

Misophonia and Co-Occurring Disorders

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Many people ask whether misophonia is related to certain mental health problems. It is difficult to know, for sure, because the research addressing this question started less than 10 years ago. But there are some things that can be said based on the available studies that have been published. In this chapter, we provide a brief overview of the scientific findings on some of the most studied disorders and problems that may co-occur with misophonia. Although most of the research on this topic has been done by asking participants if they have been diagnosed with select symptoms or disorders, we focus mostly on studies that have used structured interviews and more rigorous methods.

Misophonia and anxiety disorders

Many studies have started to explore how anxiety symptoms are related to misophonia. A research group based in Amsterdam found that 9% of adults with misophonia had a co-morbid anxiety disorder (Jager et al, 2020). In one of the studies that we did at Duke University, however, the problem that seems most related to misophonia is anxiety. Similarly, in a study conducted at the University of Warsaw, the panic disorder was the second most prevalent among misophonia sufferers (Siepsiak et al., 2022). Even though people with misophonia experience a range of emotions (e.g., anger, disgust, irritation), the feeling of anxiety is common. When encountering misophonic triggers, the body may go into a flight or fight reaction, producing anxious arousal that functions to mobilize escape or confrontational behaviors. When anticipating being triggered, individuals with misophonia are often on edge and hypervigilant, scanning their environment and ruminating about being triggered.

With this in mind, the prevalence of anxiety within this population seems to make intuitive sense. In Rosenthal et al. (2022), 57.7% of the study sample met full criteria for at least one anxiety disorder at the time of being interviewed. Two of the most diagnosed anxiety disorders were social anxiety disorder (SAD; 31%) and generalized anxiety disorder (GAD; 25%). However, statistical analyses suggested that neither of these disorders were significant predictors of misophonia severity after controlling for age and sex, so we need more research to determine the trajectory and relationship among misophonia and anxiety disorders.

Still, while anxiety disorders may not predict misophonia severity, there is clear overlap descriptively between misophonia and anxiety disorders. In Rosenthal et al. (2022), with nearly 60% of the sample meeting criteria for at least one DSM-5 anxiety disorder, it is probable that the those with misophonia are more likely to have co-morbid anxiety than those in the general population (estimates of anxiety disorders in the general population range from 4.8% to 10.9%; Stein et al., 2017). Future research is needed to better understand the development and trajectory of misophonia and anxiety (i.e., relationships and differences between anxiety developing before the onset of misophonia, and vice versa).

How is misophonia similar to anxiety disorders? Without getting into the details of every specific anxiety disorder, we can say this: anxiety disorders and misophonia both feature anxious arousal, attentiveness to unwanted specific cues, anticipatory cognitive processes, and escape or avoidance behaviors to reduce aversive emotional arousal. How are misophonia and anxiety disorders different? A primary difference is that anger is not a primary emotion in anxiety disorders, but is common (if not central) to misophonia.

Misophonia and mood disorders

Second to anxiety disorders, mood disorders were the next most prevalent type of disorder that had overlap with misophonia in Rosenthal et al., 2022. Indeed, 14.4% of the sample met full criteria for at least one mood disorder at the time of being interviewed. Within that

group, 7.7% were diagnosed with persistent depressive disorder and 6.7% were diagnosed with major depressive disorder. Around half of the sample had major depressive disorder at some point in their lifetime. Jager et al. (2020) reported mood disorders were among the most common psychiatric disorders in their sample of adults seeking treatment for misophonia. And, clinically, individuals with misophonia often describe feelings of isolation, detachment, and being misunderstood, as well as decreased self-esteem and self-efficacy. These difficulties can spill over into other domains of life outside of misophonia.

One possibility is that misophonia is correlated with negative mood in general, and not major depression specifically. However, it should be expected that some people with misophonia will report high symptoms or meet full diagnostic criteria for depressive disorders.

