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Development of the Self-Efficacy for Tinnitus Management Questionnaire

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Abstract

Background: Self-efficacy refers to the beliefs (i.e., confidence) individuals have in their capabilities to perform skills needed to accomplish a specific goal or behavior. Research in the treatment of various health conditions such as chronic pain, balance disorders, and diabetes shows that self-efficacy beliefs play an important role in treatment outcomes and management of the condition. This article focuses on the application of self-efficacy to the management of tinnitus. The first step in formally incorporating self-efficacy in existing treatment regimens or developing a self-efficacy approach for tinnitus treatment is to have a valid and reliable measure available to assess the level of tinnitus self-efficacy.

Purpose: The objective of this study was to develop the Self-Efficacy for Tinnitus Management Questionnaire (SETMQ) and to obtain the psychometric properties of the questionnaire in a group of patients with tinnitus.

Research Design: Observational study.

Study Sample: A total of 199 patients who were enrolled in the Tinnitus Clinic at the James H. Quillen Veterans Affairs Medical Center participated in the current study.

Data Collection and Analysis: The SETMQ was mailed to patients enrolled in the Tinnitus Clinic. The participants who completed one copy of the SETMQ were mailed a second copy to complete approximately 2 weeks later. An exploratory factor analysis was conducted to identify the most coherent subscale structure of the SETMQ. The internal consistency and test–retest reliability for each of the subscales and the questionnaire as a whole were assessed. The validity of the SETMQ also was evaluated by investigating the relations between the SETMQ and other clinical measures related to tinnitus.

Results: Five components emerged from the factor analysis that explained 75.8% of the variance related to the following areas: (1) routine tinnitus management, (2) emotional response to tinnitus, (3) internal thoughts and interaction with others, (4) tinnitus concepts, and (5) use of assistive devices. Four items failed to load on any factor and were discarded, resulting in 40 items on the final SETMQ. The internal consistency reliability of the overall questionnaire and for each subscale was good (Chronbach's α ranged from .74 to .98). Item-total correlations ranged from .47 to .86, indicating that each item on the SETMQ correlated at a moderate or marked level with the SETMQ aggregate score. Intraclass correlation coefficients were computed to determine the test–retest reliability of the SETMQ total scale and separately for each subscale, which were all above .80, indicating good test–retest reliability. Correlations among the SETMQ subscales and various tinnitus-related measures (e.g., Tinnitus Handicap Inventory, tinnitus loudness rating, tinnitus distress rating, etc.) were significant, albeit indicative of fair to good relations overall (range $r = -.18$ to $-.53$).

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Preliminary data from this study were presented at the Ninth International Tinnitus Congress, Göteborg, June 15–18, 2008.

Conclusions: The results of the current study suggest that the SETMQ is a valid and reliable measure that may be an insightful instrument for clinicians and investigators who are interested in assessing tinnitus self-efficacy. Incorporating self-efficacy principles into tinnitus management would provide clinicians with another formalized treatment option. A self-efficacy approach to treating tinnitus may result in better outcomes compared with approaches not focusing on self-efficacy principles.

Key Words: hearing loss, outcome measures, psychometrics, questionnaire, self-efficacy, tinnitus

Abbreviations: ICC = intraclass correlation coefficient; LE = left ear; RE = right ear; SETMQ = Self-Efficacy for Tinnitus Management Questionnaire; THI = Tinnitus Handicap Inventory

There are several clinical approaches to tinnitus management such as sound-based therapies, biofeedback training, nutritional supplements, psychotropic medication, acupuncture, psychological management, and cognitive-behavior modification (Vernon, 1977; Sweetow, 1986; Vernon et al, 1990; Dobie and Sullivan, 1998; Young, 2000; Seidman and Babu, 2003; McKenna, 2004; Searchfield, 2006). These clinical approaches can be distinguished by the method used to achieve the desired outcome targeted by the approach. Self-efficacy is an emerging approach that can be applied to tinnitus management, which is explored in the current article.

Self-efficacy simply can be thought of as the confidence individuals have in their capabilities to accomplish a *specific* goal or behavior (Bandura, 1986). Because confidence levels within an individual can vary for different goals or behaviors, self-efficacy should be considered within a specific context or domain rather than being considered as a global psychological patient characteristic (i.e., general self-efficacy refers to general beliefs individuals have in controlling situations). In domain-specific self-efficacy, for example, an individual can have self-efficacy beliefs regarding one behavior (e.g., public speaking) that are completely different from the self-efficacy beliefs regarding another behavior (i.e., running a marathon). The current study focuses on *tinnitus self-efficacy*, which is defined as the confidence individuals have in their capabilities to perform courses of action needed to manage their tinnitus successfully.

Self-efficacy is at the core of social cognitive theory, which postulates that human functioning results from the interaction among the following three factors: (1) personal factors (e.g., affective, cognitive, and biologic events), (2) behavior, and (3) environmental factors (Bandura, 1986). Humans strive to exert control over the events affecting their lives by controlling their thoughts, feelings, behavior, and environment. Patients suffering from chronic tinnitus often have difficulty controlling self-hindering thoughts and negative emotional states (i.e., personal factors), self-defeating actions such as social withdrawal (i.e., behavior), and situations that exacerbate their tinnitus, such as being in quiet places or interacting with others in difficult communication situations (i.e., environmental factors). Because self-efficacy is at the center of social cognitive theory, a therapeutic approach that promotes self-efficacy for personal, behavioral, and environmental factors related to tinnitus management seems to be a viable intervention for patients suffering from chronic tinnitus.

Self-efficacy mediates actions by influencing the effort individuals must exert to achieve desired behaviors, whether they have positive and constructive thoughts or not, how they cope with adversities or setbacks, the courses of actions they choose to pursue, how effective they are in controlling environmental demands, and how successful they are in achieving their desired actions. Self-efficacy beliefs are judgments about specific capabilities within a context (i.e., domain-specific) as opposed to judgments of general self-confidence (i.e., general self-efficacy), self-worth, or future expectations. Individuals make judgments about their level of self-efficacy for a specific goal or behavior based on the following four sources of information: (1) mastery experience, (2) vicarious experience, (3) verbal persuasion, and (4) physiological and affective states (Bandura, 1997).

