



Article

Outcomes of Audiologist-Delivered Tinnitus Management in Singapore Public Health Service: A Retrospective Service Evaluation

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Abstract

Background/Objectives: Tinnitus can have an adverse impact on some patients' lives, affecting the daily functioning for a proportion of patients. In recent years, audiologists in Singapore who are specialised in tinnitus and hyperacusis rehabilitation have increasingly been providing tinnitus and/or hyperacusis management. The aim of this study was to evaluate the outcome of audiologist-delivered tinnitus management at a public hospital in Singapore. **Methods:** Retrospective data from patients seen between 2016 and 2019 were extracted from the hospital's electronic medical record system. Outcomes were analysed using pre-treatment and three-month post-treatment Tinnitus Handicap Inventory (THI) scores among patients referred to the audiologist-led tinnitus clinic. **Results:** A total of 201 patients aged 18 to 86 years received tinnitus management. Among patients who returned for follow-up, 93% showed a reduction in THI score three months after treatment. Mean THI scores decreased significantly from 46.9 to 24.3, with a corrected effect size of 1.16, indicating a large treatment effect. Among patients with moderate or greater tinnitus handicap at baseline, 81% improved by at least one severity grade. **Conclusions:** This is one of the first studies to report outcomes of an audiologist-led tinnitus management service in Singapore. The findings are consistent with a potential role for structured, audiologist-led tinnitus services in Asian healthcare settings, although controlled studies are needed to confirm treatment effectiveness. General practitioners, otolaryngologists and other healthcare providers can play an important role in recognising tinnitus-related distress, offering early reassurance and directing patients to appropriate audiological and supportive care.

Keywords: tinnitus; hyperacusis; Singapore; tinnitus retraining therapy; hearing loss



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1. Introduction

Tinnitus is the perception of sound in the absence of an external acoustic source. It is commonly described as ringing, buzzing, hissing or other internally perceived sounds, and is usually heard only by the affected individual [1,2]. Hyperacusis refers to reduced tolerance of everyday sounds, which may be perceived as uncomfortably loud, unpleasant, frightening or painful, and can significantly interfere with social, occupational, recreational and daily activities [3].

Tinnitus is increasingly recognised as a global public health issue. International studies estimate that approximately 12–30% of the general population experience tinnitus [1,4], while a recent global meta-analysis reported that about 14% of adults experience tinnitus

and approximately 2% experience a severe form. In Singapore, a community screening programme of 72,000 seniors estimated tinnitus prevalence at 17% among residents aged above 60 years [5]. Another survey of 579 adults aged above 50 years in Singapore estimated tinnitus prevalence at 21.1%, with 2% reporting severe tinnitus [6]. These local findings are broadly consistent with international estimates and suggest that tinnitus represents a clinically relevant burden in Singapore as well as globally.

The majority of people who become aware of tinnitus report minimal tinnitus-related distress and rapidly habituate to its presence. However, for a small percentage of people, the perceived noises can become a source of significant distress. Studies have shown that severe tinnitus handicap significantly increases the risk of generalised anxiety, health anxiety and depression [7] and can have a significant detrimental impact on their quality of life [8]. Severe tinnitus can also potentially control and dominate an individual's psychological thinking and lifestyle, bringing about a substantial interference with daily functioning [9,10].

In Singapore, Png (2017) [6] found that 35.2% of residents with tinnitus sought professional help from a general practitioner, ear, nose and throat specialist, or Traditional Chinese Medicine practitioner. Among those who sought help, only about one-third reported receiving some form of tinnitus treatment. The most common approaches tried were Traditional Chinese Medicine (19.6%) and acupuncture (12.9%) [6]. Other approaches used by distressed patients seeking relief may include hyperbaric oxygen therapy, temporomandibular joint treatment, pharmacological agents or supplements such as ginkgo biloba, with variable supporting evidence. These patterns suggest that some patients may not be aware of, or may not be referred to, structured tinnitus management services.

This service gap is relevant beyond Singapore. In many healthcare systems, tinnitus patients first present to primary care or otolaryngology services, where medically urgent causes must be excluded. However, once serious pathology has been ruled out, patients may still require counselling, education, hearing assessment and sound-based strategies to manage tinnitus-related distress.

