

COMPUTERISED OBJECTIVE EVALUATION OF VOICE WITH TRANS AND NON-BINARY PEOPLE

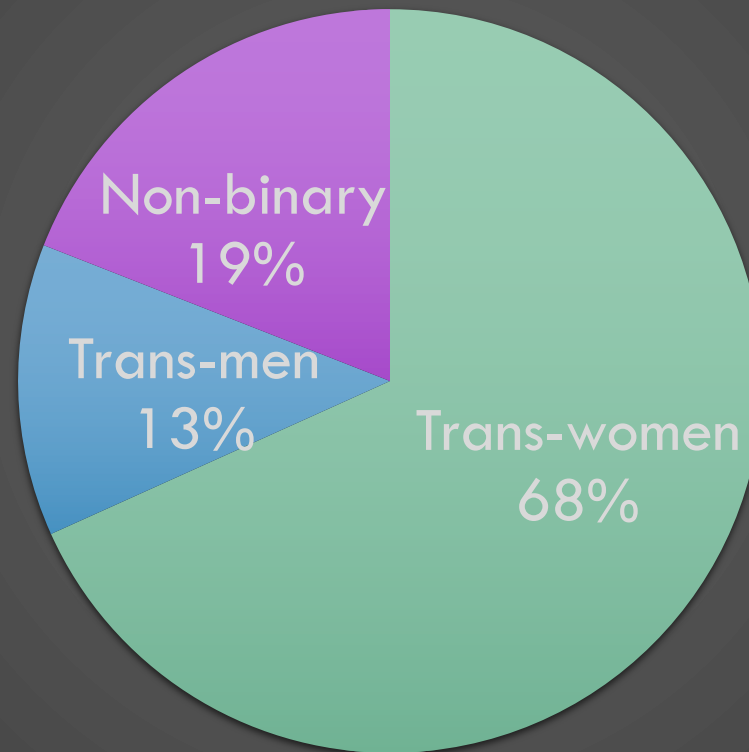


THURSDAY 2ND NOVEMBER 2023

DR SEAN PERT, CONSULTANT SLT
ELLISSIA PORTER, SLT
INDIGO GENDER SERVICE,
GREATER MANCHESTER



Gender-Identity of Service Users

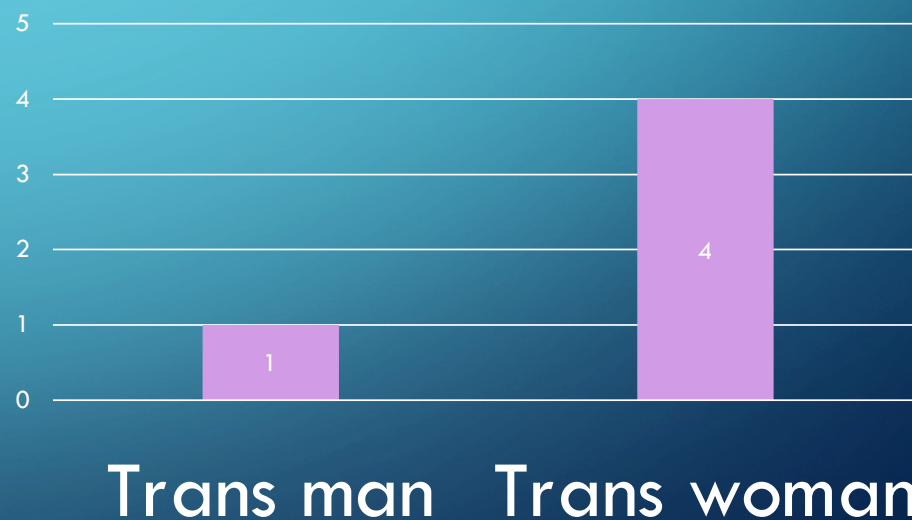


n = 63

RISK OF VOICE DISORDER

- Voice disorder risk
- Chest binders

ENT referrals: Gender Identity



COMPUTERISED VOICE EVALUATION



- Recordings:
 - Sustained [a:]
 - Connected speech (Rainbow Passage)
 - Happy Birthday
- Pitch (Hz)
- Loudness (SPL, dB)
- CPPS (dB, voice disorder screening)



EQUIPMENT

- Head set microphone
- Amplifier
- Computer
- Recording software
- Analysis software
- See Curtis (2023)

