



The Year in Review Voice & Communication

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Research Unit for a life-Course perspective on Health and Education



4-6 SEPTEMBER 2025
HAMBURG, GERMANY

Literature review

- **Inclusion criteria**

- Three key concepts: voice, communication, trans or non-binary people
- Peer-reviewed journal articles, written in English and published from 2023

- **Databases**

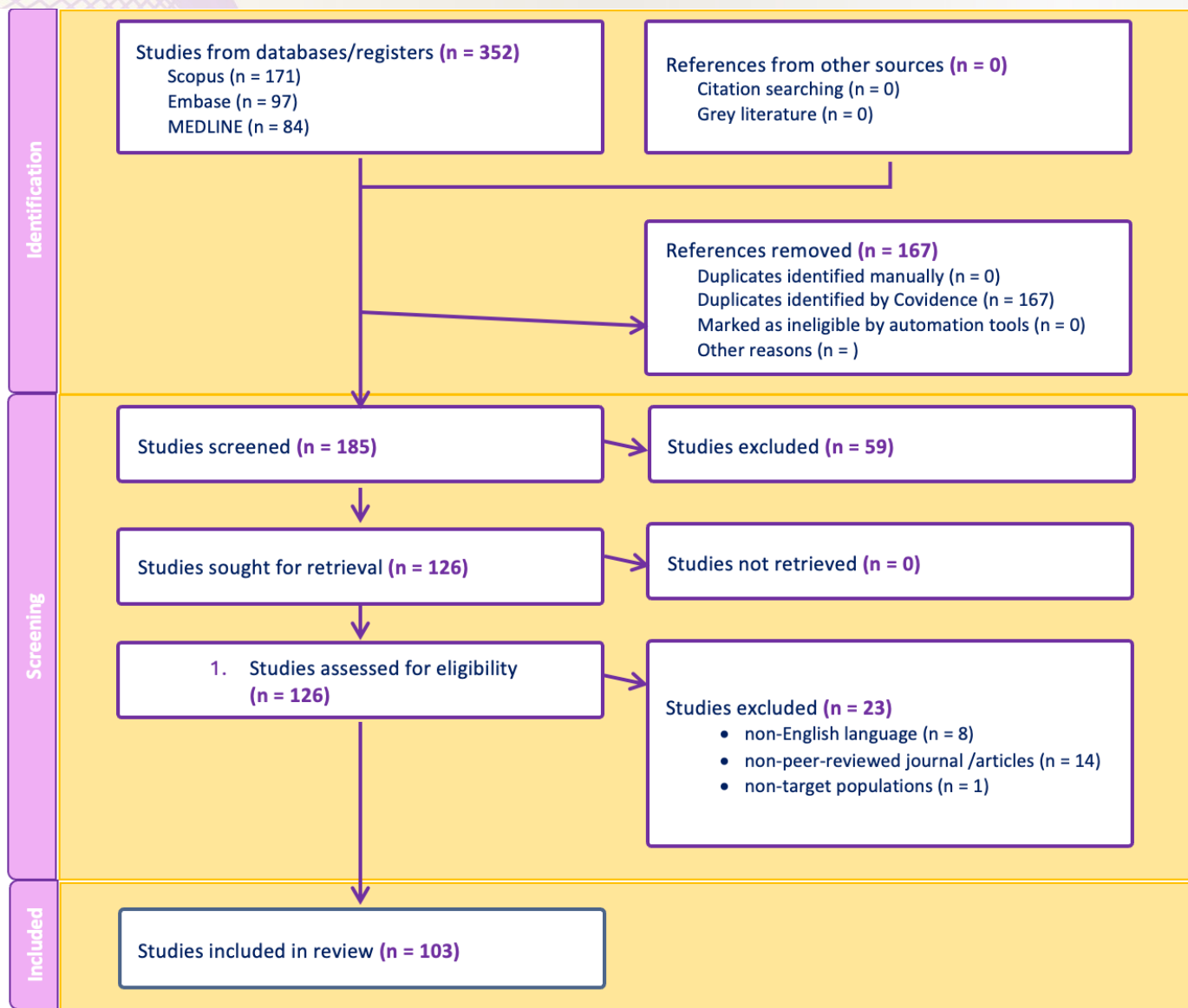
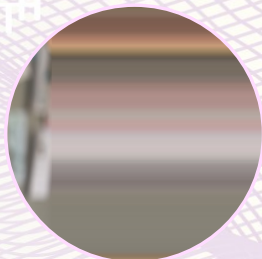
- Embase (www.embase.com), Medline (Ovid), Scopus (www.scopus.com)

