

An Investigation of Acupuncture and Hypnosis as Treatments for Tinnitus

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Background

Tinnitus is the perception of ringing, rushing, roaring, buzzing, or other sounds in the absence of physical sound waves. According to the American Tinnitus Association (n.d.), tinnitus impacts 50 million people in the United States (U.S.) alone. There is no cure for this potentially debilitating symptom, yet there appears to be an endless supply of treatments.

Savage and Waddell (2012) conducted a systematic review of the literature regarding the efficacy of many interventions for tinnitus and rated quality of evidence using the GRADE method, which incorporates factors such as type of evidence, quality, consistency, directness, and effect size. Acamprostate, acupuncture, antidepressant drugs, benzodiazepines, carbamazepine, cinnarizine, electromagnetic stimulation, ginkgo biloba, hearing aids, hypnosis, psychotherapy, tinnitus-masking devices, and tinnitus retraining therapy were all therapies included in the review. The authors found that acamprostate may reduce the severity of tinnitus; however, the effects may not be clinically significant and they rated the evidence as low-quality. They also found that tricyclic antidepressants may reduce depression in tinnitus patients, again noting that the evidence was low-quality. Benzodiazepines were found to reduce some symptoms of tinnitus, although again the evidence was rated as very low-quality. Low-quality evidence suggested that hearing aids were no more effective in the treatment of tinnitus than a patient's presence on a waiting list. Client-based therapy was found to be effective in improving annoyance scores and quality of life in tinnitus patients, according to moderate-quality evidence. There was not adequate evidence to support the use of the other treatments reviewed in

this article. The following literature review focuses on two therapies used in the treatment of tinnitus—acupuncture and hypnosis.

Acupuncture for tinnitus

Acupuncture is an intervention for tinnitus that may not be familiar to many audiologists or otologists. Known as “chen” in Mandarin Chinese, acupuncture is an important component of Far Eastern Oriental Medicine and is used as a supplement to other traditional treatments. The word “acupuncture” originates from the Greek “acus,” meaning “needle,” and “punctura,” meaning “puncture.” The oldest detailed record of the practice appears in a book known as *Yellow Emperor’s Classic of Internal Medicine*, which was written in the second or third century B.C. E. (Omura, 1982).

The American Academy of Medical Acupuncture (2006) explained, “Acupuncture is a method of encouraging the body to promote natural healing and to improve functioning. This is done by inserting needles and applying heat or electrical stimulation at very precise acupuncture points.” The Academy further stated that acupuncture is based on the idea that the body contains energy channels called “meridians” that can become obstructed. Acupuncture is intended to unblock these obstructed meridians by stimulating the nervous system to release chemicals that modulate pain or regulate the body’s internal activities, such as digestion.

Acupuncture relies on the Chinese concept of “a subtle circulation network of a vivifying force called qi” (Helms, n.d.). As Omura (1982) noted, “qi” is a Japanese variant of the word “ch’i,” which originally signified the “flow of something that is difficult to grasp” (pp. 23).

Helms reported that the acupuncturist assesses the patient's symptoms and then decides which layers of the "qi" need to be treated. Needles are inserted until the patient senses a dull ache known as "de qi." The needles are then left in the patient's flesh for five to 20 minutes. The patient typically undergoes multiple sessions. Possible adverse effects include syncope, puncture of an organ, infection, retained needle, contact dermatitis to stainless steel needles, local inflammation, bacterial abscesses, and chondritis from needling points on the ear. Isolated cases of Hepatitis B transmission have been reported (Helms, n.d.).

Park, White, and Ernst (1998) published a frequently cited systematic review of the literature regarding the efficacy of acupuncture as a treatment for tinnitus. The authors identified six studies that met their inclusion criteria, yet only three of the studies were of acceptable quality for their review. These three studies found no positive effect of acupuncture. Similarly, Kim et al. (2012) were not convinced of the efficacy of acupuncture as a treatment for tinnitus by their own systematic review of the literature, which assessed nine randomized controlled trials, of which the "methodological quality was mostly poor" (pp. 1).

