery in AMAB

- Glottoplasty is an effective method to (further) increase f_o
- Outcomes improve in combination with voice therapy
- Degree of post-op dysphonia is variable (contradictory findings)

Brown et al., 2011

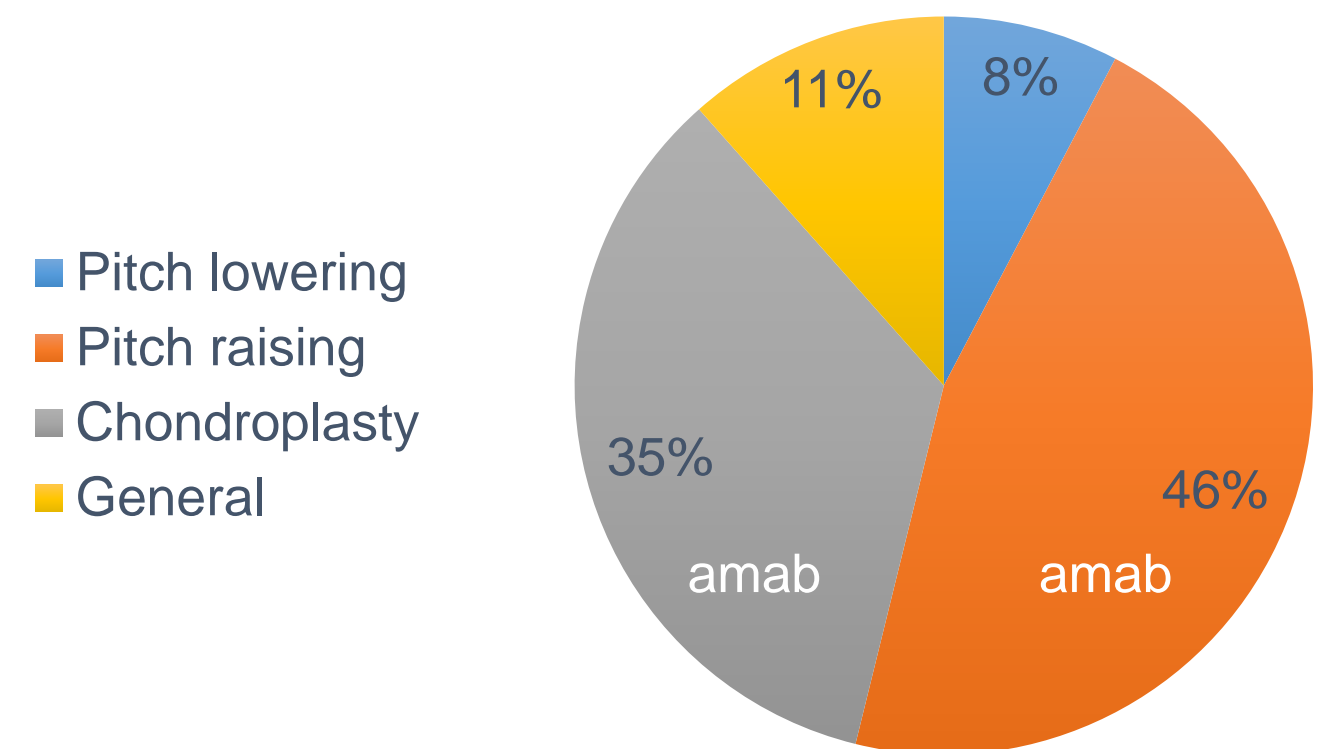
Chang et al., 2019

Kelly et al., 2019

Paltura et al., 2019

Nolan et al., 2019 (SR)


Laryngeal surgery studies (n=26)



Pitch raising surgery in AMAB

The Laryngoscope
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Rhinological and Otological Society, Inc.

Vocal Tradeoffs in Anterior Glottoplasty for Voice Feminization

Ingo R. Titze, PhD; Anil Palaparthi, MS; Ted Mau, MD, PhD 


- 1) f_o increased from 110 Hz to 164 Hz when the anterior one-half vocal fold was fixed and continued to progressively rise with further fixation.
- 2) SPL progressively decreased beyond 1/8 to 1/4 fixation.
- 3) Inclusion of the vocal ligament in fixation did not further increase f_o . Any fixation increased aperiodicity in the acoustic signal.

