I, Mandy J. Lutz, hereby submit this as part of the requirements for the degree of:

Master of Arts

in:

Audiology

It is entitled:

Listening Therapy in Patients with Tinnitus: Efficacy with Mild versus Severe Cases

Approved by:

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LISTENING THERAPY IN PATIENTS WITH TINNITUS: EFFICACY WITH MILD VERSUS SEVERE CASES

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Committee Members: Kenneth Donnelly, PhD
                 Douglas Martin, PhD
ABSTRACT

LISTENING THERAPY AND TINNITUS PATIENTS: EFFICACY WITH MILD VERSUS
SEVERE CASES

By Mandy J. Lutz

The goal of tinnitus therapies utilizing sound and listening is to activate residual inhibition or habituation of the tinnitus signal. The aim of this study is to look at the measured benefit of patients reporting mild tinnitus compared to those reporting severe tinnitus. Twenty-six subjects were included in this study (14 reporting mild tinnitus, 12 reporting severe tinnitus) who each underwent listening therapy, consisting of a three minute administration of an individualized stimulus. The results were classified as complete tinnitus abolition (7% of the mild group; 0% of the severe group), improvement (29% of the mild group; 83% of the severe group), unchanged (7% of the mild group; 8% of the severe group), and worsened (57% of the mild group; 8% of the severe group). These results conclude that listening therapy may be a contraindication in patients with reported mild tinnitus and most effective on subjects experiencing severe tinnitus.
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It’s difficult to reflect back on what actually went into this research project and all of the influential people who helped along the way. This was not an easy year for me as so much has changed. Opening new chapters and closing others is a difficult but necessary lesson to learn to be successful in life. With the passing of my grandmother in January of this year, I lost a major support in my life, both personally and academically. I could not have made it this far without her love and motivation to become a strong woman in conquest of my highest dreams and goals. As the next chapter opens, and I continue on with my higher education, I will do so in her honor.

Another poignant moment during this year was the passing of Dr. Kenneth Donnelly in April. Working with Dr. Donnelly the past two years in the Bahmann Assistive Center will be a time fondly remembered. As a student of his in the classroom and while working on this project, I’ve gained a priceless experience. He was exceptionally dedicated to the field of Audiology and his students. He was a genuine person, extraordinary clinician, and wonderful mentor. There was still so much to learn from Dr. Donnelly, however I feel grateful to have known and worked with him for two remarkable years. This project would not have been possible without his guidance, motivation, and support. I’m truly saddened that he is not here today to see the final outcome of our hard work together.

Amazingly, this project persevered through these difficult times of sadness, and it was all due to the help and support of amazing people I’ve had the opportunity to be surrounded by. Dr. Robert Keith, the head of my committee, has proven to be a strong and influential part of this project and my education in general. This project would not be complete without his mentoring and enthusiasm for research and audiology. He is a remarkable person who I hope will continue to play an integral role in my education. Dr. Douglas Martin has provided his abounding
knowledge and experience in the area of tinnitus and contributed levity throughout this experience. His upbeat outlook and fresh perspective was truly appreciated. In addition to my committee members, several other people contributed exponentially to this endeavor who I wish to acknowledge. My supervisors at the Cincinnati Veteran Affairs Medical Center: Ricki Smith, Monica Grant, Heather Steinher, and Julie Weaver offered endless support and guidance throughout my research journey. Kiersten Thompson, a fellow student and my partner in crime: I would not be here without her advice and kindness as we went through the journey of completing a thesis together. And most importantly, my family and Brian, who provided endless encouragement and patience with me as I finished this stage of my academic career and made this process worthwhile.
CHAPTER I

Statement of the Problem

Tinnitus is a complex phenomenon that a significant portion of the world’s population will at one time experience. The American Tinnitus Association (ATA) estimates that nearly 50 million Americans have or will experience tinnitus at one time during their lives. Of that population, nearly 12 million will experience it severely enough to seek medical treatment. Cognitively, the source of anxiety for tinnitus sufferers may be caused by the manner in which they perceive tinnitus. The question of why there are so many varying reports of degrees of tinnitus is a worthy one. While some sufferers can cope with this symptom, others seek the help of medical professionals to be “cured”. Some tinnitus sufferers develop the ability to elicit adaptive processes in order to decrease their perception of tinnitus (i.e. natural sounds mask their tinnitus). Others may find that their tinnitus is mild or absent until they enter quiet surroundings, for instance at night in bed. “The concept of somatic attention relations to an individual’s awareness of bodily sensations that decrease in the intensity of external stimuli, often result in internal information becoming more salient to the body” (Hallam, 1984).