Several studies have suggested that acupuncture may be valuable in the treatment of tinnitus, but these studies have suffered from design flaws and other concerns regarding quality (Azevedo et al., 2007; Jackson et al., 2005; Okada et al., 2006; Wang et al., 2010). Azevedo and colleagues (2007) failed to assess tinnitus pitch, loudness, handicap, or other qualities, instead measuring only otoacoustic emissions (OAEs) and OAE suppression before and after acupuncture. The study by Jackson et al. (2005) had no control group and improvement on their outcome measure, the Tinnitus Handicap

Inventory (THI), did not reach statistical significance. The study by Okada et al. (2006) demonstrated a statistically significant improvement with both true acupuncture, defined as needling 6.5 centimeters (cm) above the ear, and sham acupuncture, defined as needling 9.5 cm above the ear, suggesting that placebo effects played a large role in the treatment. The authors reported a greater effect with true acupuncture, yet failed to report clear data, reducing the usefulness of the report. Finally, the work of Wang et al. (2010) suffered from the use of a sham acupuncture that could be differentiated from true acupuncture by the subjects, as needles did not pierce the skin in the sham acupuncture.

Hypnosis for tinnitus

Hypnosis is another intervention for tinnitus that may be unfamiliar to audiologists and otologists. According to the Online Etymology Dictionary, the word “hypnosis” is of Greek origin, combining the term “hypnos,” or “sleep,” with the suffix “—osis,” or “condition” (“Hypnosis,” n.d.). As Yapko (1995) explained, hypnosis has been practiced for thousands of years. Although there is no generally accepted definition, hypnosis may be described as “guided imagination,” “a natural, altered state of consciousness,” “a relaxed, hypersuggestive state,” or “a state of intense concentration, focusing and maximizing involvement with one idea or sensory stimulus at a time” (pp. 8).

Yapko (1995) insisted that a hypnotist cannot truly know whether a patient has entered a hypnotic state, but he provided a list of physical indicators, including “muscular relaxation,” “muscular twitching,” “lachrymation,” “eye closure with fluttering eyelids,” “change in breathing rate,” “jaw relaxes,” and “catalepsy” that would suggest such.

Several studies have suggested possible benefits of hypnosis as a treatment for tinnitus, but these studies suffered from inadequate controls for factors such as the benefits of attention paid to the patient or those of the relaxation techniques that accompany hypnosis (Attias et al., 1993; Mason et al., 1996; Ross et al., 2007). A frequently cited article by Attias and colleagues (1993) included an attentiveness group as an attempt to control for attention paid to the patient, a self-hypnosis group, and a masking group. The self-hypnosis group showed a statistically significant overall improvement following treatment, while the other two groups showed no improvement. However, the study did not examine long-term effects of treatment. The work by Mason et al. (1996) compared a client-centered hypnosis group to a counseling group, but the client-centered hypnosis group was provided three treatment sessions and the counseling group was only given one 30- to 60-minute session. Therefore, the study failed to adequately control for counseling effects and attention paid to the patient. Finally, the study by Ross et al. (2007) examined the effects of the authors' hypnosis treatment concept; however, the treatment consisted not only of hypnosis, but also of education about tinnitus, relaxation training, music therapy, and a large amount of attention paid to the patient, as the treatment was carried out in a 28-day inpatient program setting. Therefore, the specific effects of hypnosis could not be determined.

Conclusions from the literature

At this time, there is not adequate evidence to suggest that acupuncture and hypnosis are effective treatments for tinnitus. Audiologists, otologists, psychotherapists, and other professionals working with patients who have tinnitus should be prepared to inform these patients about the lack of evidentiary support for many interventions for

tinnitus, including acupuncture or hypnosis, and should also remind these patients of the potential risks involved in needling. As no data could be found regarding the extent to which these therapies are practiced and the associated costs, this capstone project resulted in a survey of acupuncturists, hypnotists, audiologists and otologists regarding their use of hypnosis and acupuncture for the treatment of tinnitus.

Methods

Participants

Acupuncturists, hypnotists, audiologists, and otologists were identified by entering key search words into Google. The search criteria included the following terms: “acupuncturists Tennessee (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Virginia, West Virginia),” “hypnotists Tennessee (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Virginia, West Virginia),” and so on for each profession.

Procedures

Nearly all participants were contacted through email with the exception of two hypnotists who were contacted by telephone. Acupuncturists were surveyed regarding their experiences with acupuncture as a treatment for tinnitus. Likewise, hypnotists were surveyed regarding their experiences with hypnosis as a treatment for tinnitus.

