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Sleepless in America

Understanding Misophonia

New research is helping us better understand this unusual disorder.

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During one of our sessions, a patient of mine stopped for a moment and then said, "There is something I want to discuss with you."

She looked down, took a breath, and then looked directly at me. "I have this issue we haven't discussed before. Last night at dinner, like always, I became very aware that my husband was eating loudly. I try to ignore it. But it just isn't possible. I think it's getting worse. I can hear the slurping and lip-smacking, and I get disgusted.

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"After a while, I just want to smash my glass in his face. I have mental images of doing that. And it's not just with him, I avoid meetings where there will be meals for this very reason. I just cannot take the chewing sounds. It probably has hurt me professionally. If I go to meetings because I really have to — it is a nightmare.

"I have the same reaction to eating and drinking sounds everywhere I go but not quite as violently as at home. Or maybe I just suppress it better when I'm out. I'm not sure. It's not as bad when I hear my dog or my cat eating, I guess really only hearing these sounds from people gets to me.

"I have had this as far back as I can remember. Even in childhood. And it affects me at work. Some of the techs in the lab like to chew gum and have snacks. I can't be around them when that happens. I could really lash out verbally for no apparent reason and they wouldn't understand. In my position,

that would not be a good thing to have happen. It has been close a number of times.

"I just have had to practice avoidance when I can. The thing is, I think this affects my sleep as well. After dinner, I am so churned up, disgusted, and angry with my husband that it's hard to wind down. Lately, I have been having another glass of wine after dinner to try and calm down but I don't think that's good for my sleep either. I sometimes just toss and turn.

"I think this limits the behavioral techniques I've been trying to use to improve my sleep hygiene. And it's really hard to focus on the meditation techniques when I am are really upset and also feeling a bit lightheaded from the wine so that hasn't been helping either.

"I have a condition called misophonia and I haven't found any way of dealing with it other than avoiding situations where it could come up or having another glass of wine."

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Misophonia was thus first brought to my attention a number of years ago by this patient, a brilliant research physician, who had been suffering with it her entire life. The above "transcript" is similar to what she reported to me. I was not aware of this condition and had no immediate strategies for working on it.

We had met for a few sessions to address her significant and worsening insomnia that had been inadequately managed with medication. The medication also had unacceptable side effects such as memory difficulties, something she could not tolerate given her professional work. After telling me about her condition, she gave me an article from the [New York Times](#) about misophonia and that was the first time I ever heard of or read about it.

Whenever she heard sounds of eating, chewing gum, or drinking, she became extremely uncomfortable and irritable. If the sounds continued, it resulted in increasing distress and mounting anger as she just wanted the sounds to stop. This had the effect of causing her to [avoid eating in public and thus going to restaurants](#) or professional meetings at which there would be a meal.

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It negatively affected her interactions with family members as she could barely stand having family dinners with her husband and children or going to a family

get together. She had been very successful professionally despite this disorder.

But it was challenging for her to supervise the lab work done by her techs as she had great difficulty going into their large work area with multiple cubicles. The slurping and munching sounds she would hear as they chewed gum, drank coffee, or had snacks “drove her up the wall.” This constant stress added significantly to her distress and anxiety.

At the end of the day, she was often tense and felt overwhelmed and irritable. This made relaxing and falling asleep at night difficult, especially if her husband had a glass of wine or tea after dinner. Not only could she barely tolerate hearing him chew, smack his lips, and swallow at mealtime, but to continue to hear his drinking sounds afterward was just too much.

It was maddening, and a significant contributor to her decision to seek psychotherapy to better cope with this problem. Why hadn't she brought it up in earlier sessions? Perhaps she noticed how the increased stress and tension caused by the misophonia negatively impacted her sleep only after keeping detailed sleep records as part of her treatment.

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Misophonia, which literally means “hatred of sound,” is a relatively rare disorder that afflicts certain people and makes particular sounds nearly unbearable to them. While relatively rare, up to 20% of the population may have some degree of misophonia. (See Palumbo, Alsalman, De Ridder, Song, & Vanneste, 2018, for consideration of the data related to this figure.)

It is not currently an official diagnosis, although it may be encountered by audiologists, occupational therapists, primary care physicians, psychiatrists, and psychologists, as well as other healthcare professionals. These professionals are likely to be unaware of its existence and at a loss as to how to treat it.