Misophonia and trauma-related disorders

People with misophonia develop such strong reactions toward particular sounds or related stimuli. Many people have asked, “Is it related to trauma?” Researchers have started to investigate this question. In the study done by Rosenthal et al., (2022), most participants did not have trauma-related disorders, with 24% having a trauma-related disorder at some point in their lifetime. Another study (Siepsiak et al., 2022) found that 12% of participants with misophonia met the criteria for current post-traumatic stress disorder (PTSD). Because these studies used structured diagnostic interviews (the gold standard method) to assess trauma-related disorders, these data suggest misophonia may not be highly related to a history of traumatic stress.

PTSD is a mental health condition that's triggered by a terrifying event (e.g., death, threatened death, serious injury, or sexual violence)— either experiencing it or witnessing it. Symptoms may include flashbacks, nightmares and severe anxiety, as well as uncontrollable thoughts about the event. What are the similarities between misophonia and PTSD? In PTSD, acoustic stimuli related to trauma can cause intense aversive emotional arousal with subsequent avoidant behavior. PTSD-related stimuli can arouse a sudden recollection and/or re-enactment of the trauma, or of the original reaction to it, and may even trigger dramatic, acute bursts of fear, panic or aggression. These symptoms may look similar to the reactions of misophonia.

What are the differences between misophonia and PTSD? In PTSD, a life-threatening traumatic event (e.g., death, threatened death, serious injury, or sexual violence) has been experienced and the primary emotion is fear, not anger. Additionally, PTSD patients usually have recurrent, unwanted distressing memories of the traumatic event and experience intense negative emotions and physical sensations when recalling the trauma memory. In contrast, in misophonia, the majority of patients have not experienced a life-threatening traumatic event causing misophonia and fear does not appear to be a primary emotion. If the patient is literally fearful of a sound and avoids it, they might have what is called phonophobia, and this is a different disorder than misophonia and PTSD. In addition, there are no data to suggest that people with misophonia usually recall a traumatic memory when having intense emotions and physical sensations after hearing trigger sounds.

Misophonia and obsessive-compulsive disorder

Obsessive-compulsive disorder (OCD) features a pattern of unwanted thoughts (obsessions) that usually lead patients to do repetitive behaviors (compulsions) which function to neutralize the intensity of the obsessions. Patients with OCD attempt to ignore or stop their obsessions, but that often increases their distress and anxiety. Ultimately, patients feel compelled to perform compulsive acts in order to relieve their obsessional thoughts. But troublesome thoughts or urges keep returning despite attempts to ignore them or get rid of them. This leads to

more ritualistic behavior — the vicious cycle of OCD. These obsessions and compulsions cause significant distress and interfere with daily activities.

Some people find it confusing to distinguish between misophonia and OCD. Many studies have shown a correlation between misophonia and OCD (e.g., Wu et al., 2014; Zhou et al., 2017).

However, Rosenthal et al. (2022) found that 27% of individuals with misophonia met the criteria for OCD in the course of their lives in the American sample. Two European studies found even fewer cases of OCD among people with misophonia. Jager et al. (2020), found only 2.8%, and Siepsiak et al., (2022), found only 6% of individuals with misophonia met the criterion for current OCD. In addition, another study found that some parts of OCD are related to *lower* misophonia (McKay et al., 2018). Together, this all seems to suggest that OCD and misophonia are fundamentally different.

What are the similarities between misophonia and OCD? In misophonia, there is a preoccupation with specific sounds, which could resemble obsessions in OCD. Both disorders and other anxiety disorders (as well as PTSD) have avoidance as a primary feature. What are the differences between misophonia and OCD? Generally, OCD patients perform compulsive acts in an attempt to change obsessional thoughts, and anger is not commonly reported. In contrast, patients with misophonia typically do not react to triggering cues in order to change obsessional thoughts. Instead, reactions to avoid or escape from misophonic cues function to reduce unwanted physiological, emotional, and cognitive processes related to a range of emotions, such as irritation, disgust, anxiety, and anger.

Misophonia and personality disorders

People with personality disorders have longstanding rigid and unhealthy patterns of thinking, functioning, and behaving. A person with a personality disorder has difficulty perceiving and relating to situations and people. This causes significant problems and limitations in relationships, social activities, work and school.