Purpose of the Study

Tinnitus is seen with many auditory disorders, and occasionally occurs for unknown reasons. Most commonly it has been reported to coexist with persons with head trauma, hypothyroidism, excessive noise exposure, acoustic nerve tumors, allergies, high blood pressure, excessive stress, impacted cerumen, ear infections, and as a side effect to a multitude of medications. As researchers actively seek to determine the actual cause of tinnitus, another important question is whether or not there are effective methods of lessening the severity the sufferer’s perception of the signal. This study will look at the effectiveness of AudioMedic’s
Tinnitus Manager Program and the amount of residual inhibition gained through undergoing listening therapy in subjects with reported tinnitus. The first tinnitus management visit, involving tinnitus matching before and after the initial course of listening therapy, was the only analyzed portion of the tinnitus management process for this study. Two groups were included in this study (mild and severe) and their measured residual inhibition was compared to one another.

**Hypothesis**

*Null Hypothesis:*

There will be no difference in residual inhibition benefit among group one (mild) and group two (severe) according to comparison of pre- and post-listening therapy measurements.

*Research Hypothesis:*

There will be a difference in residual inhibition benefit among group one (mild) and group two (severe) according to comparison of pre- and post-listening therapy measurements.
CHAPTER II

Review of the Literature

The literature on tinnitus is very diverse. Many methods of tinnitus management have been evaluated and the conclusions have been difficult to interpret, as what seems to be effective is not homogenous across the board with all tinnitus patients.

What is Tinnitus?

Tinnitus is most commonly described as a phantom auditory perception which is reported in the absence of external stimuli, and is believed to be generated somewhere in the peripheral, or neural systems. Some believe it arises somewhere in the cortical region of the brain. Mirz et al (1999) used positron emission tomography to map tinnitus-specific activity and identified specific cerebral areas that they believe to be associated with tinnitus. These findings indicate that the perception of tinnitus is a central phenomenon, however the source of the symptom is still not specified as having a central or peripheral generator.

Tinnitus is described by patients in many different ways. Stouffer and Tyler (1990) conducted a study on characterizations of tinnitus in which their subjects described their tinnitus as eighteen different sounds including: ringing, buzzing, cricket-like, hissing, whistling, humming, roaring, musical notes, steam whistle, pulsing, rushing, crackling, throbhing, whooshing, clicking, pounding, clanging, and popping. The type of sound reported may provide an insight to the source of the tinnitus (i.e. pulsitile tinnitus may have a vascular basis), however all sounds are generalized as tinnitus because the sound being perceived is not occurring externally, only internally.
Assessing the Presence and Severity of Tinnitus

Because tinnitus is a subjective affliction, it is difficult to assess the presence and severity of one’s problem. Currently, there is no uniform method of assessing tinnitus adopted by medical professionals and researchers. However, most commonly, the presence of tinnitus is assessed and can be proven to exist beyond a reasonable doubt in some cases through tinnitus evaluations utilizing matching procedures. Tinnitus matching is usually conducted after pure-tone thresholds are determined on diagnostic audiometers by varying the frequency and intensity until the patient reports the levels closest resembling their tinnitus. The clinician can then report the difference in the patient’s hearing threshold and matched tinnitus intensity (dB HL) as a sensation level (dB SL). Tyler and Conrad-Armes (1983) found that 88% of their subjects reported their tinnitus as a 10dB SL signal or less. Most commonly, tinnitus is reported being perceived at frequencies of 3000 Hz or greater. AudioMedic©, a subsidiary of the Canadian company SVD, Inc., developed a tinnitus management program in hopes to quantify and detect tinnitus beyond a reasonable doubt as a prelude to treatment. Their software and diagnostic equipment is available in laptop or personal computer systems to allow their users some flexibility in using the system.