The American Academy of Otolaryngology—Head and Neck Surgery Foundation, as well as the UK National Institute for Health and Care Excellence, have published Clinical Practice Guideline for Tinnitus [11,12]. Both guidelines recommend history-taking, audiological examinations, education about management strategies, hearing aid evaluation, and cognitive-based therapy. Tinnitus management strategy focuses on reducing the magnitude of the tinnitus perception and relieving the annoyance of tinnitus by reducing the reaction to tinnitus [13]. This relationship helps explain why audiologists play an important role in tinnitus assessment and management in some countries. For example, in the United Kingdom, 82% of tinnitus patients are referred to audiology departments for treatment, either through general practitioners or by ear, nose and throat specialists [14]. In contrast, the role of audiologists in tinnitus management remains less established in Singapore and Asia, despite their expertise in hearing assessment, counselling, amplification and sound-based interventions.

In recent years, audiologists in Singapore with specialised training in tinnitus and hyperacusis rehabilitation have increasingly provided tinnitus and/or hyperacusis management. The aim of this study was therefore to evaluate the outcomes of audiologist-delivered tinnitus management at a public hospital in Singapore that has routinely offered tinnitus and hyperacusis management since 2016. This study seeks to inform the development of accessible tinnitus services in Singapore and contribute to the broader international discussion on audiologist-led models of tinnitus care.

The tinnitus clinic at Ng Teng Fong General Hospital was established in 2016. This is an audiologist-led and delivered service. Prior to being referred to the tinnitus clinic,

patients will be examined by an ENT specialist and cleared of underlying, medically treatable causes of tinnitus. Studies have shown that tinnitus management programmes employing multimodal schemes designed to address the precise needs of each patient may be most productive [15,16]. The clinic offers a mixture of interventions comprising education, psychological, behavioural and cognitive-based counselling, hearing aids and sound therapy. A brief description of each intervention is described in the next section.

2. Methods

2.1. Description of the Intervention

2.1.1. Education

Education is aimed at increasing the patient's knowledge about tinnitus. Through educating patients on the possible mechanisms and causes of tinnitus, it demystifies the perception of the phantom sound which they are hearing and provides an understanding of how the brain can habituate to the phantom sound. The educational content for the tinnitus clinic covers content from tinnitus retraining therapy (TRT) [17]. TRT is a form of treatment popularised by Jastreboff in the 1990s for the treatment of persistent tinnitus. The neurophysiological model of tinnitus provides the theoretical basis for TRT. Patients are offered detailed information about (1) the outcome of their audiological and otological investigations, (2) the pathway of the auditory system, (3) brain function and the interactions of the various systems of the brain, and (4) the theoretical basis of habituation based on the neurophysiological model [18]. Relaxation techniques such as practising mindfulness are taught to patients to help reduce distress and improve their quality of life.

2.1.2. Counselling

The use of patient-centred counselling in the management of tinnitus has been recommended by several authors [3,19]. At the tinnitus clinic, psychological, behavioural and cognitive-based counselling focuses on acceptance and distraction of tinnitus. Counselling aims to help individuals better understand their tinnitus, to explain the mechanism behind the perception, and to correct any false beliefs about tinnitus [20]. In most cases, patients feel threatened by their tinnitus, and it is essential to identify the specific threats, retrain their thinking and help them view tinnitus as a benign phenomenon that can be managed.

The first focus of counselling is acceptance: the process of recognising the tinnitus sound and allowing it, rather than trying to actively fix or change the perception of the sound. Patients are encouraged to be open to experiencing a range of thoughts and feelings and be non-judgmental of themselves [21]. Rather than evading the tinnitus or struggling to gain control over it, patients may have a better quality of life when they learn to modify tinnitus-triggered behaviour and reactions, and adapt to the tinnitus [22]. This is supported by the theory of experiential avoidance, which states that avoidance might heighten and worsen the experience a person is actively struggling to control or evade, causing further avoidance and more distress. It has been shown that patients with greater tinnitus acceptance described a better quality of life and reduced tinnitus distress [23].