The presence of concurrent personality disorders has been found in patients with misophonia, although it is less common than other mental health problems. A study reported a comorbidity rate of 5% (Jager et al., 2020), while another reported a comorbidity rate of 13% (Rosenthal et al., 2022).

The most prevalent personality disorder among misophonia patients is obsessive-compulsive personality disorder (OCPD; Jager et al., 2020; Rosenthal et al., 2022). In Jager et al. (2020), 26% of participants with misophonia had traits of OCPD. This disorder is characterized by a pervasive preoccupation with orderliness, perfectionism, and control (with little room for flexibility) that ultimately slows or interferes with completing a task. It is important to note that OCPD is not the same as OCD, as OCD is mostly characterized by efforts to neutralize obsessional thoughts with repetitive actions or other thoughts.

Borderline personality disorder (BPD) may be the second most common personality disorder among patients with misophonia (Jager et al., 2020; Rosenthal et al., 2022). BPD is a condition characterized by severe emotional dysregulation, behavioral problems, and difficulties with interpersonal relationships. People with BPD are more likely to experience intense emotions over a long period of time, and it is harder for them to return to a stable baseline after being exposed to emotionally triggering events. This difficulty can lead to impulsivity, poor self-image, stormy relationships and intense emotional responses to stressors. Having difficulty with self-regulation can also result in dangerous behaviors such as self-harm.

People with misophonia have high levels of inflexibility, perfectionism, and emotion dysregulation (Guetta et al., 2022; Rinaldi et al., 2022). However, most do not meet the diagnostic criteria for BPD.

Misophonia and sensory processing disorder

Sensory Processing Disorder (SPD) is a term used to describe the difficulty in dealing with sensory stimuli (Miller et al., 2009). As misophonia is also a problem related to sensory processing issues, one may assume these are the same conditions. However, although misophonia sufferers often report being triggered by visual cues, and they also can have other sensory issues, they are over-responsive to very specific sound stimuli. SPD is not characterized by over-responsivity to oral and facial repetitive cues, as is the case for misophonia. At present, there is little known about the link between misophonia and SPD. Because SPD is a broad term and is not fully understood or defined (Harrison et al., 2019; McArthur, 2022), it makes it even more difficult to understand the relationship between SPD and misophonia. Nonetheless, some preliminary data showed that although misophonia sufferers have increased sensory responsiveness, these are two different disorders (Kaufmann et al., 2022).

Misophonia and autism spectrum disorder

Abnormal sensory processing is one of the main symptoms in autism spectrum disorder (ASD). Therefore, the associations between misophonia and ASD would also seem an obvious area to be explored. Surprisingly, again - it is still one of the least researched subjects. In a study in the Netherlands (Jager et al., 2020), autism was diagnosed in 3% of the misophonia participants. However, people with ASD primary diagnosis were excluded from this group, so this percentage cannot reflect actual proportions. A larger percentage (5.6%) of self-reported ASD was found in self-reported misophonia sufferers in an online English-speaking sample (Claiborn et al., 2020). In a Polish study, people with self-reported ASD had significantly higher severity of misophonia symptoms than those without such diagnosis (Siepsiak et al., 2020a), but their outcomes did not indicate impairing significance of misophonia symptoms, and were much lower than outcomes of assumed misophonia sufferers. In addition, researchers from England (Rinaldi et al., 2022) found increased ASD symptoms in children and adults with assumed misophonia. However, further studies should verify whether that was a link between misophonia and ASD, or rather between some broader type of decreased sound tolerance and ASD symptoms. Because atypical reactions to a variety of everyday sounds are common in autism, when it comes to exploring these two conditions, the way misophonia is defined can particularly impact the results.

Although we still cannot say a lot about the relationship between misophonia and ASD, we can be rather sure about two things. It is already known that autistic people can suffer from misophonia (but they are rather more likely to have other types of decreased sound tolerance, such as hyperacusis or phonophobia; Williams et al., 2021), and that people with misophonia can be on the autism spectrum, but most of them are not.

