

# BMPF7008 - Work Based Learning Project - Nadine Cox

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An investigation into the vocal health of  
cisgender, female Musical Theatre singers whilst  
in full-time undergraduate training

Hi I'm Nadine (not the larynx, the presenter)

- Singing technique teacher and voice coach working with college aged students for over 20 years.
- Passionate about vocal health





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# Literature Review

Findings that influenced my investigation

- Musical theatre students are an at risk group for developing voice health problems (Toles et al., 2020; Zuim et al., 2021; D'haeseleer et al., 2022).
- Females have a higher prevalence for voice health problems compared to men (Atara-Piraquive & Cantor-Cutiva, 2021)
- Female musical theatre undergraduate singers in full time training are at an even higher risk of experiencing vocal health problems (Schloengaer et al, 2017).

# Gaps in research

Only **one** study in the  
last five years on  
exclusively cis gender  
female musical theatre  
undergraduate singers.

## Assessing voice health and voice experience

- Singing Voice Handicap Index 10 (SVHI 10) (Cohen et al., 2009; Gochman et al., 2023)
- Vocal Fatigue Index version 2 (VFI 2) (Nanjundeswaran, 2015)

These are both established self reported protocols for assessing voice health and voice experience.

# Vocal load factors affecting vocal health

- Long duration of voice use
- Hormones
- Hydration
- Environment
- Warming up and cool down practices
- Vocal qualities
- Vocal hygiene practices
- Emotions and singing experience
- Being cisgender female! - womens' vocal folds vibrate at a higher rate than mens, are shorter and thinner in structure - they have less cushioning in the the vocal fold mass so are at more risk of injury
- Their ages class them as adolescent voice so they are still developing vocally

SO, why are we not investigating this further?!?

(Hunter et al., 2011; Whitling et al., 2017; Searle et al., 2019; Sweet and Parker, 2019; Pierce et al., 2021; Zuim et al., 2021; Suzuki et al., 2022).

# Methodology

- Pragmatic mixed methods allowing for multiple realities and combining of quantitative and qualitative findings
- Online survey containing quantitative and qualitative methods
- Separate syllabus analysis looking at loading hours
- Purposive sampling
- For the qualitative data I hand coded using In Vivo to draw out themes and hear the participants' voices

(Morgan, 2007; Sweet, 2015; Saldana, 2016; Campbell et al., 2020)

# Ground breaking investigation

- Looking at syllabus hours and comparing them to student reported hours
- Using SVHI 10 new prospective normative scores as of March 2023
- Using the VFI 2 alongside the SVHI 10
- First mixed methods investigation in the last 5 years investigating an exclusively cisgender female cohort in full time undergraduate musical theatre training setting

## Online mixed method survey contained

- Singing Voice Handicap Index 10 (SVHI 10) (Cohen et al., 2009; Gochman et al., 2023)
- Vocal Fatigue Index version 2 (VFI 2) (Nanjundeswaran, 2015)
- Closed, semi open and open questions about voice health and singing experience (Sweet, 2015; Sweet and Parker, 2019)

# Syllabus analysis included

Daily and weekly calculations of

- Singing hours (all voice classes involving singing)
- Speaking hours (all voice classes involving speaking)
- Physical hours (all classes involving physical activity)

I wanted to see if their training hours fell within or exceeded healthy suggested phonation time of 4-6 hours as previously mentioned.

# Triangulation

- Literature review
- Syllabus analysis
- Mixed method survey

ETHICS

SAFEGUARD







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ARTS MEDICINE**

# Vocal loading territory - VLT

In the absence of a term to represent when a singer may be reaching vocal overloading in their speaking and singing voice I have created the term VLT or vocal loading territory.

# Findings

- 6 out of 11 were experiencing vocal fatigue in their speaking voice
- 2 out of 11 scored above 21 on the SVHI 10 which is an abnormal score in regards to the singing voice status
- The syllabus alone, daily, takes them into VLT given that 4-6 hours is the recommended amount of time for voice use before becoming vocally overloaded (Whitling et al., 2017, p.11, citing Bohme 2003)
- 9 hours and 15 minutes of phonation across the day
- 7 hours of classes
- This arts institution is representative across the whole industry      cont.