As audiologists and healthcare professionals, it is important to assess the impact a condition creates on a patient’s general well-being. A good method of doing so is through quantifying a patient’s handicap as result of a condition. A commonly used and quickly administered subjective tinnitus assessment tool is a basic three-point scale, which allows the sufferer to describe their symptoms as mild (only perceived in quiet), moderate (perceived over ambient noise, however not affecting sleep), or severe (perceived over ambient noise and having a detrimental effect on sleep) (Baugley, 1992). McCombe et al (2001) looked at this method of
assessment and compared it to psychometrically validated questionnaires to suggest such questionnaires as the most efficient and specific indicators of tinnitus severity. These researchers used the Tinnitus Handicap Inventory (THI), which was developed by Newman, Jacobson, and Spitzer in 1996. This twenty-five item self-report scale measures functional, emotional, and catastrophic reactions to tinnitus. The Tinnitus Handicap Inventory has been shown to have good internal consistency and reliability, and was standardized on patients who reported tinnitus during their audiological evaluation. (Newman, 1996)

**Treatments for Tinnitus**

As tinnitus is being recognized and diagnosed at a more rapid rate, audiologists and health care professionals have been developing strategies and therapies by which to aid sufferers. Many tinnitus clinics, associations and support groups have been established for the treatment and support of tinnitus sufferers. Some audiologists adhere to the practice of masking tinnitus with hearing aids that emit broadband noise to lessen the perception of tinnitus. Masking techniques are used to relieve, not obliterate tinnitus, through the use of neutral sounds produced by such ear level or environmental devices. (Vernon, 1975)

A different technique used in conjunction with patient counseling is Tinnitus Retraining Therapy (TRT). The goal of TRT is to educate the individual about tinnitus and retrain their brain to have the ability to cope with their perception of tinnitus. Like basic masking devices (ear level or environmental) TRT uses a broadband frequency that is delivered through auditory devices. However the goal of this therapy is not to mask the tinnitus but rather present the stimulus at a level below the subject’s intensity. Eventually, if successful, these types of
programs enable habituation to take place, which initiates a reduced perception of tinnitus at the cortical level.

A study by Gold et al (2002) found improvements in their subjects’ Loudness Discomfort Levels (LDLs) with increases in sound tolerance and dynamic range after TRT. Through these changes TRT allowed their patients to focus less on their tinnitus, giving them the possibility of more comfortable listening situations in everyday living.

AudioMedic© recently developed a computerized tinnitus manager program and is currently in use in Canada and the United States. Once the tinnitus is matched an individualized listening therapy can be created specifically to the frequency and intensity of the patient’s tinnitus. The goal of the listening therapy is to illicit residual inhibition, or desensitizing of the auditory system’s perception of tinnitus.

**Implications of Tinnitus**

Tinnitus is commonly compared to pain in the literature because of the similar qualities they possess, mostly as they are or can become chronic conditions. In tinnitus and pain studies, the many facets of a sufferer’s life that can be affected are discussed and compared. Tyler and Baker (1983) found that the most common problems tinnitus sufferers report included: getting to sleep, persistence of tinnitus, understanding speech, depression, annoyance, confusion, and drug dependency. As these chronic conditions are researched, the ability for audiologists to counsel and possibly treat tinnitus patients can be expanded.
CHAPTER III

Methods

Subjects

Results from undergoing initial listening therapy sessions of 26 adults who sought the services of the University of Cincinnati’s Bahmann Rehabilitation Center for tinnitus evaluation and management were included in this study. Prior to commencement of the study, subjects were required to meet the following criteria: they must have subjective complaints of tinnitus at the time of their visit, they must have undergone a recent (< than one year) audiological evaluation by the researcher or other audiologist, and they must be able to undergo one session of individualized tinnitus listening therapy. The exclusion criteria included patients who have a history of stroke, head trauma, otosclerosis, conductive hearing loss, severe unilateral hearing loss, and disorders of the endocrine system (such as hyperthyroidism). Intake questionnaires were given to all subjects to determine their history to some extent in order to ensure that they did not fall into any of the exclusion criteria. Some of the subjects included in this study continued on for extended tinnitus management listening therapy, however their progress was not followed or analyzed in this study.

