

## **Supplement to the book “Progressive Tinnitus Management: Handbook for Audiologists”**

The following describes questionnaires that have been added since publication of the book “Progressive Tinnitus Management: Handbook for Audiologists.”

### **Self-efficacy for Managing Reactions to Tinnitus (SMRT)**

The Tinnitus Handicap Inventory (THI) and the Tinnitus and Hearing Survey (THS) are suggested in the book as questionnaires to use with patients who have tinnitus as part of the Level 2 Audiologic Evaluation. Both the THI and the THS are important for conducting a brief tinnitus assessment. One aspect of tinnitus that is not addressed by either the THI or the THS is whether the patient feels *empowered* to take control over (or “cope with” or “manage”) the tinnitus. This is a distinctly different aspect of outcomes compared with evaluating quality of life—evaluating the patient’s sense of empowerment addresses the primary goal of the patient education that is provided with PTM.

Empowering patients to take control over their tinnitus provides them with the tools to make changes that can lead to an improved quality of life. However, just providing the tools does not automatically improve quality of life. The tools have to be used. For example, a patient with chronic lower back pain may learn certain exercises that are designed to reduce the pain. The patient has to use the exercises to reduce the pain. If not, the tools are not being used and no change in pain (and no improvement in quality of life) should be expected.

Any approach such as PTM that uses education to teach patients how to self-manage their condition should evaluate if the patient feels empowered to take control over the condition. Using an outcomes questionnaire that assesses quality of life does not evaluate this sense of empowerment. When patients learn self-management skills, they will vary in how they implement the skills. Some patients are very good at implementing the skills, while others will have various degrees of follow through. It would be expected that patients with better follow through will have better outcomes with respect to quality of life. Those who have limited or no follow through should show little to no improvement in quality of life.

For these reasons, patients should complete both a questionnaire that assesses factors pertaining to quality of life (we have recommended the Tinnitus Handicap Inventory), as well as a questionnaire that assesses the patient’s sense of empowerment in taking control over the condition. It is essential that patients learn self-management skills, and a questionnaire should be used to determine if the patient has learned these skills. For these reasons we have developed the Self-efficacy for Managing Reactions to Tinnitus (SMRT).

The SMRT should be administered along with the THI and the THS to obtain baseline measures of these various aspects of tinnitus. Using these three questionnaires will provide the information that is essential to determine if the patient requires tinnitus-

specific clinical services. The same three questionnaires can later be administered to determine the patient's condition after intervention.

- **Scoring the SMRT.** The SMRT contains 17 items – six of the items are almost verbatim from the Self-Efficacy for Managing Chronic Disease 6-Item Scale (from the Stanford Patient Education Research Center). These six items can be scored using the instructions for the Stanford scale (see <http://patienteducation.stanford.edu/research/secd6.html>). We plan to statistically validate the remaining 11 items, so for now clinicians can establish their own norms.

### **Workshop Evaluation Form**

At the end of each Level 3 workshop it is suggested that each patient complete the Workshop Evaluation Form. The Form consists of six questions to evaluate patients' educational needs and to identify if there were any barriers to learning. This is an opportunity for patients to provide feedback concerning the workshop. The Form is completed anonymously to ensure that all feedback is objective and impartial.

- **Scoring the Workshop Evaluation Form.** This form is not scored. It is simply used to provide feedback from group attendees to clinicians who conduct the PTM Level 3 workshops.

### **Tinnitus Knowledge Inventory (TKI)**

The intervention provided with PTM consists mainly of the Level 3 Group Education workshops. These workshops are designed to provide patients with skills that will facilitate self-management of reactions to tinnitus. It is essential that patients comprehend and recall the information taught during the workshops in order to acquire and benefit from the skills. The Tinnitus Knowledge Inventory (TKI) was developed to evaluate patients' comprehension and recall of the key information taught during the workshops.

The TKI consists of five sections—one each for each of the five workshops. Each section contains five multiple-choice questions. Hence, at the end of each workshop patients are asked to answer the appropriate five-question TKI, which should take less than 1 minute. Patients complete the TKI along with the Workshop Evaluation Form. The completed TKI is identifiable while the Workshop Evaluation Form remains anonymous.