I was certainly in this situation when I first encountered this patient suffering from it. And suffering greatly at that. Successful treatment of her insomnia initially seemed uncertain, but additional sessions of cognitive behavioral therapy for insomnia did have a positive impact.

Interestingly, the sounds that people are sensitive to, known as triggers, can generate not only the emotions of disgust and anger and the behavioral response of avoidance, but can also cause unpleasant tingling sensations. The triggers are often the same sounds that evoke [ASMR](#) in other individuals with tingling sensations.

But in those with [ASMR](#), these sensations are experienced as pleasant, relaxing, and can even ease them into sleep. In a quiet bedroom environment, misophonia rarely contributes to poor sleep but some background noises can evoke the misophonia response and make sleep impossible. When people become irritable and angry due to misophonia's effects, even when they occur a while before bedtime, the arousal and distress can carry over and make sleep difficult.

As with ASMR, many videos are available on YouTube addressing this subject. A nice introduction may be found in a video by [BrainCraft](#). For the more scientifically inclined, I would recommend checking out this one by [Drs. Brout and Rosenthal](#).

My guess is that everyone has had the experience of being annoyed or distressed by a sound. Think of spending the night in a hotel room that has a leaky faucet. As sleep begins to settle over you, you notice the incessant drip, drip, drip of the water. In time, it seems to be so loud you can't think. Or sleep.

Eventually, thoughts of smashing the faucet may fill your now fully awake mind. Now take that experience and apply it to many, many, inescapable ordinary sounds that are encountered daily. Quicken and greatly intensify it and you'll have some idea of what a person with misophonia experiences — all the time.

Now it is important to distinguish misophonia from the emotional response to well-known aversive sounds. Examples would be hearing a baby loudly crying, on and on, while you are trying to enjoy a nice meal at a restaurant. Baby cries are programmed into us to elicit a response. As distress signals from a completely vulnerable human in need of care, they just can't be ignored.

A similar kind of sound that can't be ignored is snoring. Many of us are familiar with the dark thoughts that can enter one's mind late on a sleepless night when the repeated elbow jabs to our bedpartner's side have failed to limit the

snoring for more than a few seconds at a time. So I think we can all agree that sounds have the ability to evoke negative emotions and potentially negative behaviors.

Another kind of sound-related problem I have encountered in some patients is [hyperacusis](#). This is a hearing problem in which people become extremely sensitive to certain frequencies and volumes of sound. In this disorder, a hearing test would be normal but the threshold at which certain sounds become distressing is lower than for most people.

Hyperacusis often has a recognized cause, such as the person having been exposed to extremely high volume sounds or having had certain illnesses such as [migraine](#) headaches or severe head [trauma](#). Sounds can be perceived as being intolerably loud and disturbing and result in avoidance behaviors. A grandparent who develops hyperacusis may, for example, no longer be able to visit their children as the sounds of the grandchildren playing may be too painful to tolerate.

Hyperacusis can be closely related to [phonophobia](#), which is a type of specific phobia (like [fear of dogs](#) or heights). In this case, the individual may have a fear of loud sounds like fireworks or rock music.

[Tinnitus](#), another hearing difficulty that can cause great psychological distress, involves hearing a sound, often described as “ringing,” that is generated within the person’s auditory system and cannot be heard by others. Chronic tinnitus can be so maddening that it can lead to [thoughts of suicide](#), as it did for actor William Shatner.

Tinnitus often occurs after exposure to an extremely loud sound. You may even have experienced some temporary ringing in the ears yourself the day after attending a rave or rock concert. It can also be a side effect of some medications. As you can see, however, these disorders are not exactly like misophonia, where the emotional response is extreme and in response to ordinary sounds at normal volume.

Misophonia is also known as *selective sound sensitivity syndrome*. While not as colorful as misophonia, this term does correctly identify that it is a constellation of symptoms related to being sensitive to certain sounds. The term does not, however, convey the intense emotional reactions brought up by these sounds as well as the word misophonia does.

It is also important to note that over time the emotional response to certain sounds can become associated with visual cues, again something like the phenomenon of ASMR, but in a negative way. For example, my patient reported becoming enraged when she saw her husband pulling out his favorite wine glass, as she knew that she would soon be hearing the detested sounds of drinking.

Women are somewhat more likely to have misophonia, but men also can have this affliction. Efforts have been made to treat it with psychological counseling, antidepressant medication, and devices that can be worn like hearing aids to provide distracting, pleasant sounds.

For sleep, behavioral techniques would include keeping a quiet bedroom environment (the snoring partner may need to use the guest bedroom), use of earplugs, or noise-canceling headphones.