Materials

This study required each subject to complete the Tinnitus Handicap Inventory (Newman et. al., 1996) prior to commencement of the study. This gave the researcher the ability to categorize each patient into a category of either mild (group one) or severe (group two). This study utilized the McCombe et al modified Tinnitus Handicap Inventory (2001) grading method to assess changes in perceived tinnitus once the subject underwent the listening therapy. These
researched created the following five categories in which their subjects were divided into according to severity:

1. SLIGHT with a THI score between 0-16
2. MILD with a THI score between 18-36
3. MODERATE with a THI score between 38-56
4. SEVERE with a THI score between 58-76
5. CATESTROPHIC with a THI score between 78-100

Subjects in this study were placed in one of the five categories to describe the state of their tinnitus prior to tinnitus intervention. From these five groups the subjects were further separated into two smaller groups for comparison. Group one (mild) included subjects who fell into the slight or mild THI categories and group two (severe) subjects included the moderate through catastrophic THI categories.

Procedures

The subjects’ tinnitus was bilaterally matched in frequency and intensity using AudioMedic®’s Tinnitus Manager program and insert earphones (EAR 5A). The first step in this process was to present a 1000 Hz tone at an intensity of at least 5dB HL above their threshold for several seconds. Following this signal a narrowband noise signal of the same intensity was presented. The subject was then asked to state which signal, regardless of frequency or intensity, sounded most like their tinnitus. This determined if they perceived their tinnitus as noise or a tone. Secondly, the frequency level was matched based a method referred to as “limiting” (Small, 1973). Limiting was utilized as a descending pattern of stimulus was presented to key into the patient’s threshold level.
Through the use of a pure-tone or narrowband noise, a frequency beginning at 1000 Hz was presented at an audible intensity level 5 dB HL above the subject’s threshold at that frequency. The subject was then asked to state whether the presented signal was higher or lower in frequency (pitch) than their perception of tinnitus. To ensure the presence and accuracy of the tinnitus, pitch-matching trials were conducted three times, then averaged. Thresholds at the measured frequency were obtained after the three pitch-matching trials were averaged to determine the dB SL for comparison between subjects.

The intensity level was determined once the stimulus type, frequency, and thresholds were matched. The initial intensity was presented 5 dB HL above the subject’s threshold and was increased until the patient stated a matching point for their intensity of tinnitus. The subject’s tinnitus was matched in dB HL and recorded in terms of dB SL (sensation level) which represented the intensity of the tinnitus signal above their hearing threshold at that perceived frequency.

Once the best signal type, frequency, and sensation level intensity was obtained, the individualized listening therapy program was established. Using the same stimulus (pure-tone or noise) and frequency, the intensity of the stimulus was decreased by 3 dB HL. This signal was presented for three minutes during which the subject was asked to actively listen for his or her tinnitus. The manufacturer of the Tinnitus Manager Program (AudioMedic©) states that after this short trial of therapy, most patients should experience residual inhibition to some degree. One-minute post therapy the intensity of the subject’s tinnitus was matched again to measure any changes in the person’s perceptions of their tinnitus (dB SL). The results were divided into four groups: (1) subjects with abolition of their tinnitus, (2) subjects with improvement of their tinnitus, (3) patients with unchanged tinnitus, and (4) subjects with worsened tinnitus.
Experimental Design

The $T^2$ test for differences between two independent groups was used in this study. A second method of analysis involved the use of descriptive statistics, including calculations of mean and standard deviation.
CHAPTER IV

Results

Subjects

Subjects ranged from in age from 23 to 88. All subjects were experiencing tinnitus at the time of the listening therapy. Some subjects had hearing within normal limits, and some had a hearing loss ranging from mild to moderately-severe. Figure one shows that 15 of the total number of subjects (57.8%) had positive response to the listening therapy, that is, they either experienced abolition or improvement of tinnitus. Comparing the groups to one another provided evidence of the difference in benefit between the two groups. Figure two shows that total abolition of tinnitus was seen in only one subject in group one, the slight to mild category. While improvement was seen in four subjects in group one (28.6%), the mild sufferers, and in 10 subjects in group two (83.3%), the severe sufferers. Tinnitus worsened in 8 of the mild subjects (57.1%) and in one of the severe subjects (8%). One subject in each group experienced no change in their tinnitus.