**Development of the TKI.** The results of studies examining patients' ability to remember health-related information in other fields suggest that audiologists may expect Veterans with tinnitus to have difficulty retaining a portion of the workshop information presented during the PTM sessions. This difficulty may be increasingly present in older patients whose memory for episodic information, such as recalling novel facts about tinnitus management, is subject to age-related decline (Kessels & de Haan, 2003). In addition, it is possible that the presence of hearing loss itself, which may result in the patient's inability to hear all the PTM information correctly, could contribute to decreased

retention of PTM content. Also, memory performance may vary by information presenter (Griew, 1970).

It was necessary to determine the type of memory task used to assess learner knowledge: recognition, probed recall, or free recall. In a recognition task, the patient has to select the correct information from among several options such as multiple-choice test. In a probed recall task, the patient has to recall the information but there is some type of supportive cue available. In a free recall task, the patient has to remember without retrieval cues.

An example of a recognition task is completion of a multiple-choice question. For example, "The main goal of using interesting sound is to: (a) make you feel better as soon as you hear it; (b) shift your attention away from your tinnitus; (c) reduce contrast to make it easier to ignore your tinnitus; (d) make your tinnitus quieter."

If the task were probed recall, the question would be: "What is interesting sound?" It should be noted that during the workshop, this question is asked, along with the questions "What is soothing sound?" and "What is background sound?" These probed recall questions employ the "teach back" method for which patients are asked to describe interesting sound in their own words (specifically, to describe the concept and not just give examples).

With a free recall task, patients would be expected to include a description of interesting sound in response to "Tell me everything you know about using sound to manage your reactions to tinnitus."

All three types of memory tasks may take place when self-managing reactions to tinnitus. Recognition memory occurs when patients remember and use the appropriate sound and sound source from the Sound Plan Worksheet. An example of probed recall would be a patient going to bed and noticing the table top device next to the bed, which serves as a cue to use the device. Free recall is needed when patients need to know what to do when the tinnitus is a distraction in different situations.

The use of any one of these three types of memory tasks (i.e., recognition, probed recall, and free recall) in a test of knowledge has advantages and disadvantages, which are well documented in the test construction literature (see Gronlund, 1993, for an in-depth analysis of test construction and assessment). Each type of task is associated with a different level of difficulty. Free recall tasks are considered the most difficult and recognition tasks the easiest, with probed recall falling between the two. The level of difficulty of each memory task is attributed to the amount of effort that must be spent in the retrieval of information (Ashcraft, 1994). Thus, it is not surprising that when researchers choose to examine the ability to remember health-related information using a recognition or probed recall task, performance tends to be higher than when a free recall task is used.

- **Scoring the TKI.** The TKI consists of five separate tests—one for each of the five PTM Level 3 workshops. Each separate test has five multiple-choice questions that evaluate the patient’s understanding of the key concepts described during the respective workshop. Scoring each test provides a relative measure of how much the patient learned. Each of the five questions counts for 20 points, for a total possible score of 100 points for each test.

### **Follow-up Assessment of Level 3 Group Education**

After patients have attended the group sessions it is essential to follow up with them to determine if their tinnitus needs have been met or if further services are required. The main objective of the Level 3 workshops is to teach patients skills that will empower them to self-manage their reactions to tinnitus. Two forms have been developed to use with patients after the workshops to assess their self-efficacy skills.

1. **Six-Week Post-Workshop Telephone Interview.** Approximately 6 weeks after patients have attended their last workshop, they should be telephoned by a workshop clinician who administers the Six-Week Post-Workshop Telephone Interview. The Interview contains four questions that ask: if the skills taught during the workshop are being used, what is most helpful, what is least helpful, and the overall level of satisfaction. Based on the patient’s responses and ensuing discussion there are five options for the patient: (1) no further intervention; (2) attend all workshop sessions again; (3) attend some workshop sessions again; (4) watch videos that provide content from the workshops; and (5) attend Level 4 Interdisciplinary Evaluation. These options are listed on the Interview form to facilitate a collaborative decision with respect to the best course of action for the patient.