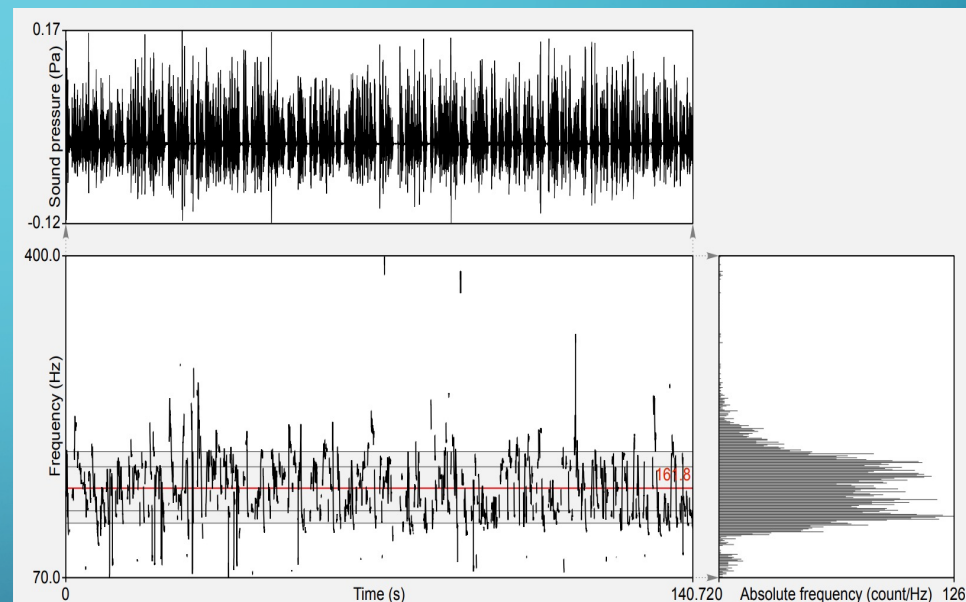


(Curtis, 2023)

<https://www.jamescurtisphd.me/tutorials/voice/acoustic-analysis-of-voice>

PITCH ANALYSIS AND CONTOUR

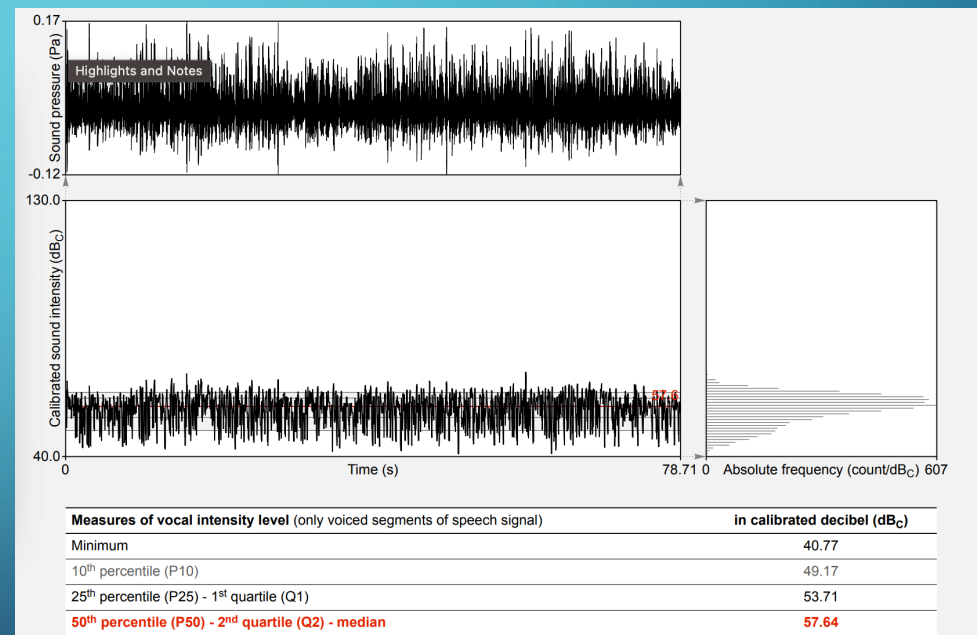
- PRAAT graph
- Pitch
(Fundamental Frequency)



Measures of vocal f_0	in Hertz (Hz)	in semitones (relative to 1 Hz)
Minimum	70.19	73.60
10 th percentile (P10)	125.94	83.72
25 th percentile (P25) - 1 st quartile (Q1)	138.54	85.37
50th percentile (P50) - 2nd quartile (Q2) - median	161.81	88.06

