

Musical Obsessions: A Brief Narrative Review of an Underrecognized Obsessive-Compulsive Phenomenon

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Abstract

This brief narrative review updates and expands upon previous literature on musical obsessions in obsessive-compulsive disorder (OCD) by incorporating new case reports. Musical obsessions are a distressing subtype of involuntary musical imagery (IMI) characterized by persistent, intrusive, and time-consuming musical thoughts that cause significant distress or impairment. Although IMI, commonly known as “earworms,” is widespread, musical obsessions remain under-recognized and understudied in OCD research. This review synthesizes the demographic, clinical, and psychopathological features of musical obsessions, highlighting their frequent underestimation due to inadequate assessment tools, such as the Yale–Brown obsessive compulsive scale. Musical obsessions often co-occur with classic OCD symptoms and share similar comorbidity profiles, including mood and anxiety disorders. However, they differ from phenomena such as musical hallucinations, pseudohallucinations, and palinacousis. Treatment approaches align with standard OCD interventions, including cognitive-behavioral therapy and pharmacotherapy, although distraction techniques show promise as adjunctive strategies. This review acknowledges limitations, such as the reliance on clinical populations and the paucity of controlled treatment studies. This emphasizes the need for validated assessment instruments specific to musical obsessions and calls for future research to elucidate the underlying cognitive and neurobiological mechanisms. A systematic evaluation of treatment modalities, especially those diverging from traditional exposure-based therapies, is critical for advancing clinical care and understanding of this condition.

INTRODUCTION

Obsessive-compulsive disorder^[1,2] (OCD) arises from a combination of genetic and environmental factors. Certain factors contribute to specific symptoms, such as compulsive washing, while others impact a broader range of OCD symptoms and mental health conditions.^[3,4] Given the complexity and diversity of OCD, focusing solely on common symptoms such as washing or checking is insufficient. To gain a comprehensive understanding of OCD, it is essential to investigate less frequent symptoms. Although musical obsessions

are less studied than other OCD symptoms, this does not diminish their significance. Historically, researchers have often underestimated the prevalence and importance of OCD-related problems. OCD was once considered rare until surveys revealed its widespread nature.^[5] Similarly, the significance of excessive hoarding, another issue related to OCD, was not fully recognized until recently.^[6] As late as 1987, case studies on hoarding were scarce enough to warrant publication.^[7]

OCD includes both obsessions and compulsions. Obsessions are unwanted thoughts, images, or urges that cause distress to the individual. Compulsions are actions or mental rituals that people feel they must perform because of these obsessions.^[2] Although intrusive mental images are a known part of OCD,^[8] most research has focused on visual images. Intrusive musical imagery (IMI), where music repeatedly plays in one's mind, has not been studied much in OCD research. This is surprising because IMI has been mentioned in psychological and psychiatric writings for over a century, and it is still studied by musicologists and neurologists.^[5] Almost everyone experiences IMI.^[9] Musical obsessions are a distressing and persistent form of IMI.^[5]

This study examines the general traits of IMI and then focuses on musical obsessions. We recommend reading the detailed review by Taylor et al.^[5] Our paper updates that review by including new case reports, which could aid future OCD research.

A total of 23 publications were identified.^[5,10-31] We located published reports of 106 patients with musical obsessions.^[5,26-30] We discuss their demographic characteristics, descriptive psychopathology, comorbidity, differential diagnosis, and treatment.

Involuntary musical imagery (IMI)

It is the spontaneous recurrence of a musical tune without intentional recall, commonly termed "earworms," and occurs in the absence of neurological or ear pathologies.^[32] It typically involves brief, repetitive fragments of previously heard music, often a catchy hook, lasting approximately 15 to 30 seconds and repeating in a loop.^[9,33,34] Episodes last minutes to hours, are usually intermittent, and tend

to shift over time with different tunes replacing one another.^[33-35]

Musical Obsessions

Musical obsessions are not listed in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition^[2] In the clinical literature, they are understood as a type of involuntary musical imagery that aligns with the criteria for obsessive symptoms: being recurrent, intrusive, persistent, and time-consuming, often lasting more than an hour per day, and linked to distress or functional impairment. This definition is limited to persistent and involuntary musical imagery, excluding preoccupations with music, compulsive attempts to replay or perfect a tune for a sense of completeness, and intentional musical recollection, as seen in composers or music enthusiasts.