- **Search strategy**

- Conducted on June 20th, 2025
- Voice AND communication AND trans or non-binary people
- Controlled (when applicable) and free language
- Publication year limit: 2023-current

STUDY SELECTION

EPH





Voice evaluation [28]



Surgery [16]



Linguistic [5]



Scale [9]



Training [21]



Epistemology & needs[8]



Technology [10]



Others [6]

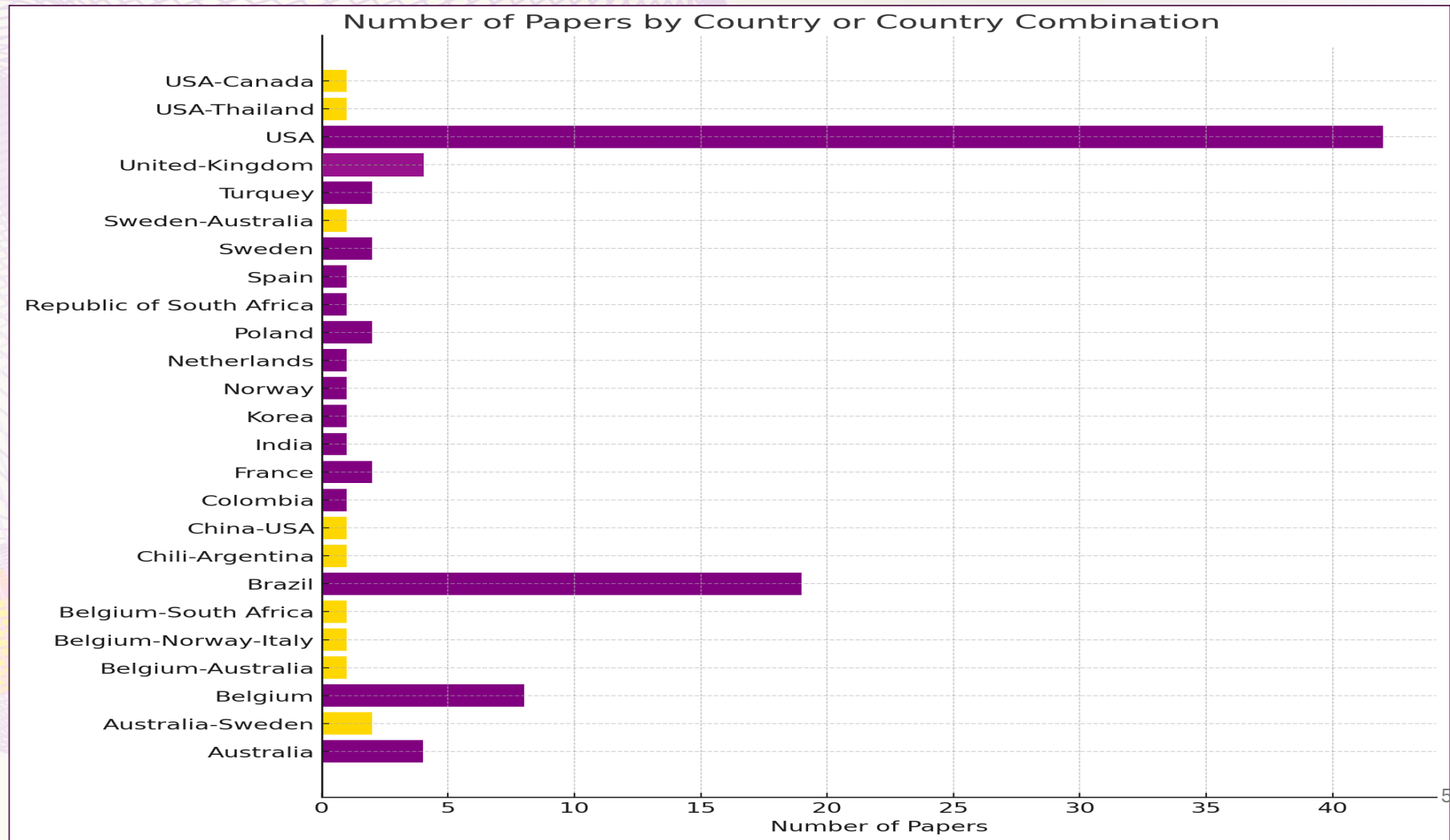
Autism : 4
Geographic reality : 1
Tobacco: 1