Audiologists and otologists answered questions about both treatments for tinnitus.

Survey responses were recorded in the Research Electronic Data Capture (REDCap) system at Vanderbilt University. Completion of the survey was estimated to take no more than five minutes and responses were collected anonymously. Data analysis was facilitated by Vanderbilt Institute for Clinical and Translational Research grant support

(UL1TR000011 from NCAT/NIH). All procedures were approved through Vanderbilt's Institutional Review Board.

Tools

The acupuncturists and hypnotists were asked to complete the surveys provided in Appendix A and Appendix B, respectively. The questions were designed to ascertain whether or not these professionals were treating tinnitus patients, their thoughts on the efficacy of the treatment, how many treatments were typically deemed necessary, and how much they typically charged for these treatments. Audiologists and otologists were asked the questions listed in Appendix C in an attempt to determine whether or not they had recommended or would recommend acupuncture or hypnosis for tinnitus patients.

Results

Acupuncturists and hypnotists

Emails were sent to 66 acupuncturists, 79 hypnotists, 92 audiologists, and 53 otologists. Twenty-two of the 23 acupuncturists who responded to the survey, or 95.65%, reported that they had used acupuncture to treat ringing in the ears, while 17 of the 23 hypnotists who responded, or 73.91%, reported that they had used hypnosis to treat ringing in the ears. One acupuncturist and six hypnotists reported that they had not provided treatment for tinnitus and were not prompted to complete the remainder of the survey.

The acupuncturists and hypnotists were asked how much success they had had in the treatment of tinnitus. This question was left open-ended, as "success" may be quantified in a variety of ways, and responses were then categorized by the principle investigator as "positive," "negative," or "neutral/mixed." Of the 22 responses to this

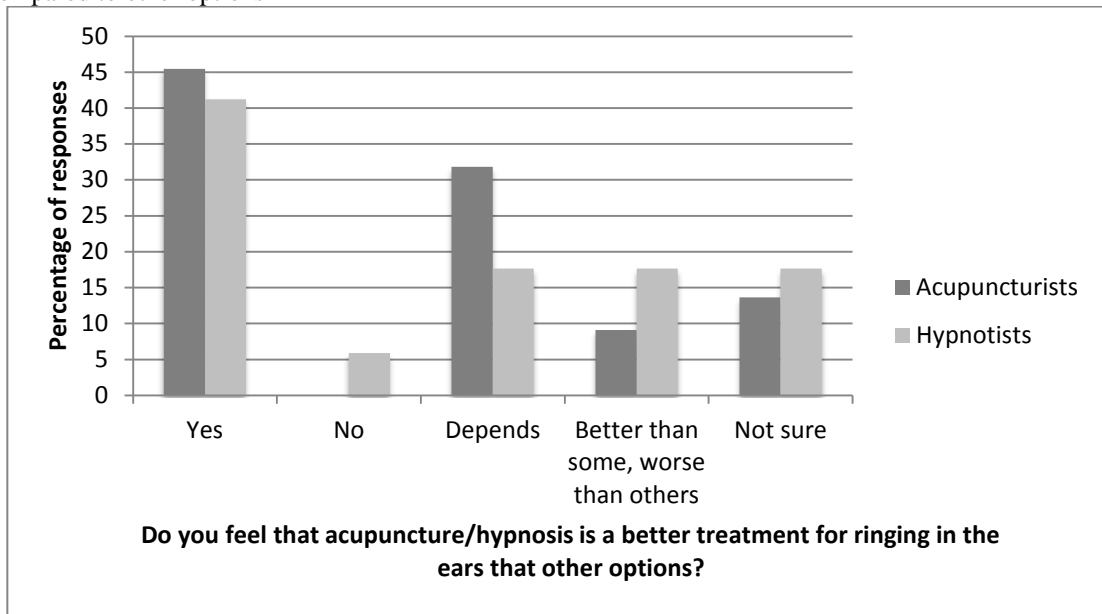
question from acupuncturists, one response (“about 30 patients”) was difficult to classify as “positive,” “negative,” or “neutral/mixed” and was therefore excluded. Of the other 21 responses, nine (42.86%) were classified as “positive” with responses such as “80% see reduction of symptoms, 40% see complete reduction,” “excellent,” and “great success.” 12 (57.14%) were classified as “neutral/mixed” with responses such as “40-50% success rate,” “varied,” and “~25%.” No responses were classified as “negative.” Of the 17 responses from hypnotists, two responses (“I have only treated one client for tinnitus” and “yes”) were difficult to classify. Of the remaining 15 responses, nine (60%) were categorized as “positive” with responses such as “dramatically successful,” “great,” “and “around 75%.” Six (40%) were classified as “neutral/mixed” with responses such as “some,” “depends on definition of ‘success,’” and “some improvement, some complete lack of success, some total improvement.” No responses were classified as “negative.”

