

## Sound Tolerance Interview

[Note to clinician: Use this interview only if the patient already has reported a sound tolerance problem.]

Instructions to patients: You told me that some sounds are uncomfortable for you when they seem normal to other people around you. We refer to this as **difficulty tolerating sound**. I am going to ask you some questions about difficulty tolerating sound. When you answer the questions, think back to how you have been doing over the last week or so.

### 1. Do you wear hearing aids?

- No – go to Question 2
- Yes

(If YES) Are everyday sounds too loud when you are wearing your hearing aids?

- No
- Yes

(If YES) Are everyday sounds too loud when you are *not* wearing your hearing aids?

- No
- Yes

[Note to clinician: If the sound tolerance problem appears to be caused by sounds amplified by hearing aids, consider making compression, maximum power output (MPO), and/or other adjustments to the aids to improve comfort. If the patient is not bothered by sound when unaided, then it is possible that all that is needed is to adjust the hearing aids for comfort. Consider giving the patient manual control of the volume.]

### 2. Is there anything you *want* to be doing, but *are not* doing because of difficulty tolerating sound?

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### 3. Have you used any of the following to help with difficulty tolerating sound? If so, please indicate *how helpful* on a scale of 0 to 10. (“0” would be “not at all”; “10” would be “extremely helpful.”)

- Using background sound  
How helpful? 0 1 2 3 4 5 6 7 8 9 10
- Gradually listening to the types of sounds that are uncomfortable to get used to them  
How helpful? 0 1 2 3 4 5 6 7 8 9 10
- Relaxation techniques  
How helpful? 0 1 2 3 4 5 6 7 8 9 10
- Medications  
How helpful? 0 1 2 3 4 5 6 7 8 9 10
- Counseling  
How helpful? 0 1 2 3 4 5 6 7 8 9 10
- Other \_\_\_\_\_  
How helpful? 0 1 2 3 4 5 6 7 8 9 10

### 4. On a scale of 0 to 10, *how confident* are you that you can improve your tolerance to sound? (“0” would be “not at all”; “10” would be “completely ready.”)

[Clinician: The person’s response gives an idea about **readiness** for change and **readiness** to begin managing the condition.]

0 1 2 3 4 5 6 7 8 9 10

### 5. On a scale of 0 to 10, *how much* does difficulty tolerating sound affect your life? (“0” would be “not at all”; “10” would be “as much as you can imagine.”)

0 1 2 3 4 5 6 7 8 9 10

### 6. What kinds of sounds are bothersome to you? Why are they bothersome?

[Clinician: check all categories that apply; circle any sounds that the patient identifies as a problem; write in any additional sounds mentioned by the patient; for each category selected, select one or more of the reasons why the sound is uncomfortable.]

- High-pitched sounds** (squeals, squeaks, beeps, whistles, rings, \_\_\_\_\_)

- Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Low-pitched sounds** (bass from radio, next door music, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Traffic (warning) sounds** (emergency vehicle sirens, car horns, back-up beeper on truck/van, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Traffic (background) sounds** (road noise, road construction, diesel engines, garbage trucks, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Other background sounds** (crowd noise, restaurant, city noise, sporting events, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Sudden impact sounds** (door slam, car backfiring, objects dropping on floor, dishes clattering, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Voices** (television, radio, movies, children’s voices, dog barking, babies crying \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Oral (mouth) sounds** (chewing, breathing, swallowing, coughing \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Nasal (nose) sounds** (sniffing, sniffing, breathing, snorting, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Human-movement sounds** (pen clicking, wrappers crinkling, typing, foot tapping, finger snapping, \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_
- Other** (describe \_\_\_\_\_)  
 Too loud;  Annoying;  Make me angry;  Make me anxious;  Overwhelming;  I avoid  
 Comments/examples \_\_\_\_\_

**7. I’m going to read a list of activities. Please tell me how often difficulty tolerating sound is a problem during these activities.**

(Clinician: check **avoids** if the patient avoids any of these activities due to difficulty tolerating sound; if an activity is avoided, you can check two boxes for that activity)

	Never	Rarely	Sometimes	Often	Always	N/A	Avoids
Concerts							
Watching movies in a theater							
Watching TV or movies at home							
Shopping							
Going to restaurants							
Attending religious services							

	Never	Rarely	Sometimes	Often	Always	N/A	Avoids
Work responsibilities							
Day-to-day responsibilities outside of work							
Driving							
Housekeeping activities							
Childcare							
Social activities							
Participating in or observing sports events							
Participating in or observing performances							
Hobbies							
Sharing meals with others							
Attending class (in person)							
Attending health care appointments							