Second, cognitive restructuring encompasses changing beliefs related to tinnitus whereby patients are advised not to devote all their attention to tinnitus. Distraction involves shifting attention away from the tinnitus sound towards an activity that can be controlled, thus reducing distress and limiting any emotional response to the sound. A study found a correlation between a reduction in auditory cortex activity and tinnitus loudness perception simply by shifting one's focus away from the tinnitus [24].

2.1.3. Hearing Aids

Hearing aids are offered to patients if they have tinnitus combined with self-reported hearing difficulties and a hearing loss that could benefit from wearing hearing aids. Not only will hearing aids reduce the tinnitus perception, but they will also lead to better communication as the speech signal becomes more audible than the tinnitus. This can contribute to a decrease in stress and anxiety [25]. An increase in auditory input may lead to neural plasticity and a reorganisation of the auditory cortex and nervous system, thus reducing the tinnitus perception [26].

2.1.4. Sound Therapy

Sound therapy is one of the most commonly used methods in tinnitus management as it lowers the tinnitus signal-to-noise ratio, resulting in the tinnitus perception becoming less apparent [27]. Sources of sound can include environmental sounds, music, table-top sound generators, table-top water fountains and air purifiers, to name a few. Sound enrichment is used as a means of down-regulating the tinnitus perception, as opposed to completely masking the sound, making it inaudible. It is not recommended to mask the sound totally, as the patient will not be able to habituate to the tinnitus [28]. Sound enrichment reduces tinnitus perception by promoting reorganisation of neural pathways. Patients who have difficulties sleeping at night due to tinnitus can either play soft-level background music or make use of a bedside sound masker for distraction [29].

Tinnitus and hyperacusis management were delivered by three audiologists who were specialised in tinnitus and sound intolerance rehabilitation. As part of the post-graduate training for Audiology, all audiologists would have basic training on tinnitus management. Audiologists from Ng Teng Fong General Hospital choosing to specialise in tinnitus and hyperacusis rehabilitation received 6 months of supervised practice from the first author, who has received training in TRT by Jastreboff and had undergone a fellowship in advanced tinnitus management in Australia. During the 6 months, audiologists providing tinnitus therapy had the opportunity to observe therapy sessions in the clinic and to deliver therapy under direct supervision of the first author. After these 6 months, they received ongoing coaching and clinical supervision, during which they could discuss their difficult patients and receive additional informal training when indicated.

Patients are offered individual face-to-face therapy sessions which last about 90 min. Therapy comprises a mixture of education, counselling, hearing aids and/or sound therapy. Typically, patients will be seen for at least one therapy session. Patients who are able to self-manage their tinnitus/hyperacusis will be given a 3-month follow-up appointment where they are offered an opportunity to address residual issues.

This study was approved by the Ethics Committee of the Singapore National Healthcare Group, Domain Specific Review Board (DSRB Ref No.: 2020/00745).

The outcomes of tinnitus management of patients who were seen at the audiology department from 2 January 2016 to 30 September 2019 were analysed based on their pre- and post-counselling Tinnitus Handicap Inventory (THI) scores. It is routine that all patients fill out the THI and tinnitus questionnaires at their first tinnitus management session. The Tinnitus questionnaire contains questions on the characteristics of the tinnitus, such as the location and how it sounds. Data from the questionnaires were extracted and tabulated. The file was sent to the Research Office Central Trusted Third Party for de-identification. Anonymisation involves using a random serial number for each patient, and de-linking the anonymised data from the collated data.

The THI is a self-reported measure assessing tinnitus severity and its impact on quality of life. It consists of 25 items across catastrophic, emotional, and functional subscales, with responses of 'yes' (4 points), 'sometimes' (2 points), or 'no' (0 points). The score ranges

from 0 to 100, categorised as: 0–16 (slight/no handicap), 18–36 (mild), 38–56 (moderate), 58–76 (severe), and 78–100 (catastrophic) [30].

A second THI questionnaire was administered at the subsequent follow-up session with the audiologist, which was conducted 3 months after the initial appointment. The THI scores of the patients at the follow-up session were compared with the THI scores of the first session. Matched-samples *t*-tests were used to compare scores pre- and post-treatment. Some patients did not return for their follow-up appointment three months post-treatment and hence did not fill out the follow-up THI questionnaire.

