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TINNITUS & HYPERACUSIS

Improving audiology student training by clinical simulation of tinnitus: a glimpse of the lived experience of tinnitus

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Introduction

Student audiology training in tinnitus evaluation and management is heterogeneous and has been found to be insufficient. **We designed a new clinical simulation laboratory for training students on the psychoacoustic measurements of tinnitus:** one student plays the role of the tinnitus patient, wearing a device producing a tinnitus-like sound on one ear, while another student plays the role of the audiologist, evaluating their condition. We recorded the overall experience of the students with an online survey. This **fast, cheap, and effective clinical simulation method** could be used by audiology and other healthcare educators to strengthen students' skills and confidence in tinnitus evaluation and management. The protocol is made available to all interested parties.

Aim: The objective of the study was to test this new clinical simulation laboratory of tinnitus from the perspective of the students. **This study reports the findings from twenty-one audiology students who participated in this laboratory** for a mandatory audiology class at the Laval University of Quebec.

Methods

4 different psychoacoustic measures were assessed during the laboratory:

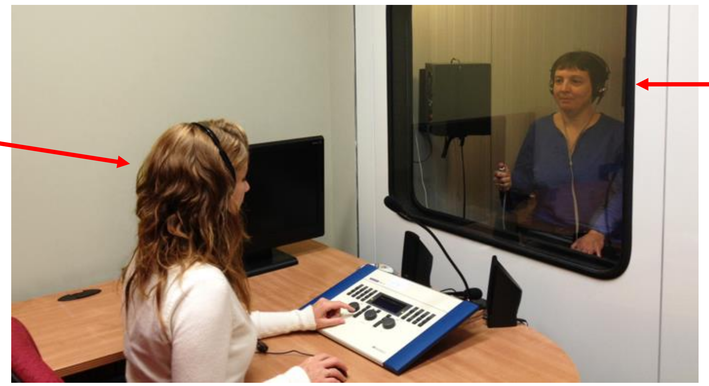
- **Pitch matching**
  High vs. Low
- **Loudness matching**
  Faint vs. Loud

→ **Percept estimation**

- **Minimum masking level**
  Can tinnitus be masked ? If so, at what level ?
- **Residual inhibition duration (Vernon, 1981)**
  Can we temporarily suppress the sensation ?

→ **Interferance with the percept**

Student in the role of the audiologist



Student in the role of a tinnitus patient

« The student wears a bone conduction earphone over one ear that transmits a tinnitus-like sound »

Target:
6 kHz pure tone
10 dB SL

Educational objectives:

1) **Correctly apply an evaluation method for assessing the 4 psychoacoustic measurements of tinnitus.**
2) **Raise student's awareness to the reality of tinnitus and evaluation as lived by a patient.**

Results

Figure 1. *Illustration of the results of the qualitative content analysis of the post laboratory questionnaire with examples of student reports. The content analysis was conducted following the 5-phase process of qualitative data analysis* **(Bingham, 2023).**

Benefits of the laboratory on future practice

- Knowledge consolidation through practical exercise
  - *"Without the opportunity to practice, we do not have the chance to integrate these techniques, which will necessarily be a problem when the time comes to practice them in a professional context."* (P01)
- The reassurance of the students and future outcomes
  - "*I also think it made us realize that these are accessible measures to do in the clinic, which do not necessarily take a lot of time or equipment.*" (P04)
- Expertise in tinnitus management/support
  - *"This laboratory allowed us to have more knowledge and concrete expertise on the possibilities and tools we have as clinicians to help our tinnitus patients."* (P16)
- The consideration of the patients' perspective / distress
  - "*Also, the demonstration of tinnitus masking could reduce the distress experienced by offering a temporary solution for tinnitus management.*" (P18)

Barriers and facilitators of the psychoacoustic assessment

- Clearness of the protocol
  - "*Being the clinician wasn't too difficult because we were following a clear protocol, and it was easy to understand what I was doing as well.*" (P20)
- Difficulties and improvements
  - "*I do not fully master the operation of the audiometer. I am still looking for myself (when I have to use channel 2, for example).*" (P06)
- The impact and consideration of past and future internships
  - "*I felt in control because I arrived well prepared at this laboratory, and I had already observed my (clinical) supervisor perform this kind of assessment.*" (P10)

Awareness of living with tinnitus

- The sensation of tinnitus
  - "*disturbing*" (P12, P07), "*uncomfortable*" (P09), "*annoying*" (P20), "*invasive*" (P07), "*strange*" (P11)…
- The subjectivity of tinnitus
  - *"I can therefore understand that despite the tests carried out, the measurements obtained are not completely "valid", since they are very subjective data dependent on the unique experience of the patient."* (P05)
- Being tested for tinnitus
  - "*Over the course of the experiment, by hearing several sounds, we come to no longer hear our simulated tinnitus, which makes it difficult to give reproducible answers to the clinician.*" (P21)

Conclusions

- **Tinnitus simulation is an interesting educational approach for audiology students, it allows, among other things:**
  - To apply psychoacoustic measurements in the laboratory on their colleagues, to move from theory to practice in a context favorable to learning.
  - Allows students to put themselves in the patient's shoes: better understand the experience of tinnitus on a daily basis and when tested by an audiologist.
- **We highly encourage audiology educators to use this method for the training of students in tinnitus evaluation and management.**

References

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