Both acupuncturists and hypnotists were asked how many treatment sessions were recommended and how much they typically cost. Again, the question was open-ended. The average range of sessions recommended by the acupuncturists was 8 (average minimum number of sessions) to 11 (average maximum number of sessions). The hypnotists were less likely to recommend a range and the average number of sessions recommended was 3.2. Price was variable, with an average of \$70.55 per acupuncture session and \$127.32 per hypnosis session (range = \$20 to \$150 and \$50 to \$300, respectively).

Acupuncturists were asked, “Do you feel that acupuncture is a better treatment for ringing in the ears than other options?” Hypnotists were asked the same question about hypnosis. Response choices were limited to the following: “yes,” “no,” “depends,”

“better than some, worse than others,” and “not sure.” Forty-five percent of the acupuncturists and a comparable 41% of the hypnotists replied “yes.” The breakdown of responses to this question is illustrated in Figure 1.

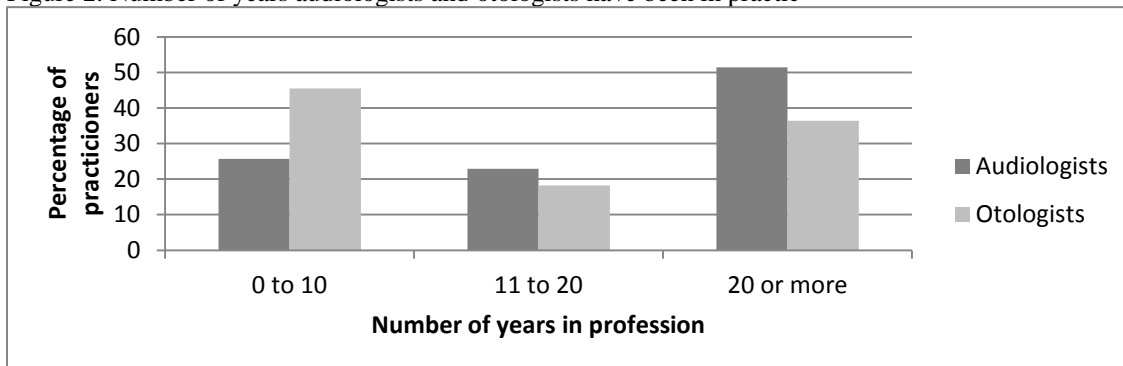
Figure 1. Acupuncturists’ and hypnotists’ opinions about the efficacy of their treatment for tinnitus compared to other options