Study themes



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Study around the world



Study design categorization N: 103

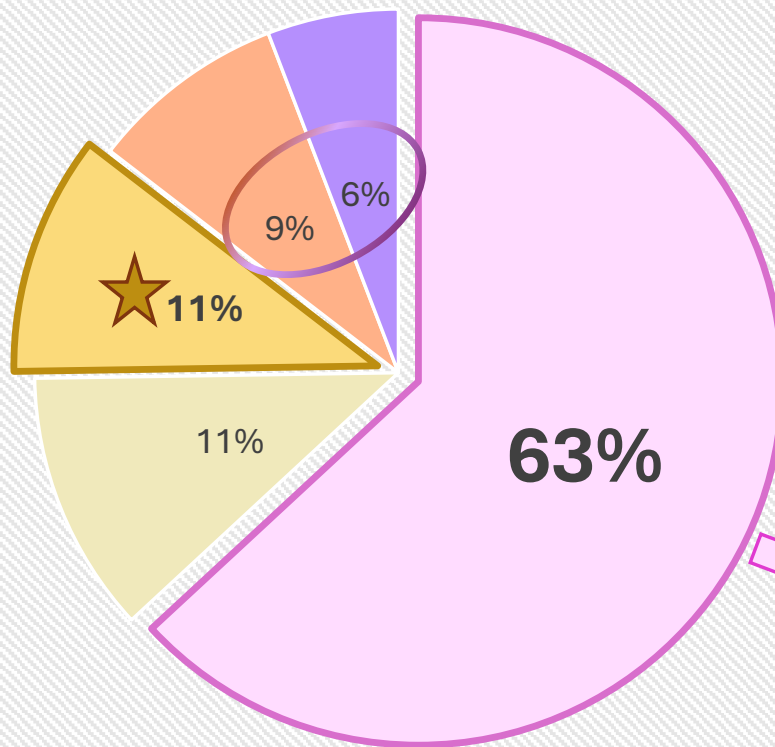
Observational

Review

Qualitative and participatory

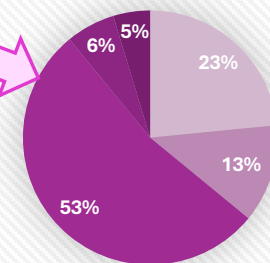
Methodological and technical

Experimental



EPATH

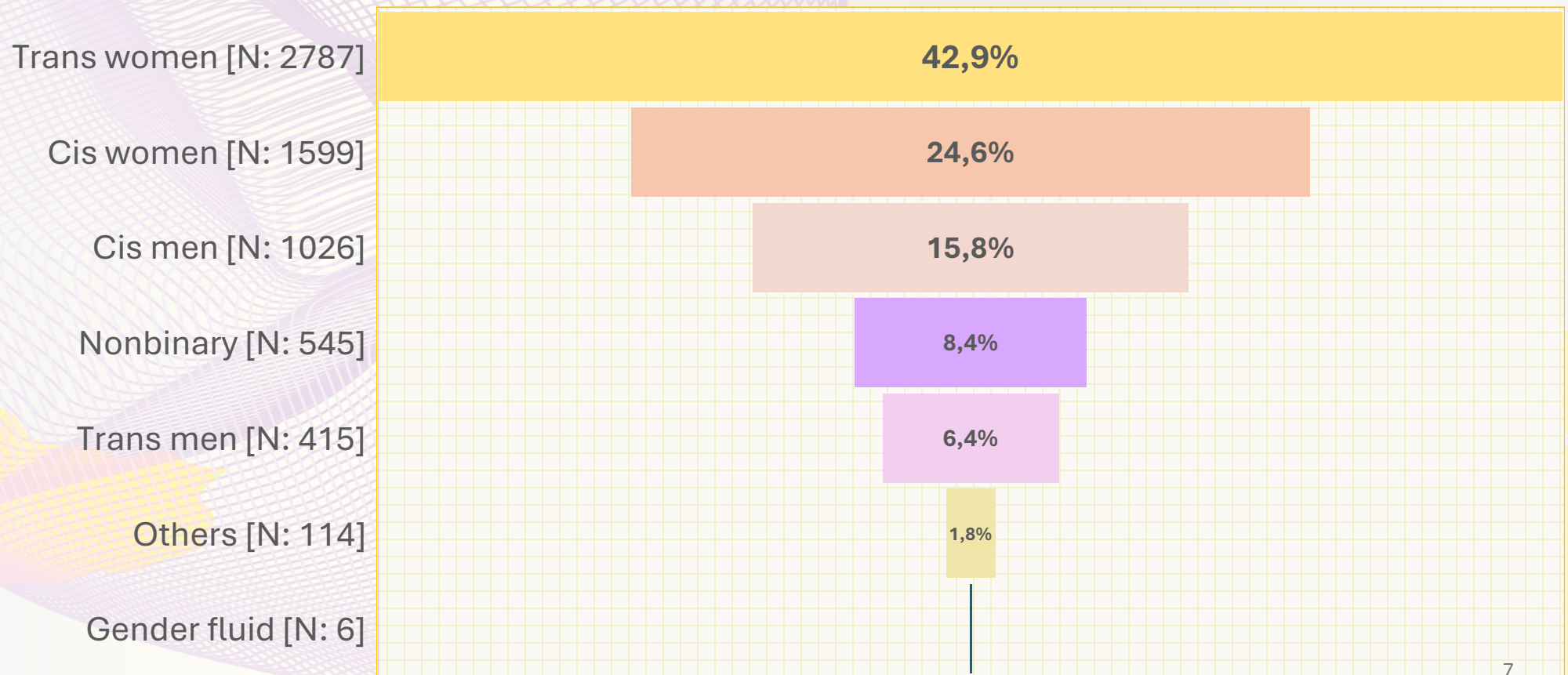
Observational



Case Cohort Cross sectional Correlational Observational

Study population

Distribution of participants by transition process



- Acoustic and perceptual E* : 9
- Acoustic E : 3
- Acoustic E and Quality of life : 1
- Acoustic E and vocal satisfaction : 1
- Acoustic E training : 1
- Perceptual E : 5
- Perceptual E and vocal satisfaction : 1
- Perceptual E of vocal fatigue : 1
- Post testosterone impact on voice : 1
- Voice care survey : 1
- Voice training E : 4

* E = evaluation



Voice evaluation [28]



Surgery [16]

- Surgery - technique : 12
- Surgery - comparison : 2
- Surgery - evaluation : 2

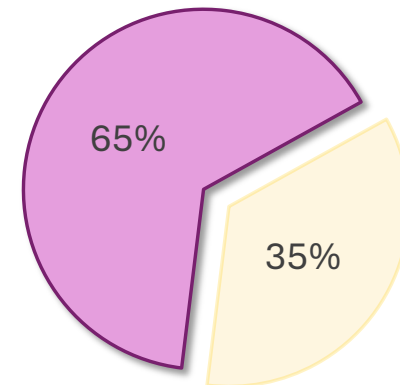


Voice training [21]