![Graph showing response to listening therapy.](image)

Fig. 1 Response to listening therapy of 26 patients with tinnitus.
A significance level of .05 was used for the T² test for differences between two independent groups. F (1, 24) = 4.90, p < .05, indicating that the slight to mild and moderate to severe group responded differently to the listening therapy. Examination of the mean differences in improvement for each group showed that the listening therapy was more beneficial to the severe group (Pretest M = 8.33, SD = 2.66; Posttest M = 5.66 SD = 1.68) than did the slight to mild group (Pretest M = 6, SD = .42; Posttest M = 7.07, SD = 1.55).
CHAPTER V

Discussion

Listening therapy was found to provide significant relief to the severe group and was shown to worsen some of the subjects’ perceptions of tinnitus in the less affected tinnitus group. The motivation of the subjects must be addressed to better interpret the outcome of this study. It is likely that the severe tinnitus sufferers had a greater motivation to work toward relieving their tinnitus through any means possible, such as the listening therapy in this study. Because their activities of daily living may have been more affected by their tinnitus, it is feasible that they would put more effort into and have a greater outlook on the audiological, tinnitus and therapy evaluations than the mild group.

Additionally, like most tinnitus research highlights, within tinnitus sufferers, it is only a small percentage that are not able to naturally mask out the annoying perception of tinnitus with everyday noises (i.e. radios, fans, television, etc.). This research study, among the many that examine methods and efficacy of tinnitus management, supports the common idea that different subjects respond differently to tinnitus management methods. Attentional mechanism have been said to be the cognitive variable responsible for tinnitus annoyance. “Receiving attention by tinnitus patients focusing on its presence likely increases the negative implications that tinnitus brings” (Hallam et al, 1984). Tinnitus sufferers’ awareness of their perception bears heavy weight on the manner in which they cope with their tinnitus. The results from this study indicated that the mild group benefited less, and in some cases their tinnitus worsened, from the listening therapy. It may be possible that the more attention placed on tinnitus for the mild group, the worse the tinnitus may be perceived by that individual. It has commonly been found that the act of matching one’s tinnitus may elicit a change in some subject’s tinnitus.
A possible explanation may be that the subject’s tinnitus may have remained stable, but their reaction to it may have changed, in most cases by worsened perceptions.

This study utilized bilateral tinnitus matching and binaural methods of stimulus delivery during listening therapy. Although the costs and benefits were considered in the decision to use a bilateral method of stimulation, ultimately this method was chosen as this study was not specifically aiming to look at the implications of unilateral, bilateral, or non-localizing (in the head) perceptions of tinnitus. Research has shown changes in person’s reported perception of their tinnitus is greater with ipsilateral stimulation and contralateral stimulation has been shown to produce a higher number of inaccurate frequency and intensity matches. The possible influence of bilateral stimulation is that in doing so it may be possible that the subject may judge the characteristics of his tinnitus with different ears between different matching trials, which may introduce variability in the person’s responses. However, because this study only included the very first tinnitus matching trials and three pitch-matching trials were conducted, this effect should have been minimized to the greatest possible extent.

Another point to consider is the degree of the change in the perceived intensity of the subjects’ tinnitus in dB SL for pre- and post-therapy measurements. Research has shown that especially when hearing loss is present in tinnitus subjects, using dB SL as the measurement of loudness growth functions may not be most appropriate. Rationale provided for this suggestion is that in frequency ranges where a person may have normal hearing thresholds will contaminate the loudness match in terms of sensation level measurement in comparison to the sensation level measurement of a hearing person (the SL may be much greater in persons with normal hearing). A proposed alternative measurement is the use of sones, which are the conventional psychoacoustical unit of loudness. This measurement takes into account the
subject’s threshold loss as well as loudness recruitment which allows for more accurate comparisons between all patients with tinnitus regardless of the presence of a hearing impairment. Depending on the subject’s hearing threshold, their perceived tinnitus signal may be reported louder in those with a significant hearing loss. (Tyler and Conrad-Armes, 1983) This study did not take into account hearing thresholds of the individual subjects for comparison outside the exclusion criteria.

Commonly tinnitus management programs included extensive counseling surrounding their method of tinnitus relief. The center in which these results were collected was no different. It is very possible that the education had an impact on the subject’s success with the therapy, which must be considered when reviewing this study’s results. However, the manner in which counseling was delivered was not standardized or consistently monitored. The counseling was individualized to the subject’s specific needs, therefore ranging between subjects.

Limitations

There are four major limitations of this study. First the degree of hearing loss (other than the exclusion criteria) was not taken into consideration in analyzing the benefit of the listening therapy between groups.

The second limitation of this study is that the motivation of the subject was not assessed. An assumption can only be made that there is a positive correlation between the severity and the subject’s motivation to change. One way to evaluate a person’s motivation would be to ask them to provide a rating (i.e. a five-point scale) of their motivation to change.