Audiologists and otologists

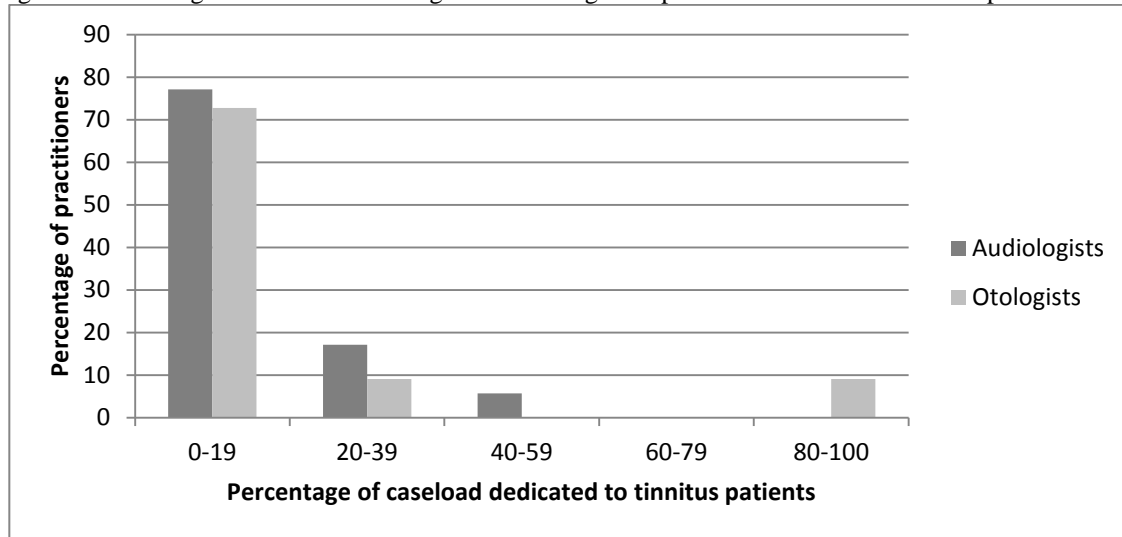
Responses were received from 35 audiologists and 11 otologists. As shown in Figure 2, over half of the audiologists had been practicing for 20 years or more. Of the otologists, nearly half had been practicing for ten years or less.

Figure 2. Number of years audiologists and otologists have been in practice



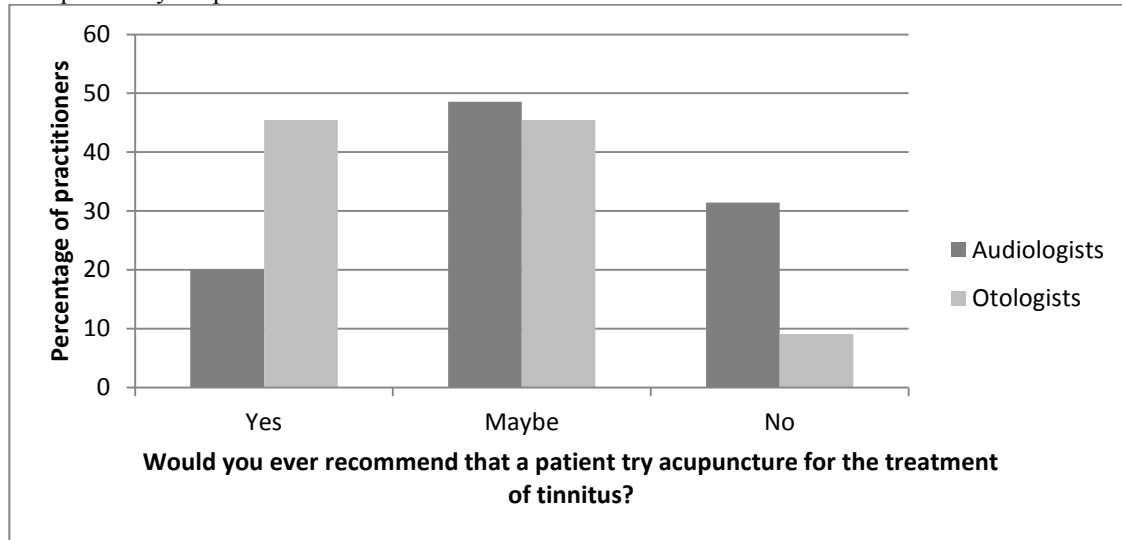
The audiologists and otologists were asked how much of their caseload was dedicated to tinnitus patients. The results are displayed in Figure 3. Twenty-seven of the audiologists (77.14%) and 9 of the otologists (81.82%) replied zero to 19%.

Figure 3. Percentage of caseload audiologists and otologists reported as dedicated to tinnitus patients