Mastery experience refers to the source of information that individuals use to make self-efficacy judgments by mastering or performing skills. Successful performance of a skill fosters feelings of mastery, and thus self-efficacy is judged as high, whereas low self-efficacy judgments typically are made when there is unsuccessful performance of a skill. If an individual is successful in diverting his attention from his tinnitus when working on a crossword puzzle in a quiet place, then he may judge his self-efficacy for that diversionary skill to be high. *Vicarious experience* refers to the beliefs individuals have about their capabilities based on the observations of others. If an individual observes other patients successfully managing their tinnitus in a certain situation, then she may draw upon the vicarious experience of those patients to make judgments about her own tinnitus self-efficacy in that situation. *Verbal persuasion* happens when others express confidence in the capabilities of an individual. Tinnitus patients who have strong support systems may judge their tinnitus self-efficacy as high compared with those patients without support systems. *Physiological and affective states*, such as interpretation of anxiety, nervousness, negative thoughts, and mood for a given behavior, provide a source of information that individuals use to make judgments about their level of self-efficacy. If a tinnitus patient has

difficulty falling asleep while performing relaxation techniques, then the patient may judge his self-efficacy for performing relaxation techniques as being low compared with that of a patient who falls asleep while performing relaxation techniques. Therapeutic approaches incorporating self-efficacy aim to increase self-efficacy by targeting all four sources of judgment (Maddux and Lewis, 1995; Bandura, 1997) and by addressing the personal, behavioral, and environmental factors that may influence the way individuals manage their tinnitus.

Enhancing self-efficacy beliefs as a therapeutic approach to managing chronic health conditions is well established. Research findings demonstrate that patients with high self-efficacy beliefs for managing pain, diabetes, and balance disorders, for example, have improved intervention outcomes, have better health management, and are less likely to relapse compared with patients with low self-efficacy for managing their condition (e.g., Wilson et al, 1993; Tinnetti et al, 1994; Powell and Myers, 1995; Johnson, 1996; Bandura, 1997; Talbot et al, 1997; van de Laar and van der Bijl, 2001; Hatch et al, 2003; Jørstad et al, 2005; Nicholas, 2007). The importance of incorporating self-efficacy in therapeutic approaches for tinnitus also is not new (e.g., Lindberg et al, 1988; Wilson et al, 1993; Smith and West, 2006; Henry et al, 2009). To date, if self-efficacy has been included as a variable of interest in studies, then the focus has been on general self-efficacy in patients with tinnitus rather than tinnitus self-efficacy as we have described. Delb and colleagues (1999), for example, categorized patients with tinnitus into two groups, one having high tinnitus distress and the other having low tinnitus distress. They found that patients with low tinnitus distress reported good general self-efficacy on a German general self-efficacy measure, whereas patients with high tinnitus distress reported lacking confidence in their general capabilities in managing new situations. Rief et al (2005) used a general self-efficacy measure (adapted to German) as a pre/post outcome measure when comparing a psychophysiologically oriented approach to tinnitus treatment to a wait-list control group. They showed that the treatment group had a significant but small improvement in general self-efficacy, which did not sustain 6 mo post-treatment. In a randomized, group-design clinical trial, Kröner-Herwig et al (2003) showed that "self-efficacy convictions" increased significantly in the coping treatment group compared with two minimal-contact intervention groups when measured using a tinnitus diary in which patients subjectively described their tinnitus control. Knowledge about general self-efficacy may be valuable to clinicians and investigators interested in treating patients with tinnitus as it describes a psychological trait of the patient; however, we postulate that therapeutic approaches incorporating self-efficacy-enhancing techniques that target personal factors, environmental factors, and behavior specifically related to managing tinnitus should be more valuable than general self-efficacy.

Henry and Wilson (2001) described the importance of using a domain-specific self-efficacy approach (i.e., tinnitus self-efficacy) for preventing treatment relapse. They argued that if clinicians could ask their patients with tinnitus how confident they were in their beliefs that they were able to cope with certain situations relevant to tinnitus, then situations in which a patient reported low self-efficacy could be discussed. The therapist and patient then could explore therapeutically why the patient has low self-efficacy for the situation and develop a plan for increasing confidence in managing tinnitus in the given situation. Henry and Wilson described a seven-item Tinnitus Self-Efficacy Questionnaire that was developed by Aug et al (1991) that could be used for such purposes. In the domain-specific context of tinnitus, the items on the questionnaire asked patients to rate how confident they were in doing certain tasks on a 10-unit, 0–100 confidence scale (0 = can't do it, 100 = extremely confident). The seven items focused on becoming relaxed, falling asleep, keeping distracted, not being bothered, not becoming distressed in a quiet place or in a noisy place, avoiding depression, and concentrating, all despite the tinnitus. For each item, the patients rated their confidence levels at four difficulty levels related to that item. On the item related to falling asleep, for example, the patients rate their confidence in falling asleep in 2 hr, 1 hr, 30 min, and 15 min. To our knowledge, however, this questionnaire has not been validated or used systematically in clinical investigations.

The end goal of any tinnitus management approach is to assist patients in successfully living with their tinnitus while alleviating as much as possible the negative psychosocial and physical symptoms associated with chronic tinnitus. Incorporating self-efficacy principles into tinnitus management should facilitate achieving this goal. The primary objective of this study was to develop a valid and reliable questionnaire that clinicians can use to assess tinnitus self-efficacy. The results of the tinnitus questionnaire could then be used clinically to identify areas that need to be targeted in tinnitus treatment approaches, especially those incorporating self-efficacy principles, and to monitor tinnitus self-efficacy before, during, and after the course of treatment as an outcome measure.

Single questions using visual analogue scales and/or standardized questionnaires often are administered to patients to understand better their tinnitus characteristics and the psychosocial consequences of their tinnitus (Tyler, 2000; Henry and Wilson, 2001; Henry et al, 2002; Henry et al, 2003; Tyler et al, 2007). A secondary goal of this experiment thus was to relate the results of our new measure of tinnitus self-efficacy to other self-report clinical measures used previously that describe hearing difficulties, hyperacusis, tinnitus

characteristics, and tinnitus distress. The self-report measures to which we related our new self-efficacy questionnaire included the amount of tinnitus awareness, annoyance ratings, loudness ratings, subjective degree of hearing loss, hyperacusis ratings, and tinnitus handicap as measured by the Tinnitus Handicap Inventory (THI [Newman et al, 1996; Newman et al, 1998]).

