

NOISE AND ROOM ACOUSTICS – RISK FACTORS FOR VOICE DISORDERS AMONG MUSIC THERAPISTS?

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ABSTRACT

Music therapy is a “vocally demanding profession” [1, p. 46]. Currently, little is known about the prevalence and about the possible risk factors for voice disorders within music therapy. As music therapy workspaces may not always be ideal in terms of acoustics, the aim of the study is to investigate room acoustics and noise as risk factors for possible voice disorders among music therapists in Finland.

The data will be collected via a modified online survey previously used to investigate teachers [see 2] including Likert scale statements. Statements regarding room acoustics, environmental factors, and voice will be analyzed for frequencies. Also, possible links with background factors (e.g. age, work context, client groups) will be analyzed statistically. Possible differences between Finnish and Swedish music therapists will also be analyzed statistically.

Results will enable us to present music therapists practical strategies to ensure vocal health.

Keywords: *music therapists, voice disorders, noise, room acoustics, risk factors*

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1. INTRODUCTION AND AIM

Music therapy is a “vocally demanding profession” [1, p. 46]. Currently, little is known about the prevalence and the possible risk factors for voice disorders within music therapy. However, voice disorders are well documented among other vocally demanding professions, such as teachers, singers, and actors. Almost 40% of Finnish pre-service teachers report having frequent voice problems [2]. Of voice actors, almost 80% report voice disorders [3].

Voice problems reduce a person’s ability to work and limit their leisure activities, which can negatively affect mood and quality of life as well [4, pp. 29–30]. Voice problems may also contribute to the (negative) development of professional self-esteem, as well as cause feelings of insecurity and anxiety in work performance [5, p. 20].

Compared to other professionals, such as pre-service teachers, pre-service music therapists experience increased vocal loads [6]. Thus, they may have a heightened risk for voice disorders. In addition, music therapy workspaces may not always be ideal in terms of acoustics. It has been suggested that music therapists might frequently work in spaces with poor acoustics or external noise, which may make them vulnerable to the Lombard effect (that is, the tendency to raise the volume of one’s voice in the presence of masking noise) [6, p. 328.e2].

A study among music therapists in the United States [7] has shown that 43% report having had a voice disorder at some point in their life. Despite the strain the profession puts on the voice, the reported availability, and types of educational resources regarding vocal health were reported to be variable [7].

As the literature on possible voice disorders and their risk factors among music therapists is scarce, the aim of this study is to investigate room acoustics and noise as risk factors for possible voice disorders among music therapists in Finland and Sweden.

2. METHODOLOGY

The data for the study will be collected via a modified online survey previously used to investigate teachers [see 8]. The survey has been translated into Finnish from Swedish, the language of the original survey. The survey has been back translated into Swedish to ensure the quality of the survey instrument. The survey will be sent to Finnish and Swedish music therapists through music therapy associations, as well as social media and other channels.

The survey includes background questions and Likert scale statements regarding room acoustics, environmental factors, and voice. The responses to the statements will be analyzed for frequencies. Also, possible links with background factors (e.g. age, work context, client groups) will be analyzed using Chi Square tests, Cramér V values and z tests. Possible differences between music therapists in Finland and Sweden will be analyzed using independent samples t-tests.

3. EXPECTED RESULTS

We expect that music therapists report some problematic issues with room acoustics and noise, which we hypothesize are linked to reported voice problems. We also expect that music therapists working with children and/or groups report more voice problems than those who work with individual clients and adults. We do not expect any differences between music therapists in Finland and Sweden.

4. CONCLUSIONS

The results will enable us to present music therapists practical strategies to ensure vocal health.

5. REFERENCES

- [1] S. R. Boyle and R. L. Engen: “Are music therapists at risk for voice problems? Raising awareness of vocal health issues in music therapy,” *Music Therapy Perspectives*, vol. 26, pp. 46–50, 2008.
- [2] R. Britschi and J. Sellman: “Opettajaopiskelijoiden äänioireet ja niiden yhteys psykososiaaliseen haittaan sekä arvioon omasta äänenlaadusta – eri opettajankoulutusalojen vertailu” [“Teacher students voice symptoms and their connections to psychosocial harm and their evaluation of their own voice quality – a comparison between different teacher training fields”], *Puhe ja kieli*, vol. 37, no. 2, pp. 101–112, 2017.
- [3] E. Markkinen: *Ääninäyttelijöiden kokemat ääniongelmat – Esiintyvyys, riskitekijät ja äänenhuoltokeinot [Voice actors’ experience of voice problems – prevalence, risk factors and means of voice ergonomics]*, Master’s thesis, Helsinki: University of Helsinki, 2021.
- [4] E. Sala, M. Sihvo and A. Laine: ”Ääniergonomia. Toimiva ääni työvälteenä” [Voice ergonomics. Functioning voice as a tool”], Helsinki: Työterveyslaitos, 2003.
- [5] I. Ilomäki: *Opettajien ääneen liittyvä työhyvinvointi ja äänikoulutuksen vaikutukset [Teachers’ voice-related work well-being and the effect of voice training]*, Tampere: Tampere University Press, 2008.
- [6] J. N. Manternach and M. J. Schloneger: “Vocal dose of preservice music therapists, preservice music teachers, and other undergraduate students”, *Journal of Voice*, vol. 35, no. 2, 2021.
- [7] E. G. Waldon and D. Isetti: Voice disorders and related risk factors among music therapists: Survey findings and strategies for voice care”, *Music Therapy Perspectives*, vol. 37, pp. 37–44, 2019.
- [8] V. Lyberg Åhlander, V. Rydell, and A. Löfqvist: “Speaker’s comfort in teaching environments: voice problems in Swedish teaching staff,” *Journal of Voice*, vol. 25, no. 4, pp. 430–440, 2011.