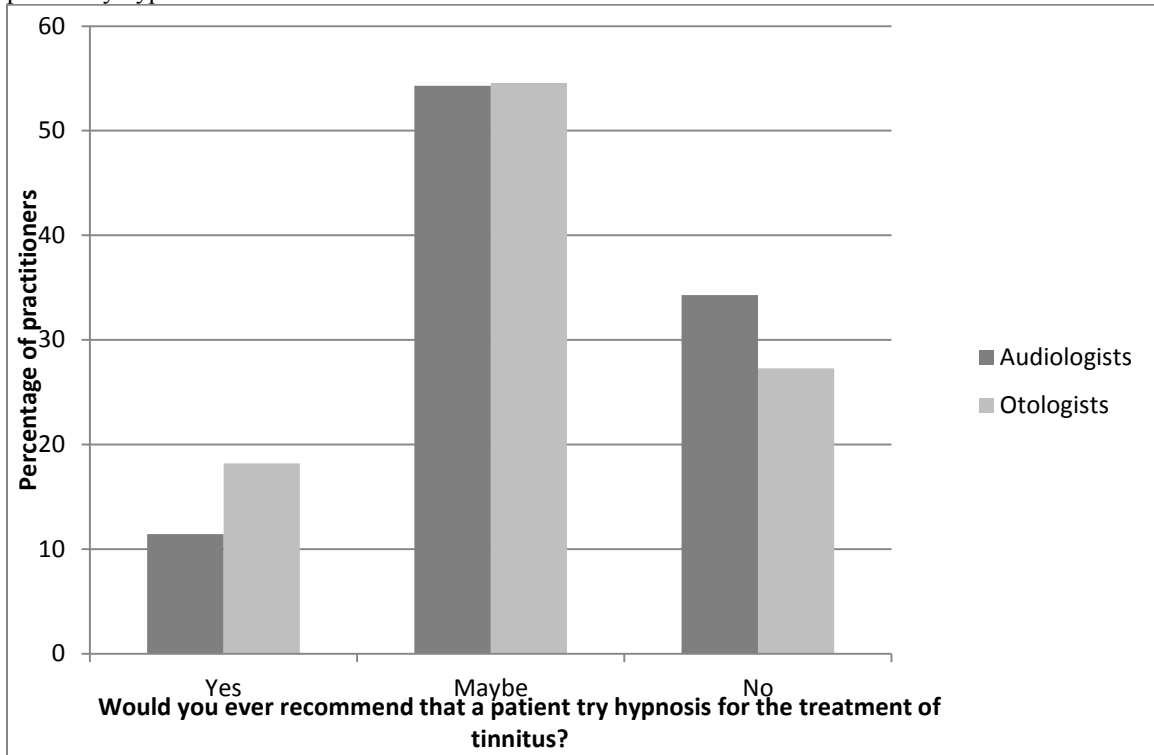
Four audiologists, or 11.43%, reported that they had recommended acupuncture for the treatment of tinnitus, while two otologists (18.18%) reported the same. When asked if they would ever recommend that a patient try acupuncture for the treatment of tinnitus, 24 audiologists (68.57%) said “yes” or “maybe” and 11 (31.43%) said “no.” Meanwhile, ten otologists (90.9%) said “yes” or “maybe” and one (9.09%) said “no.” The results are indicated in Figure 4. One audiologist who had never before recommended acupuncture and who stated that s/he “maybe” would recommend acupuncture indicated that s/he would perform the acupuncture himself or herself. Similarly, one otologist who had recommended and would recommend acupuncture also stated that s/he would perform it himself or herself.

Figure 4. Audiologists' and otologists' response to the question, "Would you ever recommend that a patient try acupuncture for the treatment of tinnitus?"



One audiologist (2.86%) reported that s/he had recommended that a patient try hypnosis for the treatment of tinnitus; no otologists reported the same. When asked whether they would ever recommend that a patient try hypnosis as a treatment for tinnitus, 23 audiologists (65.71%) said "yes" or "maybe" and 12 (34.29%) said "no." Eight otologists (72.72%) said "yes" or "maybe" and two (27.27%) said "no," as indicated in Figure 5. While one audiologist and one otologist had replied that they would perform acupuncture themselves, all of the audiologists and otologists stated they would refer elsewhere for hypnosis.

Figure 5. Audiologists' and otologists' response to the question, "Would you ever recommend that a patient try hypnosis for the treatment of tinnitus?"



It was thought that number of years in the profession of audiology or otology as well as percentage of caseload dedicated to tinnitus patients might affect the likelihood of recommending acupuncture or hypnosis as treatments for tinnitus. The data reflecting these hypotheses are depicted in the following tables.