The term misophonia was coined in 2000, and more research has gradually been appearing in the literature, starting with case studies in 2008 (Edelstein, Brang, Rouw, & Ramachandran, 2013). Edelstein, Brang, Rouw, & Ramachandran (2013) conducted several studies that began to outline the contours of the disorder.

Their first was an interview study in which 11 individuals were identified at the University of California San Diego campus through self-identified contact with the laboratory or through an online misophonia support group. Of the 11, seven were women and the age range was 19 to 65. They were interviewed in person using semi-structured interviews, with the first five interviews being exploratory in nature in order to better determine what questions to ask in the final six.

They found that despite considerable variability there were clear similarities in factors such as age of onset (8 – 10 years of age), major trigger sounds (eating, chewing, crunching sounds, lip-smacking, pen clicking, and clock ticking), being evoked by certain people (yes – 82%), running in the family (yes – 55%), coping strategies (e.g. avoidance, ear plugs, distraction, asking others to stop making the sound), physical effects (pressure in the chest, arms, head, whole body, tense muscles, increased body temperature, difficulty breathing, sweaty palms), visual triggers (swinging legs), emotions associated with the trigger (e.g. anxiety, rage, annoyance, panic, feeling trapped), being bothered by the sounds produced by animals or children (yes

– 9%), thoughts that accompany the trigger sound (e.g. “I want to punch this person” and “I hate this person”), and life effects (e.g. avoiding people who make the sounds, avoiding certain foods, and having thoughts of suicide). The subjects also reported that for a number of them caffeine increased the symptoms while alcohol decreased them.

In a second study, Edelstein, Brang, Rouw, & Ramachandran (2013) looked at physiological arousal in misophonic participants exposed to triggers, using skin conductance as a measure. They used six of the people who contributed to the interviews discussed above, as well as five matched control participants also recruited from the same university population.

The participants listened to recordings from YouTube or that had been recorded for the study. The clips allowed for presentation of sounds alone, visual cues alone, or both. A range of sounds was used such as whale songs, nails scraping across a chalkboard, lip-smacking, and gum chewing. Data were statistically analyzed.

They found that misophonic participants rated the sounds as being much more aversive than the visual stimuli, and skin conductance measurements were also increased more for the auditory stimuli than the visual ones. The misophonic participants had greater reactions to all the stimuli than the control participants. This could indicate some generalized anxiety.

Both groups found the same stimuli aversive but the misophonic group found them aversive to a significantly greater degree, suggesting that misophonia may be an exaggerated form of the milder discomfort experienced by most people to certain sounds.

The researchers, much as those doing research with ASMR, drew similarities between misophonia and synesthesia in that both are “automatic (in the sense that they do not take effort or conscious deliberation), are consistent within an individual and persist throughout life, and seem to run in families.”

This suggests that there are neurological factors involved in misophonia. These studies were, however, limited by factors such as having very small sample sizes and potentially reduced emotional impact due to the fixed laboratory setting in which triggers were presented. Triggers might not be as aversive in the laboratory as those that occur in a natural environment.

Schröder, Vulink, & Denys (2013) suggested classification of misophonia as a psychiatric disorder, something with which other professionals might disagree, as it seems to have aspects that cut across numerous disciplines and cannot be easily defined by a single professional approach.

Nevertheless, their study was a first attempt to define the disorder in a rigorous way. It was one step in the research process, where a phenomenon must be first identified and then defined so that it can be subjected to more intensive experimentation and analysis.

They had first noted in 2009 three patients who had been referred to an obsessive-compulsive treatment clinic, that had symptoms related to impulsive and aggressive reactions to smacking or breathing sounds. The symptoms were not completely consistent with obsessive-compulsive disorder.

The authors were aware that misophonia, which seemed a better description of their symptoms, had been identified, a few case reports had been published, and online discussion groups existed. Over the next several years they received many more patients with these symptoms and decided to try and outline the symptoms that comprise the disorder and to suggest possible diagnostic criteria that would allow for a Diagnostic and Statistical Manual diagnosis of the disorder.

They identified 42 patients that had a similar set of symptoms and did extensive psychiatric interviews using rating scales and structured interviews. These were conducted by five psychiatrists who were experienced in the diagnosis of obsessive-compulsive disorder. They found a similar pattern of intense anger, impulsive reaction, fear of losing control, and avoidance of trigger situations.