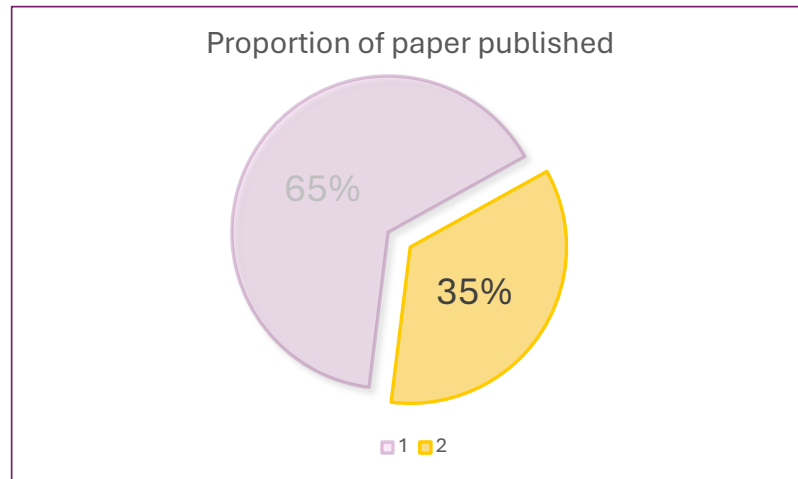
- Voice training : 10
- Training - technique : 4
- Training - efficacy : 3
- Training - goal : 1
- Dose training : 1
- Clinician training : 2