Misophonia and attention deficit and hyperactivity disorder

Attention deficit and hyperactivity disorder (ADHD) is another developmental disorder in which sensory sensitivities are often present (Lane et al., 2010). This may also lead to a question of whether misophonia is related to ADHD. What do we know about the relation between those two disorders? In Turkey, in a population prevalence study (Kılıç et al., 2021), ADHD diagnosis was significantly more frequently reported by misophonia sufferers (20%) than by non-misophonia participants (7%). In a study of self-diagnosed participants with misophonia from a variety of countries all over the world (Rouw & Erfanian, 2018), 12% reported to be diagnosed

with ADHD, but some statistical analysis showed that the symptoms of misophonia were not related to this diagnosis. In a recent American sample (Rosenthal et al. 2022), the small significant relationship with self-reported ADHD disappeared after statistical corrections. A similar percentage (13%) was found in self-reported misophonia participants in another American study (Claiborn et al., 2020), however, no data on relationship between these two disorders were presented.

In several studies in the Netherlands (Schroder et al., 2013; Schroder et al., 2014; Jager et al., 2020; Schroder et al., 2017), between 4.4% and 5.4% participants with misophonia were diagnosed with ADHD. In an American misophonia treatment study, 1 person out of 18 (6%) was diagnosed with ADHD (Frank & McKay, 2019). Are all these numbers high? It was estimated that cross-national prevalence of ADHD is around 5% (Polanczyk & Rohde, 2007), and a more recent study showed that around 9%-10% children and teenagers in the USA meet diagnostic criteria of ADHD (Bitsko et al., 2022). As such, the rate of ADHD in misophonia in these studies was roughly similar as in the general population, and not higher.

Consideration of subtypes or domains of ADHD (attentional difficulties, impulsivity, and hyperactivity) may help us better understand in which ways misophonia is or is not related to ADHD. In one study (Silva & Sanchez 2019), participants with misophonia had worse outcomes in selective attention tasks, but only during exposure to chewing. No differences between misophonia, tinnitus, and healthy control groups in attentional tests were observed, when chewing was not applied. Similar effects were found in Daniels et al. (2020). They showed that the severity of misophonia symptoms in non-clinical participants is related to poorer outcomes in attentional tasks, but only when the trigger sounds are present. These data indicate that people with misophonia may not have attentional deficits, and their results worsen only when they are extremely stressed, which is natural and happens to other people too, when they are highly stressed. However, there are conflicting data as well. In a different study (Frank et al., 2019), participants with misophonia had worse attentional results, also when they were not exposed to triggers. This means we don't have the final answer about this topic, and more research is needed.

Regarding impulsivity, in a study in the Netherlands, participants with misophonia were as good in some research tasks as controls (Eijsker et al., 2019). They preferred to make the tasks better, but slower. Impulsivity was also either very weakly related or not related, depending on its types, to misophonia symptoms in inpatients with depression in Poland (Siepsiak et al., 2020b). Ultimately, studies are needed to clarify better whether impulsive behavior in people with misophonia may be limited to situations with trigger sounds or to more general stressful situations (Cassielo-Robbins et al., 2020). Regarding hyperactivity, to date there are no data about this feature in misophonia. Finally, it is worth noting that when it comes to comparing neurological correlates of ADHD and misophonia, it seems that these two have little in common (Neacsiu et al., 2022).

Conclusions

What conclusions can we make about which mental health and sensory processing problems are related to misophonia? Because the research is still new, we cannot make definite conclusions about many things. However, here are three reasonable conclusions that can be made: (1) misophonia is not related to any one specific mental health problem; (2) symptoms of some mental health problems may overlap with misophonia, but that does not mean the two disorders are the same; and (3) the two most common kinds of co-occurring mental problems may be anxiety and mood disorders. Together, this all means that people suffering with misophonia should be evaluated by trained mental health professionals for co-occurring psychiatric disorders,

and treatment plans may need to be made that are individualized and flexible based on the unique needs of each person.

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