LARYNGEAL SURGERY

Pitch raising surgery in AMAB

The Laryngoscope
© 2020 The American Laryngological,
Rhinological and Otological Society, Inc.

Vocal Tradeoffs in Anterior Glottoplasty for Voice Feminization

Ingo R. Titze, PhD; Anil Palaparthi, MS; Ted Mau, MD, PhD 

Conclusion:

The optimal length of fixation is a compromise between pitch elevation and reduction in output acoustic power.

LARYNGEAL SURGERY

Voice & chondroplasty in AMAB



JPRAS Open

journal homepage: www.elsevier.com/locate/jpra

Review

Esthetic reduction of the thyroid cartilage: A systematic review of chondrolaryngoplasty

Paul J. Therattil, Nemesis Y. Hazim, Wess A. Cohen,
Jonathan D. Keith*

*Division of Plastic and Reconstructive Surgery, Department of Surgery, Rutgers New Jersey Medical School,
140 Bergen Street, Suite E1620, Newark, NJ 07103, USA*

Method:

SR regarding outcomes and complications of chondrolaryngoplasty (PRISMA guidelines)

Results:

- 4 case series studies, 96 clients.
- Qualitative assessment of patient satisfaction was reported in 2 studies (n = 62), with a 98.4% satisfaction rate.
- Most common complications: odynophagia in 20.3%, **hoarseness in 36.2%**, and laryngospasm in 1.4%.
- In case of postoperative hoarseness, 96% had resolution within 20 days.

⇒ Objective acoustic data ?

LARYNGEAL SURGERY


Voice & chondroplasty in AMAB

INTERNATIONAL JOURNAL OF TRANSGENDERISM
<https://doi.org/10.1080/26895269.2020.1848690>



Check for updates

Chondrolaryngoplasty in transgender women: Prospective analysis of voice and aesthetic satisfaction

Mateus Morais Aires , Daniela de Vasconcelos and Bruno Teixeira de Moraes

Department of Otolaryngology, Head and Neck Surgery of Hospital das Clínicas da Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil

Acoustic (f_o) and perceptual (GRBAS) outcomes:

➡ No sign. differences in f_o and GRBAS between the pre-operative and postoperative (13 days) condition.

INTERNATIONAL JOURNAL OF TRANSGENDER HEALTH
<https://doi.org/10.1080/26895269.2021.1895946>



Check for updates

LETTER TO THE EDITOR

Chondrolaryngoplasty in transgender women: Prospective analysis of voice and aesthetic satisfaction

Sydney R. Horen and Alireza Hamidian Jahromi

Plastic and Reconstructive Surgery Department, Rush University Medical Center, Chicago, Illinois, USA

“direct visualization through the use of a laryngeal mask airway (LMA), flexible laryngoscopy and needle insertion above the vocal cords adds an additional level of protection.”

“Dissection should be carried out carefully here in order to avoid damage to the superior laryngeal nerve and preserve the attachment of the thyrohyoid membrane to the perichondrium of the posterior thyroid cartilage.”

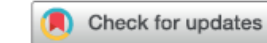
EFFECTIVENESS OF VOICE INTERVENTIONS

AMAB

INTERNATIONAL JOURNAL OF TRANSGENDER HEALTH
<https://doi.org/10.1080/26895269.2021.1915224>



REVIEW ARTICLE



Effects of speech therapy for transgender women: A systematic review

Clara Leyns^a , Tine Papeleu^a , Peter Tomassen^b , Guy T'Sjoen^{c,d} and Evelien D'haeseleer^{a,e}

Results:

- 14 studies (n = 11 prospective, n = 3 retrospective)
- Mean age 41.6 years (15-64 years)

Outcomes:

f_o

- Mean increase of f_o 30Hz (14-71Hz)
- Drop in long-term
- > 14 sessions $\uparrow f_o$ (Söderpalm, et al., 2004)
- Correlation between number of interventions and f_o increase (Dacakis, 2000)

Formant frequencies

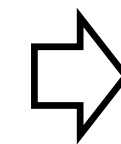
- Increase in F1-3 (Carew, et al., 2007; Gelfer and Tice, 2013; Gelfer and Van Dong, 2013)

Listener perceptions

- \uparrow femininity on VAS or Likert scale
- Still perceived male (Gelfer & Van Dong, 2013; Kaye, et al., 1993)

PROMS

- All studies: higher satisfaction post therapy



Some evidence for effectiveness
! High risk of bias and low levels of evidence!