Thirdly, education through patient counseling was not standardized or examined as a contributing factor in listening therapy outcome between groups. This could be done by providing one group with tinnitus education only, a second group with listening therapy only,
and a third group with both education and education to assess the most beneficial contributions alone or in conjunction with one another.

Finally, including more subjects would only strengthen this study. The number of subjects was limited due to time restrictions with data collections and the available pool of subjects. With only a sample size of 26, and data which consisted of the initial tinnitus measurements of merely three minutes of listening therapy. More subjects, looking at a greater number of initial three-minute listening therapy trials would allow more correlations to be examined.

Further Research

There currently is little research examining the effects of listening therapies and residual inhibition times. Much more research needs to be conducted. First is there a correlation between the motivation of the subjects and the education that each subject received and the measured benefit from listening therapy? Clearly, the more perceived handicap a person had in this study the more they seemed to benefit. Controversially, the less perceived handicap a person had, the greater the possibility that their tinnitus was noticeably greater post-therapy was seen. Second, are age or gender contributors? Do younger people benefit to a greater degree and more quickly than older adults? Do males benefit more than females? Lastly, does description of tinnitus (i.e. buzzing, ringing, etc.) and location of reported tinnitus (right, left, bilateral) have an effect in the measured benefit a person may receive from listening therapy?

Implications for Clinical Use

Having a greater knowledge and understanding about tinnitus and possible management methods can only help increase audiologists’ abilities to more thoroughly counsel many of their patients suffering from tinnitus. Audiologists and healthcare professionals should be competent
and aware of successful therapies so that appropriate technologies can aid patients in their ability to cope with tinnitus. This knowledge is extremely powerful due to the inability to objectively measure tinnitus in the clinic. Utilization of listening therapies may give tinnitus sufferers a sense of comfort and control and in most successful cases, return normal activities of life to persons suffering from disabling tinnitus.
References


Gold, S.L., Formby, C., & Frederick, E.A. “Changes in loudness discomfort levels among hyperacusis patients receiving Tinnitus Retraining Therapy (TRT)”. Presented at a session during the American Academy of Audiology Annual Convention on Thursday, April 18, 2002.


## Tinnitus handicap inventory

Instructions: The purpose of these questions is to identify problems your tinnitus may be causing you. Please answer 'yes', 'no', or 'sometimes' to each question.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
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<tbody>
<tr>
<td>Because of your tinnitus is it difficult to concentrate?</td>
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<tr>
<td>Does the loudness of your tinnitus make it difficult for you to hear people?</td>
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<td>Does your tinnitus make you angry?</td>
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<td>Does your tinnitus make you confused?</td>
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<tr>
<td>Because of your tinnitus are you confused?</td>
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<td>Do you complain a great deal about your tinnitus?</td>
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<td>Because of your tinnitus do you have trouble falling asleep at night?</td>
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<td>Do you feel as though you cannot escape your tinnitus?</td>
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<td>Does your tinnitus interfere with your ability to enjoy social activities?</td>
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<td>Because of your tinnitus do you feel frustrated?</td>
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<td>Because of your tinnitus do you feel that you have a terrible disease?</td>
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<td>Does your tinnitus make it difficult to enjoy life?</td>
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<td>Does your tinnitus interfere with your job or household responsibilities?</td>
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<td>Because of your tinnitus do you find that you are often irritable?</td>
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<td>Because of your tinnitus is it difficult for you to read?</td>
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<td>Does your tinnitus make you upset?</td>
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<td>Do you feel that your tinnitus has placed stress on your relationships with members of your family and friends?</td>
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<tr>
<td>Do you find it difficult to focus your attention away from your tinnitus and on to other things?</td>
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<tr>
<td>Do you feel that you have no control over your tinnitus?</td>
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<tr>
<td>Because of your tinnitus do you often feel tired?</td>
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<tr>
<td>Because of your tinnitus do you feel depressed?</td>
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<tr>
<td>Does your tinnitus make you feel anxious?</td>
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<tr>
<td>Do you feel you can no longer cope with your tinnitus?</td>
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<tr>
<td>Does your tinnitus get worse when you are under stress?</td>
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<tr>
<td>Does your tinnitus make you feel insecure?</td>
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