In this study, we aim to examine the outcomes of tinnitus patients who visited the ENT Clinic and have undergone tinnitus management from January 2016 to September 2019. Specifically, this study aims to find out if there is any reduction in the impact of tinnitus on the patient's quality of life. This is measured via the Tinnitus Handicap Inventory (THI) questionnaire.

Patients for whom post-treatment questionnaire scores were available were used to provide a before/after comparison. A second level of analysis, referred to as a "baseline-observation-carried-forward (BOCF) sensitivity analysis", was also carried out on data for all patients who had attended the tinnitus management session regardless of whether they turned up for their review session. This was intended to avoid any selection bias [31]. For patients with missing post-treatment outcomes (those who dropped out or for whom the data were incomplete), their post-treatment scores were set to the same values as the pre-treatment scores. This is a very conservative method of assessing the benefit of a treatment, with the assumption that tinnitus management does not worsen the effects of the tinnitus and/or hyperacusis. The *p* value required for statistical significance was set at $p < 0.05$. The STATA programme (Version 13; StataCorp, 2013) was used for statistical analyses.

The effect size (ES) for each outcome measure was initially calculated as the mean difference between pre-scores and post-scores divided by the standard deviation of the difference [32]. In this study, since the same participants are measured before and after a treatment, their scores are correlated. This correlation must be taken into account when calculating the effect size to ensure it is not inflated due to the dependency between pre- and post-treatment scores. Equation (8) from Morris and DeShon (2002) [33] is used to reduce the effect size (ES) to avoid overestimating the effect size in within-subject designs. By doing this, the corrected ES value provides a more accurate representation of the treatment effect, which can then be compared with the results from controlled between-subjects designs [33]. ES values are classified as small if they exceed 0.2, medium if they exceed 0.5, and large if they exceed 0.8 [34].

3. Results

A total of 4356 patients were seen at the ENT Clinic at Ng Teng Fong General Hospital from 2 January 2016 to 30 September 2019 with otological problems as their primary complaint. 760 (or 17.5%) reported experiencing tinnitus. 208 patients (27.4%) were referred to the audiologist-led tinnitus clinic for tinnitus management. Among the 208 patients who attended the first tinnitus management session, 7 patients did not complete the THI questionnaire as they could not understand the questions. There were 2 patients who had reported to have undergone TCM treatment previously but had completed the TCM treatment. There are no patients who have reported to be seeking alternative treatment concurrent to seeing the tinnitus clinic.

3.1. Characteristics of the Patients

The median age of the 201 patients was 52 years (SD = 16 years, range = 18–86 years), and 54% were male (109 men, 92 women). The patient's demographic profile, audiological

results and tinnitus characteristics are shown in Table 1. The mean Pure Tone Average (PTA) across the ears was 27.7 dB HL (SD = 18.3 dB HL). According to the PTA for the better ear, 44% of the patients (88/201 with audiograms) had hearing in the normal range, 39% (79/201) had mild hearing loss, 15% (30/201) had moderate hearing loss, and 2% (4/201) had severe/profound hearing loss.

Table 1. Demographics of 201 Tinnitus patients.

Gender	
- Male	109 (54%)
- Female	92 (46%)
Age	
- Median age	52 years
- Age range	18–86 years
- 18–30	29 (14%)
- 31–40	15 (7%)
- 41–50	31 (15%)
- 51–60	62 (31%)
- 61–70	54 (27%)
- >70	10 (5%)
Ethnicity	
- Chinese	168 (84%)
- Malay	21 (10%)
- Indian	7 (3%)
- Others	5 (2%)
Hearing thresholds (500–8 kHz)	
- Normal hearing ($4FA \leq 25$ dBHL) in both ears	88 (44%)
- Hearing loss ($4FA > 25$ dBHL) in at least one ear	113 (56%)
Localisation of tinnitus	
- Right ear	65 (32%)
- Left ear	61 (30%)
- Both ears	60 (30%)
- In head	15 (7%)
Type of tinnitus sounds heard	
- Non-pulsatile ringing	112 (56%)
- Crickets	48 (24%)
- Others *	41 (20%)
Tinnitus Severity Grade	
- Slight (Grade 1)	48 (24%)
- Mild (Grade 2)	60 (30%)
- Moderate (Grade 3)	55 (27%)
- Severe (Grade 4)	20 (10%)
- Catastrophic (Grade 5)	18 (9%)

* Others include buzzing, hissing, roaring, blowing wind, burst tones, among others.