Study themes

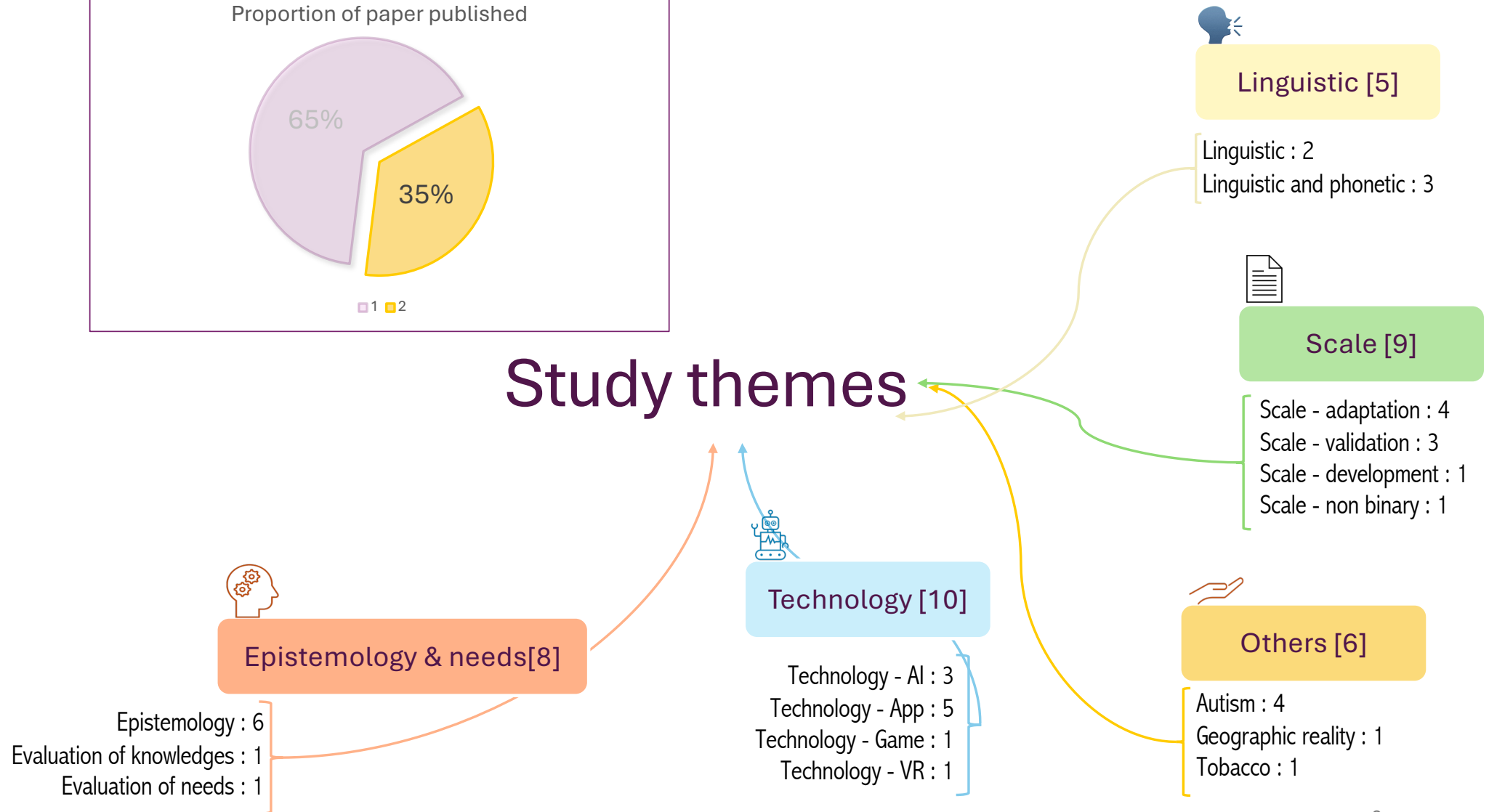
Proportion of paper published



■ 1 ■ 2



Study themes



Acoustic evaluation



Fundamental frequency

- Central but not exclusive marker. [Şimşek et al, 2024; Södersten et al, 2024; Menezes et al, 2024; Martinho et al, 2025]
- Strongly correlated with feminine perception, but insufficient on its own.
- Masculine voice: not only $F_0 \rightarrow VTL$ (44%) + other factors (acoustic, prosodic, sociolinguistic) [Pan et al, 2025]
- Intonation, prosodic, context \leftrightarrow Gender Perception [Papeleu et al, 2025; Soncin et al, 2024]

Others Acoustic Parameters

- Cepstral measures, jitter, shimmer, etc. [Martinho & Constantini, 2024]
- Vary across vocal tasks and listener profiles.

Trans and Gender diverse Specificities

- Diverse vocal identities.
- Gendered vocal strategies shaped by agency and misgendering avoidance [LeAnn & Pillot-Loiseau, 2025]

Effectiveness

- GVT, PET, ART \rightarrow lead to lasting changes in f_0 and formants. Sustained follow-up is essential [Rapoport et al, 2023]; Martinho & Constantini, 2025].

Recommandations

Individualized approach, [Martinho & Constantini, 2025]
Comprehensive acoustic/perceptual assessment
Attention to psychosocial and cultural factors.

Voice Assessment Tools for TGD People

- **What they measure:**

Vocal congruence, dysphoria, self-efficacy, social barriers, and therapy goals.

- **Key tools:**

- ▶ *TWVQ*: adaptation in Brazilian Portuguese dysphoria (trans women) [Irineu et al, 2025]
- ▶ *U-GPS*: goals & satisfaction (TGD) [Myers et al, 2024]
- ▶ *VENI*: identity & impact (non-binary) [Shefcik & Tsai, 2023]
- ▶ *SES-VMTW*: self-efficacy [Dacakis et al, 2024]
- ▶ *VCSQ-PFAB*: 5 domains safety, affirmation, avoidance, needs, dysphoria [Hancock et al, 2025]

- **Why they matter?**

- ▶ High clinical reliability
- ▶ Culturally inclusive and non-binary friendly
- ▶ Support personalized, person-centered voice care



Perception

How well do vocal measures match self-perception?