METHODS

Questionnaire Development

A compilation of 44 items was developed for this initial evaluation of the Self-Efficacy for Tinnitus Management Questionnaire (SETMQ). The content for the SETMQ items prioritized common complaints and/or skills that are the focus of many tinnitus management regimens and which patients reported frequently during counseling sessions. These content areas included tinnitus management skills related to the following: (1) functioning during daily activities, (2) emotional responses to tinnitus, (3) ability to use listening/masking devices to manage tinnitus, (4) tinnitus knowledge, (5) controlling thoughts about tinnitus, and (6) interactions with others.

All items were constructed in accordance with the guidelines proposed by Bandura (2006) in developing domain-specific self-efficacy questionnaires. These guidelines purport to ensure that items are consistent with the self-efficacy theory and include recommendations on phrasing the items, response scale format, gradations in challenge, practice items, and respondent instructions, which are described below.

Phrasing Items

Bandura suggested phrasing items using "can do" to represent judgments about current abilities and avoiding the phrasing "will do," which represents judgments about intentions or expectations of future abilities. He also recommended that only one ability be targeted for each item, as an individual simultaneously can have different self-efficacy beliefs for different abilities.

Response Scale Format

Customarily, self-efficacy beliefs are assessed by asking the respondent to judge the strength of his or her certainty in the given capability on a 0–100, 10-unit interval scale, where 0 represents no certainty in the given capability and 100 represents complete certainty.

Gradations in Challenge

Most patients seeking treatment for tinnitus must adopt new knowledge and skills to manage their tinnitus successfully. Especially at first, patients may find certain situations more difficult than others (e.g., sleep vs. TV watching) in dealing with their tinnitus. The items on the SETMQ were constructed to represent a wide range of skills and beliefs that tinnitus patients should possess to manage their tinnitus successfully across a wide range of situations, including those skills that likely would be taught during various tinnitus management regimens.

Respondent Instructions

According to Bandura, self-efficacy judgments should be made in regards to current beliefs (i.e., right now) in the skills associated with the given behavior, not intentions or outcome expectancies. The following instructions were included on the SETMQ:

> These questions ask about your ability to manage your tinnitus in various situations. If you have never been in these situations, then make your best guess about how well you would do. Given what you know right now, indicate how confident you are that you could do the things described on the questionnaire.

Three examples using the response scale also are provided in the respondent instructions along with graphical illustrations. The examples are as follows:

(1) If you believe that you cannot do the task described, then circle 0% for "Cannot do this at all" on the rating scale.
(2) If you are absolutely certain that you can do the task, then circle 100% for "I am certain I can do this" on the rating scale.
(3) If you are feeling somewhat unsure, then pick a number in between 0 and 100% on the rating scale that indicates how confident you are that you can do the described activity. Higher numbers indicate greater certainty.

Practice Items

Bandura (2006) recommended that self-efficacy questionnaires have practice items to ensure that the respondents understand the instructions and to familiarize the respondents with the response scale. Accordingly, two practice items regarding the behavior of lifting of objects are included: (1) "I can lift a 10-pound object with ease" and (2) "I can easily tell the difference between a 19-pound object and a 20-pound object." Both practice items used the same 0–100, 10-unit response scale used with the SETMQ.

PARTICIPANTS

All participants were enrolled in the Tinnitus Clinic at the James H. Quillen Veterans Affairs Medical Center between 2001 and 2010 and represent a broad range of patients with tinnitus distress. The participants

visited the Tinnitus Clinic 2.6 times on average during this period (SD = 2.0, range 1–12, n = 197). A total of 199 participants, 193 male and 6 female, participated in the study, with a mean age of 63.3 yr (SD = 9.5, range = 27.1–86.6). The mean left ear (LE) and right ear (RE) audiograms are shown in Figure 1. Hearing loss (defined as >25 dB HL [American National Standards Institute, 2004] from 250 to 8000 Hz in either ear) accompanied tinnitus in 182 participants (97.8% of those with available audiograms). Four participants had hearing within normal limits. Bilateral tinnitus was reported in 166 participants, of whom 26 reported that it was worse in the LE and of whom 17 reported that it was worse in the RE. Fourteen participants reported unilateral tinnitus (LE = 8; RE = 6), and 12 reported the percept of extracranial tinnitus. A total of 131 participants wore hearing aids, and 178 were issued a tinnitus masking device (e.g., bedside masker or ear-level masker).

PROCEDURES

The local Institutional Review Board and Research and Development Committee approved all study procedures prior to the initiation of the study. The SETMQ was mailed to 534 patients enrolled in the Tinnitus Clinic, who were invited to volunteer for the study. The participants were asked to complete a copy of the SETMQ and return it in the postage-paid envelope provided. A total of 199 SETMQ questionnaires were completed, resulting in a 37.3% response rate. The participants who completed one copy of the SETMQ were mailed a second copy to complete and return approximately 2 weeks later. A total of 147 participants completed a second copy of the SETMQ, resulting in a 73.9% response rate. Typically 10–15 min was required to complete the SETMQ.

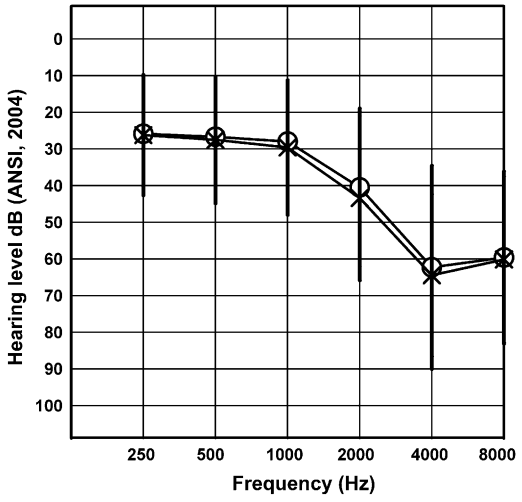

Figure 1. Mean pure-tone thresholds (and 1 SD) of the participants with hearing loss who had audiograms available from the chart review (n = 182).