Demographic characteristics

Although musical obsessions have been documented in numerous cultures, they remain largely unexplored and are typically viewed as uncommon.^[12,23,25] Their true frequency is probably underestimated due to insufficient clinical investigation, inadequate evaluation, and a lack of reporting unless specifically examined.^[14,22] Existing assessment tools do not effectively capture these phenomena. For instance, the Yale–Brown Obsessive Compulsive Scale (YBOCS) includes only one item related to intrusive sounds, words, or music, without differentiating musical obsessions from other types of auditory imagery. Reports suggest a higher occurrence in females, typically beginning in the third decade of life, although it spans a wide age range from childhood to late adulthood, with many affected individuals being employed.

Descriptive psychopathology of musical obsessions

Onset of musical obsessions has been linked to both behavioral and stress-related factors.^[5] In some cases, symptoms followed prolonged engagement with music, such as repeated listening or manipulation of ringtones, which was later avoided because of distress. In others, onset or exacerbation appeared

stress-related, including during academic pressure, bereavement, or interpersonal conflict. In one instance, musical imagery emerged as a maladaptive strategy to suppress other obsessions, which subsequently became intrusive.^[5]

Most cases show no evidence of neurological abnormalities. However, a few reports have described possible temporal associations with neurological or medical events, including head injury, infection,^[13,15,16] and otosclerosis.^[26] The proposed link with infection-related syndromes such as PANDAS remains uncertain and controversial.^[36,37]

Musical obsessions may present as the primary complaint or occur alongside other psychopathologies and can vary in clinical prominence. They typically involve a single tune or multiple songs that change over time, consistent with the patterns observed in involuntary musical imagery. The content usually consists of previously heard music, often popular songs, although personally meaningful or context-specific pieces may occur, including classical compositions, self-composed music, jingles, film scores, or ringtones. The course is often prolonged, lasting months to years, with episodes that may be intermittent or persistent throughout most waking hours.^[5]

Individuals with obsessive-compulsive disorder often manage their obsessions by avoiding triggers and engaging in compensatory rituals.^[38] This behavior was also observed in those with musical obsessions. Such individuals might steer clear of music-related stimuli or environments, including public areas where music is played. In some instances, they take significant steps, such as wearing earplugs, keeping their phones on silent, and encouraging others to do the same.^[20] Some people try to block out intrusive musical thoughts by distracting themselves or thinking of something else, although this is often ineffective.^[18] Sometimes, merely anticipating music can trigger such thoughts, perpetuating cycles of avoidance and mental suppression.

Comorbidity

Comorbidity patterns in musical obsessions mirror those of obsessive-compulsive disorder. Most patients exhibit current or past obsessive-compul-

sive symptoms, including washing, checking, and ordering compulsions, as well as aggressive, sexual, religious, or distressing visual obsessions. Some present with similar intrusive phenomena, such as repetitive verbal or poetic imagery.^[2] Personality features consistent with obsessive-compulsive personality disorder, including perfectionism and preoccupation with order, have been reported.^[5] Additional phenomena such as pareidolia and misophonia may occur, along with common OCD comorbidities, including anxiety, mood, and tic disorders. There was no evidence of psychotic features, and the overall comorbidity profile aligned with that of OCD.^[5] Musical obsessions have also been reported in association with mood disorders, including major depressive disorder and bipolar disorder.^[30,31]

Differential Diagnosis

Musical hallucinations

Hallucinations are perceptions without an external stimulus that are experienced as real and arising from the external environment.^[5] Musical hallucinations are rare. In contrast, musical obsessions are internally generated experiences, recognized as originating from the mind, and occur in the absence of hearing or neurological pathology.