They also noted the presence of obsessive-compulsive personality traits. They suggested that misophonia can be considered to be an obsessive-compulsive spectrum disorder. They also developed the Amsterdam Misophonia Scale and a copy of it can be found with their article.

Whether or not misophonia is ultimately classified as an obsessive-compulsive spectrum disorder or not, efforts are being made to determine what brain structures are involved. A study by Kumar, Tansley-Hancock, Sedley, Winston, Callaghan, Allen, & Griffiths, (2017) used functional and

structural MRI as well as physiological measures to identify specific brain/body responses to misophonia triggers.

This complex study found that, in response to triggers, the participants with misophonia showed extreme brain activity in an area of the brain known as the anterior insular cortex. This is part of the salience network that is involved in the perception of signals within the body and associated emotional processing.

They also found that there was abnormal functional connectivity of the anterior insular cortex with several other areas including the medial frontal, medial parietal, and temporal regions of the brain. This neural response to triggers "...suggest(s) that abnormal salience attributed to otherwise innocuous sounds, coupled with atypical perception of internal body states, underlies misophonia" (p. 532).

Of note, structural MRI data were consistent with there being significantly higher myelination in the area associated with the observed increased functional connectivity. This indicates that people with misophonia may have structural differences in their brains that help explain why trigger sounds have the effects that they do.

To date, there are few completed treatment studies available. The two most promising techniques tried so far have been modified tinnitus retraining therapy and cognitive behavioral therapy (Cavanna, & Seri, 2015).

There are many challenges to doing treatment research on misophonia, given that a fully acceptable set of diagnostic criteria have not been developed, the actual prevalence of the disorder in the population is not known, and its underlying physiology and psychology remain uncertain (see Palumbo, Alsalman, De Ridder, Song, & Vanneste, 2018).

Despite this, people are searching for treatments that may help beyond the typical avoidance and distraction already used by people with misophonia.

Schröder, Vulink, van Loon, & Denys (2017) recently reported on a cognitive behavioral approach to treating misophonia. This was an initial treatment trial and a control group was not used. Improvement was measured by treatment response questionnaires.

They used cognitive behavioral strategies delivered in eight biweekly sessions and found that 48% of the 90 participants showed a significant reduction in misophonia symptoms. While not overly impressive, it was the first effort and will require further development and research in more carefully controlled clinical trials.

As it turned out, the patient described above has had some relief from her symptoms. I immediately admitted to knowing nothing about this disorder but agreed to try cognitive behavioral therapy with it. One of the things I like about the cognitive behavioral approach is that it gives us a method of working even when we don't fully understand the problems we are sometimes confronting.

So, I read the New York Times article and did a literature search to try and find out what I could about this disorder. At the time, there was very little to be found but it seemed to make sense to target the emotional and behavioral responses evoked by the sounds.

We started by doing a functional analysis of the problem and thus identified triggers, thoughts, and expectations that occurred in response to the triggers, and the emotional and behavioral consequences of those cognitive processes. We used relaxation, cognitive restructuring, distraction, and exposure techniques as well as some hypnotic inductions in an effort to manage the misophonia.

All of this had a modest impact on helping her better cope with the misophonia. She was also helped by occasional use of an anti-anxiety medication that neither of us was really happy to have to use but for important events like professional meetings and major family dinners, it supplied sufficient additional anxiety relief to help her get through the event without becoming overly enraged or walking out.

These situations continue to be a challenge but are more manageable than before. Having an early dinner, her husband agreeing to be discrete about drinking sounds (and not using that favorite wine glass while the patient was around), keeping a very quiet bedroom, and using a relaxation or self-hypnosis induction in the hour before bedtime helped. Being able to see her husband using his favorite wine glass may be an exposure therapy intervention she may pursue in the future.

If you or someone you know is suffering from misophonia, there is hope. Some professionals believe that [up to 80% of people suffering with it can benefit](#) from the existing treatments. This challenging syndrome is being researched and a better understanding of it is slowly accruing. New treatment approaches are being developed.

A resource that you can check online is provided by the [Misophonia Association](#). For an up to date review of the scientific literature with some theoretical considerations about misophonia that may have treatment implications see Palumbo, Alsalman, De Ridder, Song, & Vanneste (2018).

In my next post, I will be discussing a relaxation technique that uses sound and that some people find can help them sleep. It is known as [binaural beats](#).

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<https://www.psychologytoday.com/us/blog/sleepless-in-america/201809/understanding-misophonia>