A chart review was conducted on only those participants who returned a completed SETMQ. Routinely, patients with tinnitus are referred to the Tinnitus Clinic by their medical provider following a medical evaluation. Once enrolled, they complete an audiologic evaluation; electrophysiologic tests to rule out retrocochlear pathology when indicated; the THI; a series of single, self-report questions using Likert scales (Fagelson, 2007); and a modified version of the Tinnitus Retraining Therapy Intake Form (Henry et al, 2003). They also undergo individualized cognitive therapy and/or sound therapy to address patient-specific complaints. Herein we extracted the available data on the tinnitus-related self-report measures obtained from the chart review of the 199 participants in order to describe our study sample and to compare the SETMQ results to as many other measures as possible. If any clinical measures were administrated over multiple visits to the Tinnitus Clinic, then the data from the test that most closely matched the time in which the SETMQ was completed were used. The differences in the number of participants who completed the various clinic measures are documented in the subsequent text and/or tables. The following clinic measures were obtained, if available, from the medical records of the participants:

1. *Tinnitus Awareness*: "What percent of your total awake time, over the last month, have you been aware of your tinnitus?" (Henry et al, 2003, p. 164). The patients are asked to report orally a percentage on a 0–100% scale.
2. *Tinnitus Distress*: "What percent of your total awake time, over the last month, have you been annoyed, distressed, or irritated by your tinnitus?" (Henry et al, 2003, p. 164). The patients are asked to report orally a percentage on a 0–100% scale.
3. *Loudness Rating*: On a scale of 0 (very soft) to 10 (very loud), how would you rate the loudness of your tinnitus? The patients are asked to report orally a number between 0 and 10.
4. *Hearing Loss Rating*: On a scale of 0 (no hearing loss) to 10 (severe hearing loss), how would you rate your hearing ability? The patients are asked to report orally a number between 0 and 10.
5. *Hyperacusis Rating*: Patients are asked, "Do you have difficulty tolerating moderately loud, everyday sounds that do not seem to bother other people?" If patients respond yes, then they are asked, "How severe of a problem do you have tolerating these moderately loud, everyday sounds?" The patients are asked to report orally a number between 0 and 10 (Fagelson, 2007).
6. *Tinnitus Handicap Inventory*: The THI (Newman et al, 1996) is a 25-item questionnaire that assesses the level of self-perceived tinnitus handicap on three scales: Functional, Catastrophic, and Emotional—

although research has shown that only the use of the total THI score is appropriate (Baguley and Andersson, 2003). The patient completes the THI by selecting a "yes" (four points), "sometimes" (two points), or "no" (zero points) response for each question in a written format. The total score can range from 0 to 100, with higher scores indicating greater self-perceived tinnitus handicap.

RESULTS

Psychometric Properties

The basic psychometric properties of the SETMQ were determined by conducting measurements of reliability and validity. First, as is common with questionnaire development, an exploratory factor analysis was conducted to identify the most coherent subscale structure of the SETMQ. Second, the internal consistency and test–retest reliability for each of the subscales and the aggregate questionnaire were assessed. Finally, the validity of the SETMQ also was evaluated by investigating the relations between the SETMQ and the other self-reported clinical measures of tinnitus. Some analyses excluded participants if there were any missing datum points for a given variable, whereas other analyses used all available data.

Factor Analysis

A principal component factor analysis with varimax rotation was conducted to explore the subscale structure of the SETMQ. Variable mean replacements were used for the factor analysis for any missing responses for any item. A Kaiser-Meyer-Olkin test resulted in a value of .96, which confirmed that the sample size was adequate (Kaiser, 1970; Hutcheson and Sofroniou, 1999). Only factors with eigenvalues greater than 1.0 were extracted (Kaiser, 1960). Only items with factor loading values .50 or greater and only factors that explained at least 5% of the variance were considered. A total of 40 items met the above criteria, with four items deleted from the initial SETMQ.

Five components emerged from the factor analysis that explained 75.8% of the variance. A scree plot, a graphical representation of the eigenvalues plotted as a function of the principal component number, which is a useful tool in interpreting the number of components that are important, showed inflections that justified retaining all five factors. Factor 1, *Routine Tinnitus Management Subscale*, contained 16 items, with 14 items dealing with the beliefs individuals have in their abilities for managing and ignoring tinnitus during daily activities and sleep and two items dealing with managing tinnitus in general (26.1% of variance explained). Factor 2, *Emotional Response Subscale*, contained nine items regarding the confidence individuals have in controlling their emotional response to their tinnitus (18.8% of the variance explained). Factor 3, *Internal Thoughts and Interaction with Others Subscale (Thoughts/Interaction)*, consisted of eight items regarding beliefs individuals have in their abilities to manage their thoughts about themselves and how they interact with others when suffering from tinnitus (16.0% of variance explained). Factor 4, *Tinnitus Concepts Subscale*, contained four items that inquired about the beliefs individuals have in their abilities to understand what tinnitus is and how tinnitus differs from hearing loss (8.5% of the variance explained). Factor 5, *Devices Subscale*, consisted of three items that dealt with the beliefs individuals have in their abilities to use assistive devices to control the sound of their tinnitus (6.4% of the variance explained). Table 1 lists the 40 SETMQ items along with the factor loading value, the mean score, and the standard deviation for each item, as well as the number of participants who completed each item. As can be seen in the table, the factor loading values overall were high, with an average value of .71 (range = .51 to .86).