Table 1. Years in otology profession and likelihood of recommending acupuncture and hypnosis (raw number of responses)

OTOLOGISTS	Would you recommend acupuncture?			Would you recommend hypnosis?		
	Yes	Maybe	No	Yes	Maybe	No
Years in profession						
0 to 10	2	2	1		4	1
11 to 20	2			1		1
20 or more	1	2	1	1	2	1

Table 2. Years in audiology profession and likelihood of recommending acupuncture and hypnosis (raw number of responses)

AUDIOLOGISTS	Would you recommend acupuncture?			Would you recommend hypnosis?		
	Yes	Maybe	No	Yes	Maybe	No
Years in profession						
0 to 10	1	6	2	1	5	3
11 to 20	2	4	2	1	4	2
20 or more	4	7	7	2	10	7

Table 3. Percentage of otologic caseload dedicated to tinnitus patients and likelihood of recommending acupuncture and hypnosis (raw number of responses)

OTOLOGISTS	Would you recommend acupuncture?			Would you recommend hypnosis?		
	Yes	Maybe	No	Yes	Maybe	No
% of caseload dedicated to tinnitus patients						
0 to 19	3	4	2	1	6	2
20 to 39	1					1
80 to 100				1		1

Table 4. Percentage of audiologic caseload dedicated to tinnitus patients and likelihood of recommending acupuncture and hypnosis (raw number of responses)

AUDIOLOGISTS	Would you recommend acupuncture?			Would you recommend hypnosis?		
	Yes	Maybe	No	Yes	Maybe	No
% of caseload dedicated to tinnitus patients						
0 to 19	7	13	7	3	16	8
20 to 39		4	2		4	2
40 to 59			2	1		1

Discussion

Tinnitus is a symptom that affects many Americans and for which there are few treatment options. In search of relief, many patients with tinnitus may turn to acupuncture and hypnosis despite the lack of a strong base of evidence supporting these treatments. According to the results of the current survey, although only a small percentage of their caseloads consist of patients with tinnitus, acupuncturists and hypnotists generally appear to be quite positive about the efficacy of their treatments. Audiologists, otologists, and other professionals who work with people with tinnitus should be knowledgeable about the research available on treatments for tinnitus.

This survey revealed that while the majority audiologists and otologists in this study may recommend that a patient with tinnitus try acupuncture, audiologists were more likely to answer that “no,” they would not, and otologists were more likely to say that “yes” they would. However, in regards to hypnosis, the responses of the two groups were more closely aligned. It is interesting to note that many audiologists and otologists

replied that they would “maybe” recommend both treatments, suggesting that many of these professionals may not have been aware of these treatments, may not have reviewed the literature, or may have been confused about the literature. This survey yielded a relatively small number of respondents, therefore, the results must be interpreted with caution. However, despite the small number of respondents, it seems likely that there is a wide range of opinions and practice patterns by various professionals who offer acupuncture and/or hypnosis therapy for the treatment of tinnitus. Many of the trials that have been documented in the literature have been of poor quality or have revealed little evidence of efficacy for these treatments. Future randomized, controlled trials may help clarify whether or not these treatments are effective for tinnitus.

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Appendix

A. Questionnaire for acupuncturists

1) Do you treat ringing in the ears?

If yes,

2) How much success have you had in the treatment of people with ringing in the ears?

3) How many treatment sessions would you recommend?

4) How much would these treatments cost?

5) Do you feel acupuncture is a better treatment for ringing in the ears than other options?

B. Questionnaire for hypnotists

1) Do you treat ringing in the ears?

If yes,

2) How much success have you had in the treatment of people with ringing in the ears?

3) How many treatment sessions would you recommend?

4) How much would these treatments cost?

5) Do you feel hypnosis is a better treatment for ringing in the ears than other options?

C. Questionnaire for audiologists and otologists

1) What portion of your caseload is dedicated to tinnitus patients?

2) How many years have you been practicing?

- 3) Have you ever recommended that a patient try acupuncture for the treatment of tinnitus?
- 4) Would you ever recommend that a patient try acupuncture for the treatment of tinnitus?
 - a. If yes or maybe, would you perform the treatment yourself or refer elsewhere?
- 5) Have you ever recommended that a patient try hypnosis for the treatment of tinnitus?
- 6) Would you ever recommend that a patient try hypnosis for the treatment of tinnitus?
 - a. If yes or maybe, would you perform the treatment yourself or refer elsewhere?