

## Case Report

# The Sound of Obsession: An Unusual Case report of Misophonia and OCD

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**Abstract**

Misophonia, a condition is typically characterized by an intense emotional response of hatred, anger, rage, or disgust towards sounds associated with eating or breathing. In this article we will be discussing a young male who presented himself complaint of persistent and distressing thoughts about contamination and on further evaluation it was found that besides having those thoughts, he was also experiencing strong negative emotional responses to specific sounds, such as chewing, swallowing, and tapping. He was started on Selective serotonin reuptake inhibitor and showed good response on fluoxetine, along with cognitive-behavioural therapy (CBT), various coping strategies that were taught to him.

This case brings into focus the distress associated with misophonia which is a less understood topic and discussion of its presentation, underlying mechanisms and treatment which are still ambiguous and require further research.

**INTRODUCTION**

Misophonia, a term coined shortly after the turn of the new millennium to describe a specific set of symptoms, has become increasingly recognized by healthcare professionals. The condition is typically described by an intense emotional response of hatred, anger, rage, or disgust towards sounds associated with eating or breathing. However, self-produced similar sounds do not typically evoke such reactions. Individuals with misophonia often develop maladaptive coping mechanisms. They often avoid the social situation and may suffer from intrusive and unwanted preoccupation with trigger stimuli and compulsive stress-reducing and avoidance behaviours, which can ultimately result in significant impairment across personal and professional domains, along with the development of anxiety and obsessive-compulsive tendencies [1].

Thus, misophonia was proposed as a new medical entity and defined as present when an abnormally strong reaction occurs to a sound with a specific pattern and/or meaning to an individual, with the context in which sound is presented frequently playing a role as well. The person reports unpleasant emotional experiences and autonomic arousal.

Individuals with misophonia are sensitive to a specific set of trigger sounds, which are usually recognized since childhood; these sounds tend to be trivial noises produced by other people, including gum popping, food chewing or crunching, nose sniffing, breathing, pen clicking, clock ticking, whistling, lip smacking, and

finger or foot tapping. The differential diagnosis of misophonia includes a variety of conditions, such as specific phobias, post-traumatic stress disorder, social phobia, obsessive-compulsive disorder, intermittent explosive disorder, personality disorders (including emotionally unstable, borderline, antisocial and obsessive-compulsive personality disorder), autistic spectrum disorders, sensory processing disorders, phonophobia, and synaesthesia [2]. Schröder et al., even suggested that due to the similarities to obsessive-compulsive disorder (OCD), misophonia can be classified as an obsessive-compulsive spectrum disorder in the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) [3].

However, there is a dearth of literature on assessing and managing persons with misophonia, especially with comorbid psychiatric disorders. This report aims to discuss the assessment and management of misophonia in the context of OCD, highlight the link between the two conditions and provide potential management options.

**CASE DESCRIPTION**

The patient, Mr. A, is a 20-year-old male engineering student from central India. He presented to the psychiatry outpatient department with a complaint of persistent and distressing thoughts about contamination. He reported that he frequently washed his hands, often for over 30 minutes at a time, to remove the perceived contaminants from his hands. He avoided touching certain objects and surfaces that he believed to be contaminated,

such as doorknobs, handrails, and public restrooms. He also avoided certain foods and drinks that he believed could be contaminated, such as street food and tap water. Mr. A reported that these behaviours had significantly interfered with his daily life, including his academic performance and social functioning. He was often late for his classes and would avoid social situations with his peers.

During the evaluation, Mr. A also reported experiencing strong negative emotional responses to specific sounds, such as chewing, swallowing, and tapping. He described feeling intense anger and disgust in response to these sounds and would often leave the room or wear earplugs to avoid them. He reported that these sounds interfered with his ability to concentrate on his studies and participate in social situations. He had never sought treatment specifically for this symptom before. All the routine investigations and general physical examination was found to be within normal limits.

On mental status examination, Mr. A appeared anxious and preoccupied. He had poor insight into the irrationality of his thoughts and beliefs about contamination. He denied any suicidal ideation or intent.

The patient was diagnosed with OCD of contamination based on the presence of obsessions and compulsions related to contamination fears, as well as significant distress and impairment in functioning. The diagnosis of misophonia was also made based on the presence of specific sound triggers that caused strong negative emotional responses. Yale-Brown Obsessive Compulsive Scale (YBOCS) was applied to quantify OCD and the patient scored 32 out of 40.

Mr. A was started on fluoxetine, a selective serotonin reuptake inhibitor (SSRI), at a dose of 20 mg/day. He was also enrolled for cognitive-behavioral therapy (CBT) for OCD, which included exposure and response prevention (ERP) and cognitive restructuring. ERP involves exposing the patient gradually to feared stimuli (in this case, objects and situations perceived as contaminated) while preventing them from performing compulsive behaviors (in this case, handwashing). In addition to the OCD-specific treatment, Mr. A also received psychoeducation about misophonia and was provided with coping strategies, such as using noise-canceling headphones and practicing relaxation techniques, to manage his misophonic symptoms.

Although his misophonic symptoms also improved to a lesser extent initially, over the next few weeks, after increasing the dose of fluoxetine to 40mg/day, and regular therapy, the patient reported a significant reduction in distress to his trigger sounds. Mr. A demonstrated significant improvement in his OCD symptoms over 12 weeks of treatment with fluoxetine and CBT, with his YBOCS score reducing to 12. He reported minimal anger and disgusts in response to trigger sounds and was able to participate in social situations more comfortably. He also reported a reduction in the frequency and duration of his handwashing behaviors, as well as a decrease in his anxiety

and distress related to contamination. He continued to follow up regularly to monitor his symptoms and progress.