The mean subscale scores and standard deviations also are listed in Table 1 (and in Figure 2). A repeated-measures analysis of variance indicated that the mean subscale scores ($n = 144$) were significantly different (F [3.3, 473.0] = 44.2, $p < .001$, Greenhouse-Geisser correction). Post hoc analysis using Bonferroni adjustments for multiple comparisons showed that the mean scores on the Emotional Response, Thoughts/Interaction, and Tinnitus Concepts subscales were not significantly different from each other (see Figure 2). The mean score on the Routine Tinnitus Management subscale (38.3%) was significantly poorer than all other subscale scores (difference ranging from 11.6 to 22.5%). The mean score on the Devices subscale (50.6%) was significantly poorer than the mean scores on the Emotional Response, Tinnitus Concepts, and Thoughts/Interaction subscales (difference ranging from 6.2 to 10.9%) but was significantly better than the mean response score on the Routine Tinnitus Management subscale (by 11.6%). Overall, the SETMQ indicated that patients with tinnitus were only moderately certain that they could perform the activities described in the SETMQ given their current capabilities in managing their tinnitus. The differences in the mean subscale scores suggest that the patients with tinnitus were more confident in their capabilities to control their emotional response to tinnitus, direct their thoughts and interactions with others despite their tinnitus, and understand tinnitus concepts, compared with their confidence in using assistive devices and performing routine activities to manage their tinnitus symptoms. The final SETMQ appears in Appendix A.

Table 1. Description, Factor Loading Value, and Mean Scores (and 1 SD) for Each Individual SETMQ Subscale Item

Item Description	Factor Loading	M	SD	*n*
Routine Tinnitus Management Subscale (26.1%)				
I can think of my tinnitus as a sound I do not mind hearing.	.57	24.6	27.5	196
I can ignore my tinnitus when reading in a quiet place.	.83	29.7	31.2	194
I can ignore my tinnitus when performing quiet chores such as straightening up a room in my home.	.86	36.8	33.1	194
I can ignore my tinnitus when I work on a puzzle for fun, such as a crossword puzzle.	.84	32.6	32.9	194
I can ignore my tinnitus when listening to music.	.77	49.9	32.4	194
I can ignore my tinnitus when watching TV.	.78	47.5	31.6	194
I can ignore my tinnitus when shopping.	.79	44.6	32.7	194
I can ignore my tinnitus when working on my favorite hobby.	.83	45.5	32.5	196
I can ignore my tinnitus when driving in light traffic.	.76	48.6	33.1	197
I can ignore my tinnitus when driving in heavy traffic.	.67	48.9	33.9	197
I can ignore my tinnitus when I am working.	.74	45.6	31.6	192
I can ignore my tinnitus when I try to go to sleep at night.	.68	30.7	32.1	195
I can ignore my tinnitus when I try to take a nap during the day.	.68	31.3	32.4	195
I can ignore my tinnitus if I wake up in the middle of the night.	.72	31.4	33.2	194
I can perform relaxation exercise to help me sleep when I hear my tinnitus.	.53	31.5	33.3	190
I can manage my tinnitus.	.51	48.3	34.6	192
Subscale summary		38.5	27.9	174
Emotional Response Subscale (18.8%)				
I can manage my anger when I hear my tinnitus.	.71	63.5	27.6	198
I can manage my frustration when I hear my tinnitus.	.75	58.1	27.5	198
I can manage becoming irritated when I hear my tinnitus.	.75	56.4	29.8	197
I can manage my stress level when I hear my tinnitus.	.78	55.0	28.8	198
I can manage feelings of fear when I hear my tinnitus.	.66	67.1	30.1	197
I can manage feelings of anxiety when I hear my tinnitus.	.74	58.6	30.2	196
I can manage feelings of nervousness when I hear my tinnitus.	.73	56.3	30.2	196
I can manage negative thoughts when I hear my tinnitus.	.72	57.4	31.3	198
I can think of my tinnitus as a neutral sound that is not worth listening to.	.57	40.2	33.8	198
Subscale summary		56.8	26.2	191
Internal Thoughts and Interaction with Others Subscale (16.0%)				
I can help people in my workplace despite hearing my tinnitus.	.64	59.8	32.4	179
I can manage to have a positive self-image even when I hear my tinnitus.	.57	61.4	31.1	197
I can feel that my senses are reliable even when I hear my tinnitus.	.70	57.3	30.7	197
I can be a contributing member of society despite having to manage my tinnitus.	.69	68.3	30.2	198
I can carry on a conversation with one other person even when I hear my tinnitus.	.80	65.4	28.2	198
I can carry on a conversation with a small group of people even when I hear my tinnitus.	.73	53.2	32.4	198
I can have a conversation on the telephone even when I hear my tinnitus.	.72	57.0	33.0	197
I can communicate in order to complete my typical work responsibilities even when I hear my tinnitus.	.79	64.8	30.0	189
Subscale summary		60.8	27.8	175
Tinnitus Concepts Subscale (8.5%)				
I can understand the difference between my hearing loss and my tinnitus.	.75	61.1	34.3	198
I can understand the results of my hearing test.	.71	69.1	31.3	198
I can understand the changes to my hearing system that caused my tinnitus.	.75	58.1	33.4	196
I can understand that my hearing loss is not caused by my tinnitus.	.65	53.7	37.6	193
Subscale summary		60.5	27.9	191
Devices Subscale (6.4%)				
I can use hearing aids or other assistive devices to help reduce communication problems caused by my tinnitus.	.74	55.7	35.3	191
I can use a masking device to help reduce my tinnitus without reducing my ability to understand speech.	.75	36.2	33.7	185
I can use a sound-generating device such as a fan or noise machine to help me sleep when I hear my tinnitus.	.60	59.4	34.2	192
Subscale summary		50.6	28.2	179

(*Continued*)

Table 1. Continued

Item Description	Factor Loading	M	SD	*n*
Deleted Items				
I can manage thoughts that my tinnitus makes me less of a person than I was before I had tinnitus.		54.9	33.3	197
I can ignore my tinnitus in large groups of people such as family gatherings that include noisy children.		43.7	35.9	198
I can protect my hearing in loud environments without making my tinnitus worse.		55.1	34.5	194
I can manage the amount that my tinnitus interferes with my ability to hear sounds that are important.		44.9	31.5	195

Internal Consistency Reliability

Chronbach's α and item-total correlations of the final, 40-item SETMQ were calculated to determine the internal consistency reliability, that is, how consistently the items assessed the overall construct of tinnitus self-efficacy. The Chronbach's α found for the total scale was .98 ($n = 144$), indicating good internal consistency reliability of the overall questionnaire. The internal consistency reliability was computed separately for each subscale. The Chronbach's α values are listed in Table 2, along with the number of items in each subscale and the number of participants included in the analysis. Chronbach's α for each subscale was good, ranging from .74 for the Devices subscale to .98 for the Routine Tinnitus Management subscale, suggesting that the items making up each subscale have good internal consistency reliability. Item-total correlations ranged from .47 (Item 27) to .86 (Item 44), indicating that each item on the SETMQ correlated at a moderate or marked level with the SETMQ aggregate score (see Franzblau, 1958, for categorization of correlation strength).