About 30% of the patients experienced bilateral tinnitus, 62% had tinnitus localised to one ear (32% right, 30% left), and 7% perceived it in the head. 93% described tinnitus as in the ears as opposed to 7% who described it as more heard in the head. 112 patients (56%) described their tinnitus sound as a non-pulsatile high-pitched ringing sound. 48 patients (24%) described it as cricket, while 41 patients (20%) described it as other types of sound such as buzzing, hissing, or roaring.

THI results indicate that 54% had slight or mild tinnitus handicap (108/201). 27% of the patients (55/201) had a moderate tinnitus handicap, 10% (20/201) had a severe tinnitus handicap, and 9% (18/201) had a catastrophic tinnitus reaction, with scores over 78 out of 90.

Based on the patient's history and audiological and otological characteristics, tailored interventions comprising education, behavioural and cognitive-based counselling, hearing aids and sound therapy were provided. Table 2 provides a summary of the tinnitus management strategies provided to the patients.

Table 2. Summary of Tinnitus management domains provided to patients by audiologist.

Tinnitus Management Domains	n
Education and Counselling	201 (100%)
Sound therapy	198 (99%)
Recommended and agreed to use hearing aid/sound generator	36 (18%)
Referred to/already seeing psychiatrist or psychologist	9 (4%)

Out of the 201 patients, 73 (36.3%) of them returned for a tinnitus follow-up appointment 3 months after their initial tinnitus consult with the Audiologist, where a repeat THI was performed. As shown in Table 3, there were no statistically significant differences in terms of age, gender, or four-frequency average (4FA) between the 73 patients who returned for a repeated THI and the other 128 patients who did not return for the repeat visit. There was a difference, however, in the initial THI between the two groups. The patients who returned for their 3-month follow-up had a higher mean initial THI than those who did not return ($p < 0.000$). It is possible that patients who are more bothered by their tinnitus would be more likely to return for a repeat visit to follow up on their condition and seek further advice.

Table 3. Comparison of the means of age, gender, four frequency average (4FA) in the better ear and Tinnitus Handicap Inventory (THI) scores for patients who return for the 3-month follow-up appointment and patients who did not return for the follow-up appointment.

	Patients Who Returned for the 3-Month Follow-Up Appointment (n = 73)	Patients Who Did Not Return for the 3-Month Follow-Up Appointment (n = 128)	p Value
Mean age, years	50.4	52.6	0.34
Gender (% male)	47	58	0.168
Mean 4FA of the better ear (dB HL)	22.0	23.7	0.41
Mean THI (Before)	46.9	31.1	0.000