Pseudohallucinations

The term pseudohallucinations is ambiguous due to the lack of a standardized definition and difficulty in distinguishing them from true hallucinations.^[5] These experiences are understood as internal images that individuals recognize as unreal. Musical pseudohallucinations resemble musical obsessions but do not necessarily cause distress or involve compulsive behaviors.^[39] They can occur in contexts such as hallucinogen intoxication, significant hearing loss, psychotic disorders such as schizophrenia, and non-psychotic conditions such as dissociative and borderline personality disorders.^[5,39] Conversely, musical obsessions are not linked to substance use or hearing impairment and consistently involve insight, with individuals recognizing these experiences as being internally generated. In pseudohallucinations, the level of insight can vary, with occasional misattribution to external sources^[5]

Palinacousis

Palinacousis is an uncommon neurological symptom in which an external sound is perceived even after stopping, involving hallucinations of sounds such as music, noise, or speech.^[40] Musical palinacousis is particularly rare.^[40,41] It is linked to brain abnormalities, often in the temporal or parietal lobes, and to electroencephalographic irregularities.^[40] Palinacousia often indicates seizure activity, including aura or postictal states, and can occur in migraines^[40,41] Neurological impairments, such as aphasia, are common.^[42] In contrast, musical obsessions are not linked to neurological disorders. They are internally experienced without a specific auditory source and involve the repetition of previously heard music rather than recent external sounds.^[40]

Visual obsessional imagery

Musical obsessions and visual obsessional imagery exhibit distinct characteristics. Unlike visual obsessions, intrusive music is generally not inherently unpleasant or ego-dystonic and rarely involves content that is morally or emotionally troubling.^[5] Musical obsessions typically consist of familiar tunes, either previously heard or composed, whereas visual obsessions often involve imagined and less familiar scenarios. The methods for addressing these obsessions also vary significantly. While exposure and response prevention is a well-established treatment for visual obsessions^[38] and has been applied to musical obsessions, distraction has proven beneficial in some cases of musical obsessions, which is not the case for visual imagery. Despite these differences, both types of obsessions frequently occur alongside other obsessive-compulsive symptoms, such as washing, checking, and ordering, and may appear simultaneously. The phenomenological similarities between them prompt important questions about the shared and distinct underlying mechanisms that are yet to be fully understood.^[5]

Treatment

Various treatment methods for musical obsessions appear promising but require confirmation through controlled research. Management generally aligns with typical obsessive-compulsive disorder treatments,^[5] such as exposure and response

prevention, cognitive therapy, selective serotonin reuptake inhibitors, including vortioxetine,^[31] and clomipramine. In some instances, distraction or stimulus-substitution techniques may be effective. If the initial treatments do not work, it is important to reassess the diagnosis to rule out psychosis and comorbidities, including neurological disorders. When musical obsessions remain the most plausible diagnosis, distraction-based approaches might be explored.^[5,29]

Limitations and strengths

This review has several strengths and limitations that should be considered. This narrative review synthesizes the literature on musical obsessions, utilizing the largest collection of reported cases to date. It also incorporates literature on involuntary musical imagery and visual obsessional imagery for comparison. However, most cases are from populations seeking treatment, which may affect generalizability. There is a lack of comparative studies with other clinical groups, and treatment evidence is not supported by randomized controlled trials. Large-scale empirical studies on involuntary musical imagery are scarce, and the origins of musical obsession remain unexplored. Despite these limitations, this review offers the most detailed clinical account currently available and suggests testable directions for future research on the mechanisms and treatment of this condition.

Future directions

This review identifies several avenues for future studies. Existing assessments of obsessive-compulsive symptoms, such as the YBOCS, fall short in evaluating musical obsessions, potentially leading to an underestimation of their frequency.^[5] There is a pressing need to create reliable and valid tools that can effectively measure musical obsessions, associated avoidance behaviors, compulsions, and cognitive evaluations. These instruments will facilitate more precise epidemiological research. Additional studies are necessary to elucidate the cognitive and neurobiological processes involved in both involuntary musical imagery and musical obsessions. Moreover, a systematic assessment of treatment methods is essential, especially those

based on distraction, which differ from the traditional exposure-based therapies used for OCD.

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