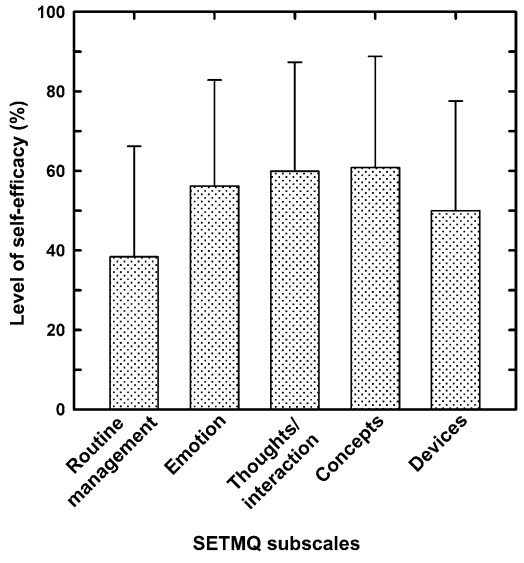

Figure 2. Mean levels of self-efficacy (%) as a function of Self-Efficacy for Tinnitus Management Questionnaire subscale. The error bars represent 1 SD.

Test–Retest Reliability

The mean time between the completion of the first and second administrations of the SETMQ was 22.7 days (SD = 11.0). Intraclass correlation coefficients (ICCs) were computed to determine the test–retest reliability of the SETMQ total scale ($n = 93$) and separately for each subscale ($n > 120$). The ICCs listed in Table 2 are all ≥.85, indicating good test–retest reliability.

Validity

Support that the SETMQ has good construct validity was demonstrated with divergent and convergent validity analyses, or how well the SETMQ differs from unrelated measures (divergent validity) and how well the SETMQ compares with measures that are expected to be related (convergent validity). The convergent and divergent validity of the SETMQ was evaluated by comparing results of the SETMQ to self-report responses of the patients to a series of five single questions using Likert scales and to the THI. Table 3 lists the means and standard deviations for the six self-report clinical measures obtained from the chart review of those participants who also completed the SETMQ. The participants reported that they were aware of their tinnitus (i.e., Tinnitus Awareness) 72.3% of their waking hours and that their tinnitus was distressing 45% of the time that they were aware of it (i.e., Tinnitus Distress). These percentages are consistent with those reported by Sheldrake et al (1999), who showed that a large number of patients enrolled in their tinnitus clinic were aware of their tinnitus approximately 65% of the time and distressed by their tinnitus approximately 40% of the time (estimated from Sheldrake et al, 1999, p. 295, Figure 6, illustrating Visit 1 data). The THI mean total score of 47.4 (SD = 24.0) indicated that the tinnitus in the current sample was moderately handicapping. The patients in the current study

Table 2. Results from the Internal Consistency and Test–Retest Reliability Analyses for Each Subscale and the Total Scale

		Internal Consistency		Test–Retest	
Scale	No. of Items	Chronbach's α	*n*	Intraclass Correlation Coefficient	*n*
Routine Tinnitus Management	16	.98	174	.95	122
Emotional Response	9	.96	191	.94	140
Thoughts/Interaction	8	.96	175	.96	127
Tinnitus Concepts	4	.83	191	.85	138
Devices	3	.74	179	.87	128
Aggregate SETMQ	40	.98	144	.96	93

reported more handicap on the THI than was reported by Newman et al (1996; M = 25.4, SD = 20.5). The average loudness rating was 6.8 (SD = 1.8). Stouffer and Tyler (1990) reported that their male patients rated their tinnitus loudness at 6.3/10 (SD = 2.3), whereas Newman et al (1996) reported a mean rating of 6.1/10 (SD = 2.6) on a similar question. Patients with tinnitus commonly have associated hearing loss and hyperacusis (Tyler and Conrad-Armes, 1983; Davis and Rafaie, 2000; Jastreboff, 2000; Henry et al, 2003). The current sample had average ratings of 5.4 and 4.9 to describe their degree of hearing loss and hyperacusis, respectively, suggesting moderate hearing difficulties and sound tolerance problems for moderately loud sounds. Almost all the patients with tinnitus also had hearing loss as measured by an audiometric evaluation.

These convergent and divergent validity analyses were made among the results of the SETMQ scales and the clinic measures via correlations. For convergent validity, the expectation was that there would be negative correlations between most of the SETMQ scales and the clinical measures listed in Table 3 because higher scores on the SETMQ indicated high tinnitus self-efficacy (i.e., good outcome), whereas high scores on the other clinical measures were indicative of high tinnitus distress (i.e., poor outcome). It also was expected that the correlations among the clinic measures and most of the SETMQ scales would be moderate at best, owing to the variability of self-reported patient reactions to and descriptions of tinnitus (e.g., Vernon and Meikle, 2003). For divergent validity, it was expected that the Devices and Tinnitus Concepts subscales would not be related to any of the clinical measures because capabilities in using maskers and understanding tinnitus are likely to be independent of the perceptions individuals have about their tinnitus loudness, tinnitus distress, and so on.