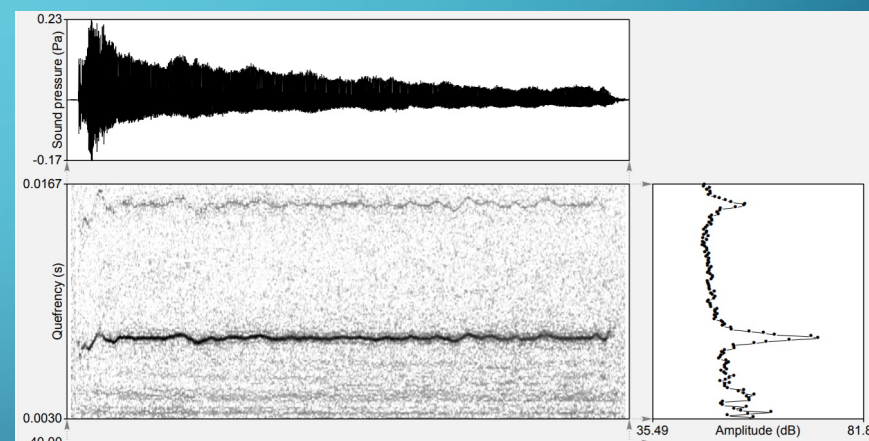
SPL EVALUATION AND CONTOUR

- Sound Pressure Level (SPL)
- SPL = Loudness
- In Person Only



CPPS TO DETECT DYSPHONIA

- Borderline perceptual rating
- Threshold: <14.45
- CPPS with voice detection: 14.35
- Therefore borderline
- Case history information



SERVICE EVALUATION

- ✓ CPPS: quick, easy and non-invasive
- ✓ Acceptable and helpful for service users
- ✓ Informative as part of a holistic assessment
- ✓ Highly sensitive and objective measure
- ✓ Low cost = £324

SERVICE USER COMMENTS

It helps me to see
where I am



REFERENCES

- Azul, D. (2015). Transmasculine people's vocal situations: a critical review of gender-related discourses and empirical data. *International Journal of Language & Communication Disorders*, 50(1), 31-47. <https://doi.org/10.1111/1460-6984.12121>
- Block, C., Papp, V. G., & Adler, R. K. (2018). Transmasculine Voice and Communication. In R. K. Adler, S. Hirsch, & J. Pickering (Eds.), *Voice and Communication Therapy for the Transgender/Gender Diverse Client: A Comprehensive Clinical Guide, Third Edition* (pp. 141-190). Plural.
- Curtis, J. (2023). *Acoustic Analysis of Voice*. <https://www.jamescurtisphd.me/tutorials/voice/acoustic-analysis-of-voice>
- Heller Murray, E. S., Chao, A., & Colletti, L. (2022). A Practical Guide to Calculating Cepstral Peak Prominence in Praat. *Journal of Voice*. <https://doi.org/10.1016/j.jvoice.2022.09.002>
- LGBT Foundation (2018). *GM Trans Health Service Community Survey Report*. LGBT Foundation, Manchester. Retrieved from <https://www.gmhsc.org.uk/wp-content/uploads/2019/03/07a-GM-Trans-Health-Service-Appendix.pdf>
- Mills, M., Stoneham, G., & Davies, S. (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. <https://doi.org/10.1089/trgh.2019.0011>
- Murton, O., Hillman, R., & Mehta, D. (2020). Cepstral Peak Prominence Values for Clinical Voice Evaluation. *American Journal of Speech-Language Pathology*, 29(3), 1596-1607. https://doi.org/10.1044/2020_AJSLP-20-00001
- Pert, S., & Porter, E. (2023). *Objective evaluation of pitch and loudness by speech and language therapists can enhance voice and communication therapy for gender-diverse individuals*. North East Speech and Language Therapy Research Symposium July 2023, Newcastle upon Tyne.
- Ferrer Riesgo, C. A., & Nöth, E. (2020). What Makes the Cepstral Peak Prominence Different to Other Acoustic Correlates of Vocal Quality? *Journal of Voice*, 34(5), 806.e801-806.e806. <https://doi.org/10.1016/j.jvoice.2019.01.004>
- Young, V. N., Yousef, A., Zhao, N. W., & Schneider, S. L. (2021). Voice and Stroboscopic Characteristics in Transgender Patients Seeking Gender-Affirming Voice Care. *The Laryngoscope*, 131(5), 1071-1077. <https://doi.org/10.1002/lary.28932>