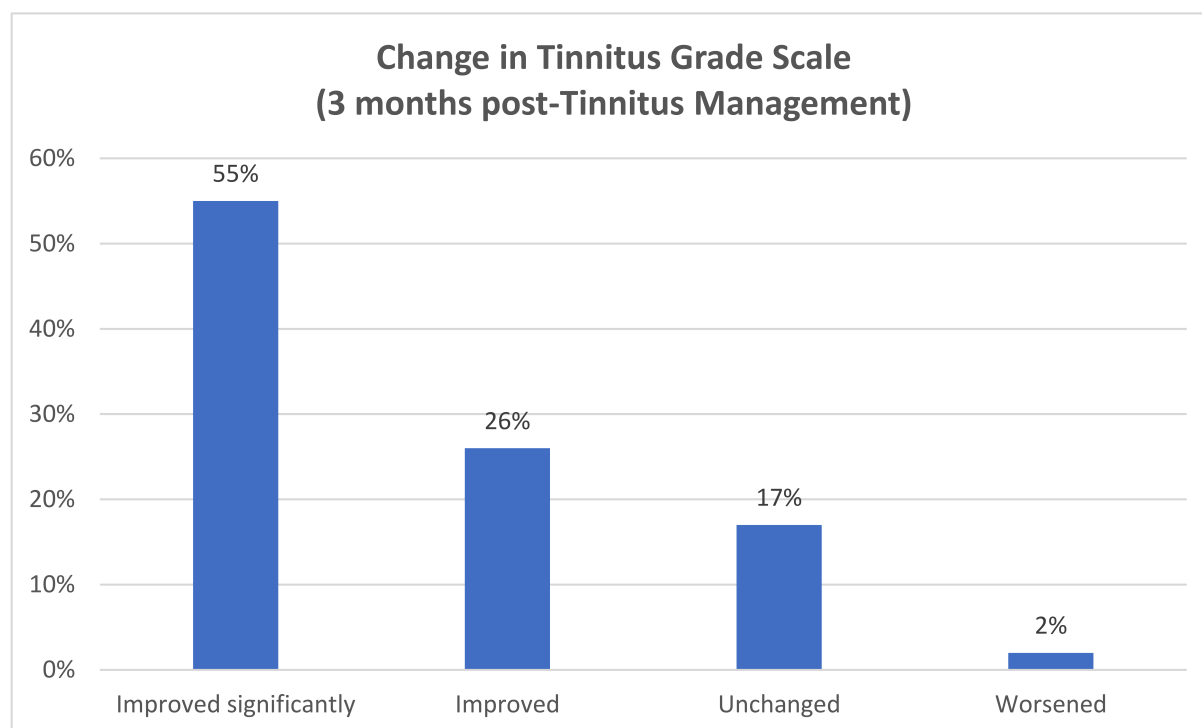
3.2. Post-Treatment THI Scores

After undergoing tinnitus management, the proportion of patients exhibiting moderate-to-catastrophic tinnitus decreased from 65% to 21%. In fact, post-tinnitus management, 94% of patients' tinnitus handicap scores were moderate or below (Table 4). Figure 1 illustrates the change in THI scores for patients who reported a tinnitus grade of moderate and above before tinnitus treatment. 3 months post-tinnitus management, more than half (55%) saw an improvement of tinnitus severity grade of 2 grades or more. There was, however, one person (2%) whose tinnitus grade worsened from grade 4 to 5.

Paired *t*-test calculations indicated a significant difference between the mean THI scores before and after tinnitus management ($t(72) = 22.6, p = 0.0000$). A corrected ES value of 1.16 (95% CI [0.54, 1.78]) was obtained by application of Equation (8) from Morris and DeShon (2002) [33] to Cohen's *d*. As this is greater than 0.8, it is considered large, indicating that the magnitude of change between pre- and post-counselling THI scores is significantly large.

Table 4. Distribution of THI scores for 73 patients pre and post tinnitus treatment.

THI Score	Tinnitus Severity Grade	Pre-Treatment n = 73	Post-Treatment @ 3 Months n = 73
0–16	1 (Slight/No handicap)	6 (8%)	33 (45%)
18–36	2 (Mild)	20 (27%)	24 (33%)
38–56	3 (Moderate)	26 (36%)	12 (16%)
58–76	4 (Severe)	8 (11%)	1 (1%)
78–100	5 (Catastrophic)	13 (18%)	3 (4%)

**Figure 1.** 3 months post-Tinnitus Management change in Tinnitus Grade Scale for patients experiencing moderate and above tinnitus handicap.

The mean THI score for the 73 patients with complete data before tinnitus management was 46.9 (SD = 22.9). 3 months post tinnitus management, the mean THI score decreased to 24.3 (SD = 19.6; $p = 0.0000$), a 22.6-point improvement (See Figure 2). Table 5 also shows the results of the baseline-observation-carried-forward (BOCF) analysis. When patients with missing post-treatment outcomes (those who did not turn up for their 3-month follow-up appointment) were assigned the same post-treatment values as their pre-treatment, the results also showed a significant 7.2-point improvement in the overall post-treatment THI ($p = 0.003$).