- **Scoring the Six-Week Post-Workshop Telephone Interview.** Administration of this interview does not result in a score. The interview is used to elicit comments from patients regarding how they are doing with the skills they learned during the Level 3 workshops. On the last page of the form the potential options for the patient are listed. The form thus contains all of the information that would normally be necessary to determine the patient’s needs with respect to tinnitus at this point in the PTM program.

2. **Tinnitus Workshop Follow-up.** The Tinnitus Workshop Follow-up contains 10 questions that assess patients’ use of the skills taught during the workshops and other factors that are important in determining if tinnitus-specific problems are still being experienced. This questionnaire is self-administered, and normally it would be mailed to patients who complete it at home and return it by mail.

The Tinnitus Workshop Follow-up should be part of a battery of self-administered questionnaires to assess the patient’s condition with respect to tinnitus. The questionnaires include those that were completed by patients prior to the Level 2 Audiologic Evaluation:

- Tinnitus Handicap Inventory (THI)

- Tinnitus and Hearing Survey (THS)
  - Self-efficacy for Managing Reactions to Tinnitus (SMRT)
- This battery of questionnaires should be mailed to patients approximately 6 months following the Level 2 Audiologic Evaluation. The combination of these questionnaires will provide a clear picture of patients' progress (or lack of progress) with learning how to self-manage their reactions to tinnitus. If a patient's tinnitus problem is confounded by hearing loss, then it is also advisable to include the Hearing Handicap Inventory for the Elderly – Screening version (HHIE-S). If the HHIE-S is included, then the patient would receive five questionnaires to complete and return to the clinician (THI, THS, SMRT, HHIE-S, and Tinnitus Workshop Follow-up).
- **Scoring the Tinnitus Workshop Follow-up.** The Tinnitus Workshop Follow-up contains 10 items, only three of which provide numerical response choices. This form thus does not provide an index score, hence scoring is not possible. The form is used to obtain information from patients to supplement the primary outcome questionnaire (Tinnitus Handicap Inventory, or whatever is used) after sufficient time has passed following the workshops.

## References

- Ashcraft, M. H. (1994). *Human memory and cognition* (2nd ed.). New York: HarperCollins.
- Griew, S. (1970). Methodological problems in industrial aging research. In H. L. Sheppard (Ed.), *Toward an industrial gerontology* (pp. 110-122). Cambridge, MA: Schenkman.
- Gronlund, N. E. (1993). *How to make achievement tests and assessments* (5th ed.). Needham Heights, MA: Allyn and Bacon.
- Kessels, R. P. C., & de Haan, E. H. (2003). Mnemonic strategies in older people: A comparison of errorless and errorful learning. *Age & Ageing, 32*(5), 529-533.

## **Questionnaires Suggested for Use with PTM**

### **Pre-Level 2**

- THI
- THS
- SMRT
- HHIE-S

### **Level 3 Workshops**

- Tinnitus Knowledge Inventory (completed by attendees at end of each workshop)
- Workshop Evaluation Form (completed by attendees *anonymously* at end of each workshop)

### **6 Weeks after End of Workshops**

- Six-Week Post-Workshop Interview (conducted by clinicians to determine if further services are needed)

### **Pre-Level 4**

- THI
- THS
- SMRT
- HHIE-S
- Tinnitus Workshop Follow-up (determines if the patient is using the self-help skills that were taught during the workshops)

### **Follow up (e.g., 6 mo, 12 mo) to evaluate outcomes of intervention**

- THI
- THS
- SMRT
- HHIE-S
- Tinnitus Workshop Follow-up

HHIE-S = Hearing Handicap Inventory for the Elderly – Screening version

SMRT = Self-efficacy for Managing Reactions to Tinnitus

THI = Tinnitus Handicap Inventory

THS = Tinnitus and Hearing Survey

TKI = Tinnitus Knowledge Inventory