Pearson Product-Moment correlations were computed between the SETMQ subscales and Tinnitus Awareness (0–100%), Tinnitus Distress (0–100%), and the THI (0–100 points), whereas Spearman's Rho correlations were calculated with the remaining clinic measures that used ordinal rating scales. Table 4 lists the correlation coefficients along with the number of participants in each analysis. As expected with the convergent validity of the SETMQ, all the correlations were negative, and most of the correlations were significant, although they suggested only fair to moderate relations (range $r = -.18$ to $-.53$). The SETMQ total scale and the SETMQ Routine Tinnitus Management, Emotional Response, and Thoughts/Interaction subscales each had moderate relations with the THI and Tinnitus Distress, suggesting that the more handicapping and distressing the tinnitus was, the less capable the participants believed they were at managing the emotional response to their tinnitus, maintaining positive thoughts about themselves despite their tinnitus, and ignoring their tinnitus during routine activities and while interacting with others. Tinnitus Loudness was moderately correlated with overall tinnitus self-efficacy ($r = -.39$) and with Emotional Response ($r = -.41$), suggesting that the louder tinnitus was perceived, the less confidence individuals reported in controlling their emotional response to their tinnitus. As expected with the divergent validity analysis, there was little correlation between the Devices and Tinnitus Concepts subscales and any of the other measures. The self-efficacy individuals have in their capabilities to use their tinnitus masking devices, for example, is not likely to be related to their perceived tinnitus loudness.

Construct validity also was evaluated by determining whether individuals grouped into a high tinnitus self-efficacy group responded differently on these clinical measures than individuals grouped into a moderate to low tinnitus self-efficacy group. When grouping patients into moderate to low versus high tinnitus self-efficacy,

Table 3. Mean Data from Subjective Clinical Measures Related to Tinnitus Extracted from a Chart Review

Measure	M	SD	*n*
Tinnitus Handicap Inventory (0–100)	47.4	24.0	133
Tinnitus Awareness (0–100%)	72.3	30.5	172
Tinnitus Distress (0–100%)	44.9	22.8	147
Loudness Rating (0–10)	6.8	1.8	184
Hearing Loss Rating (0–10)	5.4	2.6	190
Hyperacusis Rating (0–10)	4.9	3.3	189

Table 4. Pearson Product-Moment and Spearman's Rho Correlations Among Scores Obtained from the SETMQ Scales and from the Clinical Measures Obtained from the Chart Review

SETMQ Scale	Tinnitus Handicap Inventory	Awareness	Annoyance	Loudness	Hyperacusis	Hearing Loss
Routine Tinnitus Management	–.40	–.29	–.45	–.35	–.29	–.25
n	115	149	125	163	166	140
Emotional Response	–.52	–.33	–.48	–.41	–.36	–.36
n	127	167	144	177	182	183
Thoughts/Interaction	–.53	–.39	–.48	–.35	–.42	–.45
n	117	156	133	163	167	168
Tinnitus Concepts	–.35	–.18*	–.16*	–.16*	–.15*	–.24
n	126	165	141	176	181	182
Devices	–.30	–.14^{ns}	–.25	–.24	–.23	–.20
n	118	155	132	165	170	171
SETMQ aggregate score	–.49	–.36	–.49	–.39	–.35	–.37
n	94	128	109	136	139	140

Note: All correlations were significant at the .01 level (two-tailed) except where indicated with *, indicating correlations significant at the .05 level (two-tailed), or ^{ns}, indicating that the correlation was not significant.

group differences were expected on the Tinnitus Awareness and Tinnitus Distress questions and on the THI. Group differences were not expected on the self-report measures of hearing loss or hyperacusis given that most of the patients had hearing loss and complaints of hyperacusis. Group differences were not anticipated in the Tinnitus Loudness ratings, because in the analogous pain self-efficacy literature, pain intensity ratings often are independent of pain self-efficacy ratings (see Bandura, 1997). Thus, Tinnitus Loudness and tinnitus self-efficacy were expected to be independent.

Differences in the parametric clinical measures were compared between individuals with fairly high tinnitus self-efficacy (i.e., 70% or higher) and those individuals with moderate or low tinnitus self-efficacy (i.e., <70%) as measured with the aggregate SETMQ score. Independent-samples *t*-tests were performed with equal variances assumed (based on nonsignificant results on Levene's Test for Equality of Variance) and the *p*-value (two-tailed) adjusted for multiple comparisons. Table 5 lists the results of these group differences. Compared with the participants with moderate or low tinnitus self-efficacy, the participants with high tinnitus self-efficacy reported being 23.3% less aware of their tinnitus during waking hours, 31.0% less distressed by their tinnitus, and less handicapped by their tinnitus (i. e., 20.7 points on the THI). These results suggest that participants with high tinnitus self-efficacy describe their tinnitus as less invasive and distressing compared with those with moderate to low tinnitus self-efficacy. These results should be interpreted with caution, however, given the small number of participants who reported high tinnitus self-efficacy compared with moderate to low tinnitus self-efficacy.

DISCUSSION

Various approaches to tinnitus management are used by clinicians. Although self-efficacy may be of interest in many of the available treatment regimens, the primary focus has not specifically and systematically targeted increasing tinnitus self-efficacy. The first step in formally incorporating self-efficacy in existing treatment regimens or developing a self-efficacy approach for tinnitus treatment is to have a valid and reliable measure available to assess the level of tinnitus self-efficacy. The current study described the development of the Self-Efficacy for Tinnitus Management Questionnaire, a measure designed to determine the level of confidence individuals believe they have in selected capabilities to manage and control the effects of tinnitus. The evaluation of the psychometric properties of the SETMQ indicated that there were five subscales that target the areas of routine tinnitus management, emotional response, internal thoughts and interactions with others, tinnitus concepts, and

Table 5. Results on Clinical Tinnitus Measures from Separate Independent-Samples *t*-Tests When Participants Were Grouped by High Tinnitus Self-Efficacy (≥70%) and Moderate to Low Tinnitus Self-Efficacy (< 70%) Based on the Aggregate SETMQ Score

	High SETMQ			Moderate to Low SETMQ					
Measure	M	SD	*n*	M	SD	*n*	*t*	*df*	*p*
Tinnitus Awareness	53.3	35.4	22	76.6	28.3	106	–3.4	126	.001
Tinnitus Distress	19.3	17.7	17	50.3	27.1	92	–4.5	107	<.001
Tinnitus Handicap Inventory	32.0	21.5	16	52.7	23.0	78	–3.3	92	.001

devices. The internal consistency and test–retest reliability of the subscales and the total scale were good, indicating that the measure is reliable. By grouping individuals based on high versus moderate to low SETMQ scores, the results on the amount of tinnitus awareness, tinnitus distress, and handicap were differentiated, in that individuals with high SETMQ scores reported significantly less disruptive tinnitus effects than those with moderate to low SETMQ scores, again suggesting the SETMQ has construct validity. Future studies with the SETMQ, however, should include female participants, as gender differences in the psychological response to tinnitus have been suggested (e.g., Erlandsson, 2000). Given that the current study sample was predominantly male, gender differences on the SETMQ could not be evaluated.