Table 5. Means (standard deviation) of scores for the Tinnitus Handicap Inventory (THI before and after audiologist-delivered tinnitus management. The number of patients included in each analysis is indicated by n. $p < 0.05$ was considered significant change in THI scores.

	Pre-Treatment M (SD)	Post-Treatment M (SD)	<i>p</i> Value
THI (n = 73)	46.9 (22.9)	24.3 (19.6)	0.0000
THI (n = 201) *	36.9 (23.7)	28.7 (21.6)	0.0003

* The baseline-observation-carried-forward (BOCF) sensitivity analysis was used. For patients with missing post-treatment outcomes, their post-treatment scores were set to the same values as the pre-treatment scores.

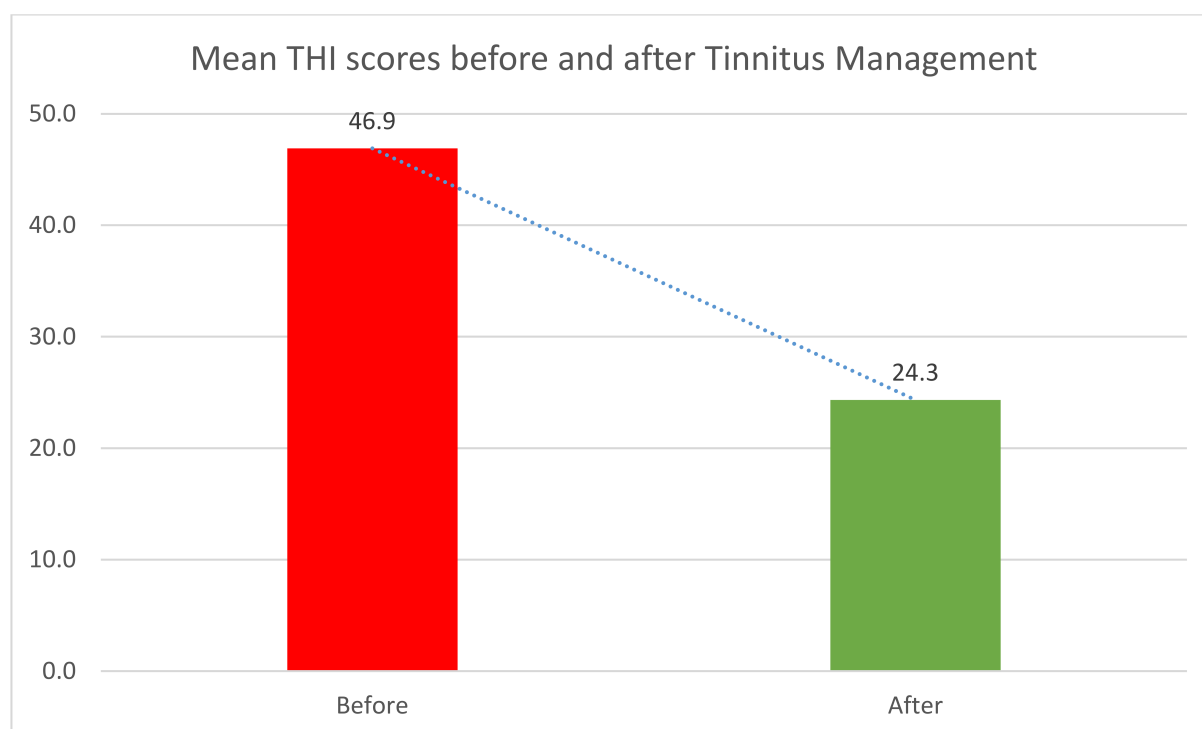


Figure 2. Mean THI scores before and after Tinnitus Management. The blue dashed line is showing a decrease in THI scores after intervention.

4. Discussion

This study evaluated whether an audiologist-led tinnitus management service was associated with reduced tinnitus-related handicap, as measured by the THI. Three months after intervention, mean THI scores among patients with complete follow-up data decreased significantly from 46.9 to 24.3. This represents a clinically meaningful reduction in tinnitus handicap and suggests that structured audiologist-delivered care may help patients reduce the functional and emotional impact of tinnitus.