- Personal congruence > cis « ideals » [Hancock et al, 2023; Martinho et al, 2025]
- Integrate acoustic, perceptual and psychosocial factors [Martinho et al, 2025; Irineu et al, 2025]

Which acoustic features shape gender perception?

- f_0 strong but not exclusive predictor [Şimşek et al, 2024; Södersten et al, 2024]
- Cepstrals, shimmer, SBR, formants, prosody matter [Menezes et al, 2024; Martinho et al, 2024]
- Key markers: TW ↑ pitch/intonation; TM ↓ pitch, tense [Irineu et al, 2025]

How do listeners classify diverse voices?

- Cis and TGD align; task type minor [Hancock et al, 2023]
- TGD use broader cues; SLPs stricter [Holmberg et al, 2024; Merritt et al, 2024]
- Perception multidimensional & context-dependent [Merritt et al, 2024; Martinho et al, 2024]

What drives vocal satisfaction & congruence?

- Large individual variability [Södersten et al, 2024; Martinho et al, 2025]
- Self-feminization risks vocal health [Huang et al, 2025]
- Voice central to identity & well-being [Huang et al, 2025]

Voice Training



Effective results:

Improves pitch, formants, and intonation, especially with prosody work

Non-binary support: Flexible vocal behaviors benefit fluid identities [Henrotin et al, 2025].

Innovative methods:

Singing [Loutrari & Georgiadou, 2024], melodic intonation [Papeleu et al, 2025], head posture = fast and adaptable tools [Howerton et al, 2024].

Adherence: 48% drop out; telepractice and coordination improve engagement [So et al, 2023].

Risks: Self-directed feminization may harm vocal health → clinical support matters.

Vocal Gender Incongruence & QoL

[Stryker et al, 2025]. :

- 68% VGI,
- 95% discrepancy btw the ideal voice and the current voice;
- GAVT improves well-being, reduces misgendering.

Person-centered care: Align goals with identity and personal narratives [François et al, 2025].

Inclusive practice: Use affirming language; all therapy formats can work.

System challenges: More sessions needed; research must evolve and diversify.

Most effective technique:

Wendler glottoplasty and VFSRAC
[Husain et al, 2023]

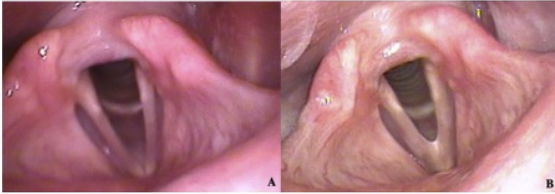


FIGURE 2. Anterior glottic web shortening the vocal folds after modified Wendler Glottoplasty. (a) Preoperative office nasopharyngeal laryngoscopic exam; (b) Two-year postoperative office nasopharyngeal laryngoscopic exam.

Results:

+55 to +100 Hz pitch gain; best outcomes when combined with voice therapy

Voice therapy:

Crucial before and after surgery for optimal and lasting effects

SURGERY



Risks: Rare but include vocal instability, loss of singing range, One case after chondrolaryngoplasty, [Strickland,2025]

Follow-up: Often incomplete — needs improvement [Bowers et al, 2024]

Evidence: Mostly moderate quality; call for long-term, standardized, interdisciplinary research



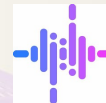
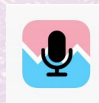
Technology

AI & Vocal Gender Modeling

- Advanced models
- Use diverse datasets (cis & trans speakers)
- **Aim:** more accurate gender perception measures for voice care tracking

[Doukhan et al, 2023; Singhal & Sharma, 2024; Millman et al, 2023]

Apps & Digital Tools for Voice Training



- Self-guided pitch training
- Real-time FB, expert monitoring
- Hybrid protocols (app + weekly sessions)
- Community-led designs:
 - meet needs,
 - ensure access.