Need for effectiveness studies using RCT designs, larger sample sizes, multidimensional voice assessments, well-described therapy programs, investigators blinded to study process, and longer-term follow-up data.

EFFECTIVENESS OF VOICE INTERVENTIONS

AMAB

2 recent studies about effect of **biofeedback**:

- *Morsomme, D. & Remacle, A. (2021). "Can ambulatory biofeedback help a transgender woman speak at a higher pitch?" Logopedics, phoniatrics, vocology: 1-7.*
- *Kawitzky, D. & McAllister, T. (2020). "The Effect of Formant Biofeedback on the Feminization of Voice in Transgender Women." Journal of Voice 34(1): 53-67.*

EFFECTIVENESS OF VOICE INTERVENTIONS

AFAB

2 recent studies about effect of **voice training** in trans men

- *Mills, M., Stoneham, & Davies (2019). "Toward a Protocol for Transmasculine Voice: A Service Evaluation of the Voice and Communication Therapy Group Program, Including Long-Term Follow-Up for Trans Men at the London Gender Identity Clinic." Transgender Health 4(1): 143-151.*
 - Cohort study of 10 trans men
 - Trans men reported high levels of satisfaction with the **voice group program** and long-term follow-up, making significant positive shifts in voice skills and vocal self-perception.
- *Buckley, D. P., et al. (2020). "Transmasculine Voice Modification: A Case Study." Journal of Voice 34(6): 903-910.*
 - case report
 - immediate but temporally effect of **a manual laryngeal therapy session** on the f_o , estimated vocal tract length and listener perceptions of masculinity.

Research Article

Voice–Gender Incongruence and Voice Health Information–Seeking Behaviors in the Transgender Community

Evan Kennedy^a and Susan L. Thibeault^a 

Online survey in 405 participants

3 groups: feminine, masculine, gender-neutral

- Prevalence:
 - 96% voice–gender incongruence in the past
 - 88% current voice-gender incongruence
 - No differences between 3 groups!
- Barriers to Help-Seeking Scale
 - masculine group perceived greater barriers to seeking help


Clinician and Consumer Perspectives on Gender-Affirming Voice Services

Dominic Moog, and [†]Lauren Timmons Sund, ^{†}*Los Angeles, California*

Survey in 102 participants

- Trans men, trans women, nonbinary/fluid
- SLP's

- Prevalence
 - 68.8% desire to receive genderaffirming voice services,
 - 58.3% of gender-nonbinary respondents
- Barriers to access voice services
 - Positive perceptions
 - Variety of barriers (SLP's & clients)



High prevalence of voice-gender incongruence in all groups of gender diverse people
Barriers to seeking help and access voice services, esp. in trans masculine people

VOICE FUNCTION

AFAB

JSLHR

Research Article

Voice Function in Gender-Diverse People Assigned Female at Birth: Results From a Participant-Centered Mixed-Methods Study and Implications for Clinical Practice

David Azul^a and Christiane Neuschaefer-Rube^b

ARTICLE IN PRESS

Forces Affecting Voice Function in Gender Diverse People Assigned Female at Birth

^{*}David Azul, [†]Adrienne B. Hancock, and ^{‡,§}Ulrika Nygren, ^{*}Bendigo, Australia, [†]Washington, District of Columbia, and ^{‡§}Stockholm, Sweden

GD people ^{AFAB}

- > 60% experience restrictions to voice function
 - vocal power, voice quality, singing voice, laryngeal function, pitch range/variability, and vocal control
- 64% interest in professional voice support
- Facilitators:
 - Professional voice support, a range of phonation practices, and general self- and voice care practices
- Barriers:
 - testosterone treatment, slouched posture, excess muscle tension, forceful voice use, and avoidance practices.