**8. How much time do you spend in quiet or silence?**

- None or very little
- A small amount
- A moderate amount
- A large amount of time
- Most of the time
- All of the time

**9. I'm going to read a list of health conditions that sometimes cause difficulty tolerating sound. Please tell me if you have been diagnosed with any of these conditions.**

- Post-traumatic stress disorder (PTSD)
- Anxiety disorder
- Head injury (concussion, traumatic brain injury)
- Sleep problems
- Depression
- Migraines
- Other \_\_\_\_\_

**10. Do you ever use earplugs or earmuffs?**

- No → Go to Question 10
- Yes

**(If YES)** What percentage of your awake time do you use earplugs or earmuffs? \_\_\_\_\_%

**(If YES)** Do you ever use earplugs or earmuffs in fairly quiet situations?

- No
- Yes

[Note to clinician: Some patients have difficulty understanding the point of this question. Another way to phrase it is: *“Do you ever use earplugs or earmuffs because sounds are too loud for you when they seem normal to other people around you?”* The concern is that people with sound tolerance problems may wear hearing protection in fairly quiet situations out of fear that they will encounter an uncomfortably loud sound. That behavior would be considered *overprotecting* ears, and is likely to cause the sound tolerance problem to worsen. These patients need to understand that use of hearing protection can lead to greater sensitivity to sound, thus exacerbating their sound tolerance problem.]

**(Clinician: does patient overprotect ears due to problems with sound tolerance?)**

- No
- Yes

## Instructions for Using the Sound Tolerance Interview

The Sound Tolerance Interview (STI) is mostly self-explanatory. The clinician reads to the patient the instructions that appear at the beginning of the STI, and then reads each question (and response choices) in sequence. Notes to clinicians are embedded with some of the questions to provide clarification regarding the intent of the question, and to explain how to interpret potential responses.

The different sound tolerance conditions include hyperacusis, misophonia, noise sensitivity, and phonophobia. It is essential to understand these conditions differ. It is often the case that multiple sound tolerance conditions occur simultaneously. The definitions below can help to guide your impressions as you talk through the STI questions with your patient.

**Hyperacusis = physical discomfort caused by sound at levels that are comfortable for most people.** With hyperacusis, all sounds are uncomfortable once they reach a certain loudness level, which varies from person to person with hyperacusis. The source of the sound is irrelevant—when *any* sound reaches a certain level, it is uncomfortably loud. Hyperacusis is almost always a bilateral condition. There is a strong association between hyperacusis and tinnitus.

**Misophonia = emotional reactions to sound.** With misophonia, it is not the loudness of a sound that causes discomfort (as is the case with hyperacusis). Rather, it is an emotional reaction to the sound that causes it to be experienced as uncomfortable. It is common for a person with misophonia to find particular sounds to be uncomfortable at a relatively low level, but to find other sounds at the same level to be acceptable. Trigger sounds most typically involve those made by the mouth or nose, such as chewing, breathing, lip-smacking, crunching, sniffing, and swallowing. Other sounds people make can trigger reactions, such as repeated clicking of a ballpoint pen, typing, and foot tapping. Trigger sounds can include any sound in the environment that causes emotional reactions.

**Noise sensitivity = general reactivity or discomfort (annoyance or feeling overwhelmed) due to a perceived noisy environment.** Like misophonia, noise sensitivity is not driven by the intensity level or perceived loudness of sounds in the environment. People with noise sensitivity are typically most comfortable in a quiet environment. Noise sensitivity is highly prevalent in people who have experienced a traumatic brain injury (TBI). It is also associated with PTSD, depression, anxiety, and autism spectrum disorder.

**Phonophobia = fear that a sound may occur that will result in discomfort, pain, or anxiety, or that will exacerbate an existing auditory disorder.** Phonophobia does not pertain to negative *reactions* to sounds (as for hyperacusis, misophonia, and noise sensitivity), but rather the anticipatory *fear* that sound will be uncomfortable for any reason. Any of these sound tolerance conditions can cause a person to become phonophobic. People with phonophobia often do not want to venture outdoors because of the unpredictable nature of sounds in the outdoor environment. It would be common for a person with phonophobia to wear earplugs and/or earmuffs when outdoors (and indoors when away from the home).

### Sound tolerance condition:

- Hyperacusis
- Misophonia
- Noise sensitivity
- Phonophobia
- None

Comments: \_\_\_\_\_

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