- Ensemble singing was flagged up consistently as an area in which participants experienced negative vocal symptoms directly after the classes.
- Only 3 out of 11 cool down their voices after singing classes and none cool down their voices after speaking or other non singing voice classes
- 7 out of 11 stated they felt under some sort of pressure to use their speaking or singing voices when not vocally well, with 2 stating;

“Yes. It doesn’t feel like there’s much option to opt out unless your voice is completely gone. Usually we are told to push through”

**And**

“Yes as there is an expectation to perform at full capacity each lesson”

- 100% of students stated they would like a vocal health module as part of the syllabus to better understand their voice health stating;

**“Yes, it is not taught enough of”**

and

**“Yes because I’d know how to look after my voice properly and know why my voice gets so tired sometimes”**

- 10 out of 11 stated they would find specific lessons on how to cool down the voice helpful, with two stating

**“Yes - emphasis on warm up but never talk about a cool down!”**

and

**“Yes, I think cool downs are neglected and may help your voice rest after a busy day”**

# Limitations

- Small sample size small - so not necessarily representative of all students
- No prior determination of previous vocal health problems so this could mean that if a student did score high on the VFI or SVHI or stated they struggle with voice problems, it's not definitely possible to state that the training environment is to blame as they could already have a vocal fold pathology or voice tension issue
- As a student researcher choosing the mixed methods route was overwhelming and in future I will significantly limit amount of questions!



# Recommendations

What do the findings mean for me and the institution?

- That we need to do more to educate these students on vocal health
- Improve my teaching of vocal health hygiene practices
- I will approach institution with the suggestion to include vocal health module and cool down classes

## Conclusion

*While it is not possible to definitively state that vocal loading affects vocal health negatively, it can certainly be stated that the training environment and timetable alone is an arena for excessive heavy vocal load that may negatively impact vocal health even before taking into considerations extrinsic vocal loading factors outside of timetable.*

*Ensemble singing is an area for possibly vocal loading causing negative voice symptoms*

# References

Atará-Piraquive ÁP, Cantor-Cutiva LC. (2021) 'Gender differences in vocal doses among occupational voice users: a systematic review of literature and meta-analysis'. *Logopedics Phoniatrics Vocology*, 47:1, 63-72

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., Walker, K. (2020) 'Purposive sampling: complex or simple? Research case examples', *Journal of research in Nursing*, 25(8), pp. 652–661

Cohen, S.M., Statham, M., Rosen, C.A., & Zullo, T. (2009) 'Development and validation of the Singing Voice Handicap-10', *The Laryngoscope*, 119(9), pp. 1864–1869

D'haeseleer, E. *et al.* (2022) 'Vocal Quality, Symptoms, and Habits in Musical Theater Actors', *Journal of Voice*, 36(2), pp. 1–9

Gochman, G.E., Young, V.N. and Schneider, S.L. (2023) 'Prospective Determination of Normative Value of the Singing Voice Handicap Index-10 (SVHI-10)', *Journal of Voice*, pp. 1-4

Hunter E.J., Tanner K., and Smith M.E. (2011) 'Gender differences affecting vocal health of women in vocally demanding careers'. *Logoped Phoniatr Vocol*, 36(3), pp.128-36.

Morgan, D.L. (2007) 'Paradigms Lost and Pragmatism Regained: Methodological Implications of Combining Qualitative and Quantitative Methods', *Journal of Mixed Methods Research*, 1(1), pp. 48–76

Nanjundeswaran, C., Jacobson, B.H., Gartner-Schmidt, J., Verdolini Abbott, K. (2015) 'Vocal Fatigue Index (VFI): Development and Validation', *Journal of Voice*, 29(4), pp. 433–440

Pierce, J.L. *et al.* (2021) 'Acoustic Variability in the Healthy Female Voice Within and Across Days: How Much and Why?', *Journal of Speech, Language, and Hearing research*, 64(8), pp. 3015–3031

Saldana, J. (2016) 'The Coding manual for Qualitative Researchers' Sage publications Ltd, London

Searl, J. *et al.* (2022) 'Voice and Lifestyle Behaviours of Student Singers: Impact of History Gathering Method on Self-Reported Data', *Journal of Voice*, 36(5), pp. 735–735

Schloneger, M. (2017) 'Undergraduate Singers' Voice Use During an Intensive Week of Choir and Musical Rehearsals: A Case Study', *International Journal of Research in Choral Singing*, pp. 272-294.

Sweet, B. (2015) 'The Adolescent Female Changing Voice: A Phenomenological Investigation', *Journal of Research in Music Education*, 63(1), pp. 70–88.

Sweet, B. and Parker, E.C. (2019) 'Female Vocal Identity Development: A Phenomenology', *Journal of Research in Music Education*, 67(1), pp. 62–82.

Toles, L.E., Laura, E., Ortiz, A.J., Marks, K.L., Mehta, D.D., Van Stan, J.H., Hillman, R.E. (2020) 'Amount and Characteristics of Speaking and Singing Voice Use in Vocally Healthy Female College Student Singers During a Typical Week', *Journal of Voice*, 36(2), pp. 203–211.

Whitling, S., Lyberg-Åhlander, V. and Rydell, R. (2017) 'Recovery From Heavy Vocal Loading in Women With Different Degrees of Functional Voice Problems', *Journal of Voice*, 31(5), pp. 1-14

Zuim, A.F., Stewart, C.F. and Titze, I.R. (2021) 'Vocal Dose and Vocal Demands in Contemporary Musical Theatre', *Journal of Voice*, pp. 1-16