[Wang et al, 2023; Alter et al, 2024]

Immersive & Community-Based Innovations



- Positive responses
- VR:
 - reduce social anxiety
 - supports gender expression practice

[Kosciesza, 2025; Smith et al, 2024]

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Epistemology & Needs

Voice & Gender Dysphoria

79%: voice
= 2nd main source of
dysphoria (after chest)
[Rosi et al, 2025]

Voice change: top
priority in transition
[Rosi et al, 2025;
Brown et al, 2025]

Need for early
vocal care
[Rosi et al, 2025]

SLPs: Ethics vs training

Acknowledge need for
trans voice work

Barriers: mostly
theoretical training,
lack of resources, little
ongoing education

Dysphoria ≠ Social Anxiety

Voice-related mutism:
different underlying
causes
[Espejo et al, 2024]

Care must be
personalized and
affirming

Therapeutic Voice Corpus

High variability in
trans voices
[Rosi et al, 2025;
Canal et al, 2024]

Serves as:
legitimizing
resource, non-
normative identity
tool

Holistic Trans Communication

Built on comfort,
trust and authenticity

Requires social and
contextual
adaptability

Integrates emotional,
behavioral and
societal aspects



CLINICIAN TRAINING: 2

« Where voices break free from norms, identity finds room to breathe. »

[see e.g., Manlay et al, 2024 ; Bruce et al, 2023; Glanville et al, 2025, Kissine & Clin, 2025]



AUTISM: 4

« The path of trans voice care bends with the contours of the place it serves. »

[see e.g., de Mello & Zangroniz, 2024]



GEOGRAPHIC REALITY: 1



SMOKE: 1

« Care grows where knowledge meets lived experience — not in silence, but in shared voice. »

[see e.g., Trevizani et al, 2025; Viana et al, 2025]

« Trans voices remind us that language is never neutral, each syllable holds identity, resistance, and the right to be heard. »

[see e.g., Freeman et al, 2025 ; Calder & Steele, 2024; Hope & Lilley, 2023, Jesse & Calder, 2025; Houle et al, 2023]



LINGUISTIC: 5

« Smoking may deepen more than the voice , it may lower the way trans women hear themselves. »

[see e.g., Abreu et al, 2024]



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BOOKS & RESOURCE GUIDE

2023

voice and Communication in Transgender and Gender Diverse Individuals

Evaluation and Techniques for Clinical Intervention

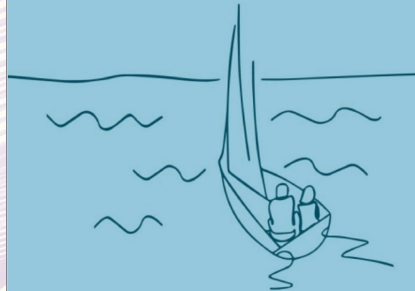
Mark S. Courey
Sarah K. Rapoport
Leanne Goldberg
Sarah K. Brown
Editors

Springer

2024

WORKING WITH TRANS VOICE

A GUIDE TO SUPPORT AND INSPIRE NEW, DEVELOPING AND ESTABLISHED PRACTITIONERS



MATTHEW MILLS
AND SEAN PERT

A Speechmark Book

2025

THE APPLIED STUDIO MODEL IN HIGHER MUSIC EDUCATION

CRITICAL PERSPECTIVES AND OPPORTUNITIES

Edited by
Kelly A. Parkes and Ryan Daniel

Chapter 9
Teaching Nonbinary Singers: 21st-Century Knowledge and Pedagogies

2024

Azul et al, 2024

Working with your voice:

a peer-to-peer resource by and for trans and gender-diverse people

EPAH

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*Research
Scope Matter*



Political and social climate
↓
*slow/accelerate scientific
work?*



- *Rigorous science*
- *Inclusive perspectives*
- *Sustained collaboration*



***So every voice is heard and
affirmed***

EPATH
Without them ...



Nancy Durieux



Antoine Henrotin

EPATH

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