Conclusion: Restrictions to a range of domains of voice function are frequently reported. Person-centered approach to care in which all parties are well informed of the limitations and possibilities for any intervention.

VOICE FUNCTION

AMAB

Trans women perceived their voices to be the main barrier to their participation in sport. *(Steward et al., 2021)*

Trans women who reported greater difficulties and voice-related effects in their lives had more symptoms of anxiety and depression. *(Novais Valente Junior et al., 2020)*

Importance to screen for laryngeal pathology (5%) using videolaryngostroboscopy before starting voice services. *(Young et al. 2021)*

QUESTIONNAIRES AND TOOLS

~~TVQ MtF~~: Trans Women Voice Questionnaire - **TWVQ** - July 2020

- Languages: English, Croatian, Chinese (Hong Kong), Chinese – Taiwan, Danish, Dutch (Flemish), Finnish, French, German, Hebrew, Italian, Persian, Portuguese, Spanish, Swedish, Turkish

2019-2021:

- Bultynck, C., et al. (2020). "Organizing the voice questionnaire for transgender persons." *International Journal of Transgender Health* 21(1): 89-97.
- Casado-Morente, J. C., et al. (2021). "Development and validation of the Spanish abbreviated version of the Transsexual Voice Questionnaire for Male-to-Female Transsexuals." *Acta Otorrinolaringologica Espanola* 72(1): 21-26.
- Morsomme, D., et al. (2019). "Translation, Adaptation, and Preliminary Validation of Dacakis and Davies' "Transsexual Voice Questionnaire (Male to Female)" in French." *Journal of Voice* 33(5): 807.e813-807.e824.
- Robotti, C., et al. (2020). "Translation, Cross-Cultural Adaptation, and Preliminary Validation of the Transsexual Voice Questionnaire for Male-to-Female Transsexuals (I-TVQMtF) Into Italian." *Journal of Voice*.
- Salm, S., et al. (2020). "Validation of the German Version of the Transsexual Voice Questionnaire for Male-to-Female Transsexuals." *Journal of Voice* 34(1): 68-77.
- Sirin, S., et al. (2020). "Psychometric Evaluation of Adapted Transsexual Voice Questionnaire for Turkish Trans Male Individuals." *Journal of Voice*.
- Taşkin, A., et al. (2020). "Investigating Validity and Reliability of the Turkish Version of Transsexual Voice Questionnaire (Male to Female)." *Journal of Voice*.

Voice-related Experiences of Nonbinary Individuals - **VENI**

Voice-related Experiences of Nonbinary Individuals (VENI) Development and Content Validity

Grace Shefcik, and Pei-Tzu Tsai, *San Jose, California*

- Need for a validated assessment tool for the nonbinary population
- Development of VENI
 - Survey 10 nonbinary individuals
 - Thematic analysis of the responses
 - Content validity by panel of SLP experts
 - Final version: 17 items (7 physical, 8 functional, 2 emotional items)
 - Future research: construct and criterion validity, test-retest reliability

CONCLUSION

<p>LARYNGEAL SURGERY</p> <p>New evidence for pitch lowering laryngeal surgery in trans men</p> <p>The optimal glottoplasty is a compromise between pitch elevation and reduction in output acoustic power.</p>	<p>VOICE FUNCTION</p> <p>High prevalence of voice-gender incongruence in several groups of gender diverse people</p> <p>Barriers to seeking help and access voice services, esp. in trans masculine people</p>
<p>QUESTIONNAIRES & TOOLS</p> <p>VENI: First voice-related questionnaire for gender nonbinary people</p>	<p>VOICE INTERVENTIONS</p> <p>New evidence for using biofeedback in voice feminization training and for group training and laryngeal manual therapy in trans men.</p>



FUTURE PERSPECTIVES



More research is necessary regarding a variety of communication related factors of transgender, gender nonbinary or nonconforming people (now only 1%).

Need for effectiveness studies using RCT designs with larger sample sizes and long-term follow up to assess which techniques are most effective and determine the outcome predictors for voice therapy and surgery.

Further development of (self-) assessments tools in gender diverse people.

Prof. dr. Evelien D'haeseleer

Speech Language Pathologist

GENDERTEAM

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