Among patients with moderate or greater tinnitus handicap at baseline, 81% improved by at least one severity grade. The corrected effect size of 1.16 represents a large pre-post change.

These findings add to the limited published literature on tinnitus management in Singapore. Thong et al. reported that 68% of patients were less annoyed by tinnitus following tinnitus retraining therapy delivered by a senior ear, nose and throat surgeon and a specially trained nurse [35]. Another Singapore study described the profile and THI scores of 327 tinnitus patients managed by a specialised tinnitus counsellor [36].

To the authors' knowledge, the present study is the first to report outcomes of audiologist-delivered tinnitus management in Singapore. Although the study period (2016–2019) precedes publication by several years, reflecting time needed for data extraction, ethics review, and manuscript preparation, this Singapore-based service evaluation, among the largest reported from the region, remains a practical model audiologists may find useful today. Tinnitus remains a condition without a single prescribed treatment, and we believe the structured, audiologist-delivered approach described here continues to offer a practical model that audiologists managing tinnitus patients today may find useful, notwithstanding the time elapsed since data collection.

The potential service implications are substantial. Audiologists are trained in auditory disorders, psychoacoustics, hearing assessment, hearing technology and counselling approaches, positioning them to contribute to first-line tinnitus management in community

and hospital settings. This is particularly relevant because many patients with tinnitus also have hearing loss, and addressing reduced auditory input through amplification or sound enrichment may reduce tinnitus perception and improve communication.

Greater public and professional awareness of tinnitus management options is therefore needed. In primary care, the immediate priority is often to identify red flags and exclude medically treatable causes. Once these have been addressed, however, patients may still need reassurance, education and practical strategies to manage tinnitus-related distress. Advice such as “just live with it” may be interpreted by patients as meaning that no help is available, potentially increasing anxiety and hopelessness. Clearer knowledge of evidence-informed audiology services would allow general practitioners, otolaryngologists, and other healthcare providers to refer patients in a more timely and constructive manner.

The findings also highlight the importance of workforce development. Dedicated training opportunities are needed to prepare audiologists for tinnitus and hyperacusis care [37]. This may include continuing professional development workshops, clinical supervision, practical guidelines, structured resources for assessment and intervention, and advocacy to improve service accessibility. Audiology training programmes may also consider strengthening tinnitus education so that graduates enter practice with greater confidence in assessing, counselling and supporting patients with tinnitus.

As this was a service-evaluation survey, there were several limitations to this study. The mean THI change is based on the 73 patients (36.3%) who returned for follow-up. Although returners had significantly higher baseline THI than non-returners (46.9 vs. 31.1; $p < 0.001$), suggesting milder cases were less likely to return, this could result in a selection bias. This study evaluates a multicomponent service rather than a single protocol; the relative contribution of individual components, including amplification versus counselling, cannot be determined. The modest sample size also limited exploration of predictors of response (e.g., baseline severity, age, hearing status, hearing aid use, gender), which future adequately powered studies should address. Finally, reliance on a single self-reported measure, THI, also means hyperacusis, anxiety, depression, sleep, quality of life, and satisfaction were not assessed; future studies should use validated multi-domain outcome measures given the intervention’s substantial counselling content.

Future controlled studies, with the inclusion of several other variables known to influence tinnitus outcomes, involving multiple centres and longer follow-up periods, would help determine whether the observed benefits are sustained over time and whether similar outcomes can be achieved in other healthcare settings.

5. Conclusions

The audiologist-delivered tinnitus and hyperacusis management service described in this study was associated with a reduction in tinnitus handicap. Among patients with moderate or greater tinnitus handicap at baseline, 81% improved by at least one severity grade, and the overall treatment effect was large. These findings support the development of evidence-informed, accessible tinnitus care and are relevant to other healthcare systems seeking to expand tinnitus services. General practitioners, otolaryngologists and other healthcare providers can play an important role by recognising tinnitus-related distress, providing reassurance, identifying red flags and directing patients to appropriate audiological and supportive resources.

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Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors on request.

Conflicts of Interest: The authors declare no conflicts of interest.

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