## DISCUSSION

This case report allows us to create a general awareness about the rare condition but, on the basis of a single case report, it is difficult to generalise it to the wide population.

Misophonia is a disorder characterized by a strong emotional and physiological response to specific sounds, often resulting in anger, disgust, and avoidance behavior. Although misophonia is not yet recognized as a separate diagnosis in the DSM-V, it has been reported in the literature as a separate entity or as a symptom of other psychiatric disorders, such as OCD. Research into the biological mechanism of misophonia is ongoing, and there are suggestive indications that it may be linked to the excessive emotional and autonomic responses seen in other mental health conditions [4].

OCD is a debilitating psychiatric condition characterized by recurrent, intrusive thoughts and repetitive, ritualistic behaviors or mental acts that the individual feels compelled to perform in response to the obsessions. The obsessions and compulsions are often time-consuming and cause significant distress and impairment in functioning. OCD is believed to be caused by a combination of genetic, environmental, and neurobiological factors, with abnormalities in the serotonergic and glutamatergic systems being implicated in the pathophysiology [5].

Individuals with severe misophonia experience intrusive and unwanted preoccupation with specific trigger stimuli, accompanied by compulsive stress-reducing and avoidance behaviors, which are often seen in individuals with OCD [6]. This suggests that the disorder extends beyond audiological symptoms and highlights the strong similarity to OCD and Tourette syndrome. The co-occurrence of misophonia and OCD has been reported in the literature, and the two disorders may share some underlying pathophysiological mechanisms (Table 1) [2,7,8]. For instance, both disorders involve abnormalities in the emotional processing and regulation circuits in the brain, particularly the amygdala and the prefrontal cortex. In addition, both disorders involve abnormalities in the serotonergic system, with low levels of serotonin being associated with OCD and elevated levels being associated with misophonia.

The management of misophonia in the context of OCD involves a comprehensive treatment approach that addresses both disorders simultaneously. This may involve the use of pharmacotherapy, psychotherapy, or a combination of both. Serotonergic or antidopaminergic medications have demonstrated some effectiveness in managing misophonia in cases where it co-occurs with OCD [9]. Selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine, have been found to be effective in treating both OCD and misophonia [10]. The mechanism of action of SSRIs is thought to involve increasing the availability of serotonin in the brain, which improves mood and reduces anxiety.

**Table 1:** Possible causes of misophonia (own elaboration)

Possible Causes	Explanation	Mechanisms
Neurological factors	Misophonia may be related to abnormal brain functioning or connectivity in the areas responsible for processing sound, emotions, and reward. These areas include the amygdala, insula, and prefrontal cortex.	Abnormal neural connections, overactive response to certain sounds, and/or difficulty filtering out irrelevant sounds.
Classical conditioning	Misophonia may develop through classical conditioning, in which a neutral sound (e.g., someone chewing) becomes associated with a negative emotional response (e.g., anger or disgust). Over time, the sound itself may trigger the emotional response.	Association between sound and negative emotions, which leads to a conditioned emotional response to the sound.
Genetics	Misophonia may have a genetic component, as some studies have found that it tends to run in families. However, the specific genes involved are not yet known.	Inherited genetic variations that affect brain development or function.
Environmental factors	Exposure to certain sounds or environments (e.g., noisy workplaces or crowded spaces) may increase the risk of developing misophonia, especially if someone is already predisposed to it.	Chronic exposure to certain sounds or environments may sensitize the brain to those stimuli, leading to an overreaction to them.
Mental health conditions	Misophonia has been associated with a number of mental health conditions, including anxiety, depression, OCD, and PTSD. It's unclear whether these conditions cause misophonia or if they are simply more common in people who have it.	Shared neural circuits or underlying biological mechanisms between misophonia and these mental health conditions.
Auditory processing difficulties	Some people with misophonia may have difficulty processing certain sounds, such as background noise or sounds with specific frequencies.	Abnormalities in auditory processing or filtering mechanisms, leading to heightened sensitivity to certain sounds.
Synaesthesia	Misophonia may be related to synaesthesia, a condition in which one sense (e.g., hearing) triggers an involuntary experience in another sense (e.g., vision or taste). Some people with misophonia report experiencing visual or other sensory responses to certain sounds.	Cross-activation of brain regions responsible for processing different senses, leading to a sensory experience in response to sound.

Psychotherapy for OCD and misophonia may involve exposure and response prevention (ERP) and cognitive-behavioural therapy (CBT). ERP involves gradually exposing the individual to the feared stimuli (in this case, objects and situations perceived as contaminated and trigger sounds) while preventing them from performing compulsive behaviors (in this case, handwashing and avoidance behavior). CBT may involve cognitive restructuring to help the individual identify and challenge their irrational thoughts and beliefs about contamination and trigger sounds. In addition to pharmacotherapy and psychotherapy, lifestyle modifications, such as practicing relaxation techniques, exercise, and mindfulness, may also be helpful in managing symptoms of both OCD and misophonia. Other coping strategies, such as using noise-cancelling headphones or earplugs, may also be helpful in managing misophonic symptoms [2].

In conclusion, the co-occurrence of misophonia and OCD highlights the importance of a comprehensive approach to treatment that addresses both disorders simultaneously. Although there is no official classification of misophonia, research has identified consistent characteristics of the disorder. Nonetheless, more research is required to validate these outcome measures, conduct randomized controlled trials (RCTs) of treatments, and investigate the etiology, natural history, treatment and comorbidities of misophonia. Further research is needed to better understand the underlying pathophysiological mechanisms and the link connecting misophonia to OCD along with development of more effective assessment and treatment strategies.

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