Recall that the patients in the current study were seen in our Tinnitus Clinic for an average of 2.6 visits, during which time they received conventional intervention consisting of a combination of sound therapy and collaborative counseling using cognitive therapy techniques. Although coping strategies and management techniques were incorporated during counseling sessions, self-efficacy-enhancing principles were not employed. Thus, it is not surprising that the overall tinnitus self-efficacy of the current sample was only moderate. Through the clinical visits with these patients, however, common complaints about tinnitus were determined, which contributed to the content of the SETMQ. Although Aug et al (1991) developed a seven-item tinnitus self-efficacy measure, the focus of that measure was more limited than the measure employed herein. The SETMQ was developed to capture a broad scope of common complaints that patients with tinnitus report and which are often the focus of intervention attempts.

Henry and Wilson (2001) suggested that assessing self-efficacy for managing certain situations should prevent intervention relapse and assist clinicians in identifying situations in which patients with tinnitus are struggling. The SETMQ should assist clinicians in identifying areas in which patients report having moderate to low tinnitus self-efficacy (i.e., $<70\%$). These patients are good candidates for therapy incorporating a self-efficacy approach. For example, if patients report low self-efficacy on the Emotional Response subscale, then clinicians can incorporate self-efficacy-enhancing techniques to increase the confidence of those patients in controlling their emotional response to their tinnitus. As an outcome measure, the SETMQ can be given on multiple occasions to monitor tinnitus self-efficacy levels over time to determine whether the therapy is beneficial and/or if high self-efficacy levels are being maintained. Investigators may include the SETMQ in studies in which tinnitus self-efficacy is a factor of interest or in studies in which self-efficacy-based treatment regimens are being developed.

CONCLUSIONS

The SETMQ has 40 items that target tinnitus self-efficacy in the areas of routine tinnitus management, emotional response, internal thoughts and interactions with others, tinnitus concepts, and devices. The mean scores on these subscales can provide information on the level of confidence individuals have in their current skills to manage their tinnitus in these specific areas. The results of the current study suggest that the SETMQ is a valid and reliable measure that may be a worthwhile tool for clinicians and investigators who are interested in assessing tinnitus self-efficacy.

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Appendix A. Self-Efficacy for Tinnitus Management Questionnaire (SETMQ)

These questions ask about your ability to manage your tinnitus in various situations. If you have never been in these situations, then make your best guess about how well you would do. Given what you know right now, indicate how confident you are that you could do the things described on the questionnaire.

1. If you believe that you cannot do the task described, then circle 0% for "Cannot do this at all" on the rating scale.	How certain are you that you can do this right now? (circle one %) (0%) 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
2. If you are absolutely certain that you can do the task, then circle 100% for "I am certain I can do this" on the rating scale.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% (100%) Cannot do this at all — Moderately certain I can do this — I am certain I can do this
3. If you are feeling somewhat unsure, then pick a number in between 0% and 100% on the rating scale that indicates how confident you are that you can do the described activity. Higher numbers indicate greater certainty.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this

Practice

The following two items have nothing to do with your tinnitus and are intended only to give you practice using the response scale. Please circle the percentage that best describes your confidence, right now, regarding each practice statement.

P-1: I can lift a 10-pound object with ease.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
P-2: I easily can tell the weight difference between a 19-pound object and a 20-pound object.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this

Name: _____ Date: _____

1. I can think of my tinnitus as a sound I do not mind hearing.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
2. I can ignore my tinnitus when reading in a quiet place.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
3. I can ignore my tinnitus when performing quiet chores such as straightening up a room in my home.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
4. I can ignore my tinnitus when I work on a puzzle for fun, such as a crossword puzzle.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
5. I can ignore my tinnitus when listening to music.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
6. I can ignore my tinnitus when watching TV.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
7. I can ignore my tinnitus when shopping.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
8. I can ignore my tinnitus when working on my favorite hobby.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
9. I can ignore my tinnitus when driving in light traffic.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
10. I can ignore my tinnitus when driving in heavy traffic.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
11. I can ignore my tinnitus when I am working.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this

(*Continued*)

12. I can ignore my tinnitus when I try to go to sleep at night.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
13. I can ignore my tinnitus when I try to take a nap during the day.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
14. I can ignore my tinnitus if I wake up in the middle of the night.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
15. I can perform relaxation exercises to help me sleep when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
16. I can manage my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
17. I can manage my anger when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
18. I can manage my frustration when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
19. I can manage becoming irritated when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
20. I can manage my stress level when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
21. I can manage feelings of fear when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
22. I can manage feelings of anxiety when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this

(*Continued*)

23. I can manage feelings of nervousness when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
24. I can manage negative thoughts when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
25. I can think of my tinnitus as a neutral sound that is not worth listening to.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
26. I can help people in my workplace despite hearing my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
27. I can manage to have a positive self-image even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
28. I can feel that my senses are reliable even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
29. I can be a contributing member of society despite having to manage my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
30. I can carry on a conversation with one other person even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
31. I can carry on a conversation with a small group of people even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
32. I can have a conversation on the telephone even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
33. I can communicate in order to complete my typical work responsibilities even when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this

(*Continued*)

34. I can understand the difference between my hearing loss and my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
35. I can understand the results of my hearing test.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
36. I can understand the changes to my hearing system that caused my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
37. I can understand that my hearing loss is not caused by my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
38. I can use hearing aids or other assistive devices to help reduce communication problems caused by my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
39. I can use a masking device to help reduce my tinnitus without reducing my ability to understand speech.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this
40. I can use a sound generating device such as a fan or noise machine to help me sleep when I hear my tinnitus.	How certain are you that you can do this right now? (circle one %) 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Cannot do this at all — Moderately certain I can do this — I am certain I can do this