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IN-DEPTH REVIEW OF OBSESSIVE COMPULSIVE DISORDER (OCD): FROM ITS BASICS TO POSSIBLE MANAGEMENT OPTIONS

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ABSTRACT

Obsessive-Compulsive Disorder (OCD) is a prevalent and debilitating mental health condition characterized by the presence of intrusive obsessions and repetitive compulsions. Affecting approximately 1-2% of the global population, OCD manifests through persistent, distressing thoughts (obsessions) and ritualistic behaviors or mental acts (compulsions) performed to alleviate the anxiety associated with these obsessions. The onset of OCD often occurs in childhood or adolescence, though it can also appear in adulthood. The etiology of OCD is multifactorial, involving a combination of genetic predisposition, neurobiological abnormalities, cognitive distortions, and environmental stressors. Genetic studies suggest a heritable component, while neuroimaging research highlights abnormalities in

brain regions such as the orbitofrontal cortex, anterior cingulate cortex, and basal ganglia. Cognitive and behavioral theories propose that dysfunctional beliefs and reinforcement of compulsive behaviors play significant roles in the disorder's development and maintenance. Diagnosis of OCD is based on clinical evaluation, including symptom history and functional impairment. Effective treatment typically involves a combination of cognitive-behavioral therapy (CBT), particularly exposure and response prevention (ERP), and pharmacotherapy with selective serotonin reuptake inhibitors (SSRIs). Despite the availability of effective treatments, OCD can lead to substantial complications, including comorbid mental health disorders, physical health issues, and significant disruptions in daily life and relationships. Early intervention and a comprehensive treatment approach are crucial for managing OCD. Continued research into its pathogenesis and treatment options is essential for improving outcomes and enhancing the quality of life for affected individuals. Awareness and timely professional support are key factors in addressing this challenging and impactful disorder.

KEYWORDS: Obsession, Compulsion, Neuropsychiatric Disorders, Anterior Cingulate Cortex, Mindfulness-Based Cognitive Therapy.

INTRODUCTION

Obsessive-Compulsive Disorder (OCD) is a chronic and often debilitating mental health condition characterized by persistent and intrusive thoughts, images, or urges known as obsessions, and repetitive behaviors or mental acts called compulsions. These obsessions typically provoke significant anxiety or distress, leading individuals to engage in compulsions in an attempt to alleviate their discomfort or prevent a feared event.[1] For example, a person with OCD might have an obsessive fear of contamination, leading them to wash their hands repeatedly, or might worry excessively about making mistakes, resulting in frequent checking of locks or appliances. The disorder affects approximately 1-2% of the global population, with symptoms commonly emerging in childhood or adolescence, though it can also develop in adulthood.[2] The onset of OCD can be gradual or sudden, and its impact on daily life can be profound, disrupting personal relationships, work, and overall quality of life. Individuals with OCD often recognize that their obsessions and compulsions are irrational but find themselves unable to control them, which can lead to significant distress and impairment. The etiology of OCD is multifaceted, involving genetic, neurobiological, cognitive, and environmental factors. Genetic research suggests a hereditary component, while neuroimaging studies reveal abnormalities in brain regions such as the orbitofrontal cortex,

anterior cingulate cortex, and basal ganglia.[3,4] Cognitive theories propose that dysfunctional beliefs and cognitive distortions play a crucial role in the disorder's development and maintenance. Treatment for OCD typically includes a combination of cognitive-behavioral therapy (CBT), especially exposure and response prevention (ERP), and pharmacotherapy with selective serotonin reuptake inhibitors (SSRIs).[5,6] CBT helps individuals confront their fears and gradually reduce their compulsive behaviors, while SSRIs can help alleviate the neurochemical imbalances associated with the disorder. Early intervention and a comprehensive treatment approach are essential for managing symptoms effectively. Despite effective treatments, OCD can present significant challenges, including treatment resistance and the stigma associated with mental health disorders.[7,8] Ongoing research and increased awareness are crucial for improving understanding, developing new treatment options, and enhancing the quality of life for those affected by OCD.[9]

EPIDEMIOLOGY

Obsessive-Compulsive Disorder (OCD) is a common mental health condition with significant prevalence and impact across different populations. Here's a summary of its epidemiology.

A. Prevalence

1. Lifetime Prevalence

General Population: Studies indicate that the lifetime prevalence of OCD in the general population ranges from approximately 1% to 2%.[10] This means that around 1 to 2 out of every 100 people will experience OCD at some point in their life.

2. Annual Prevalence

General Population: The annual prevalence of OCD, which refers to the percentage of people experiencing OCD within a given year, is generally estimated to be around 0.5% to 1%.[11]

B. Onset and Age of Onset

1. Age of Onset

Early Onset: OCD often begins in childhood or adolescence. Studies suggest that approximately 50% of individuals with OCD report symptoms starting before the age of 15.[12]

Late Onset: While less common, OCD can also develop in adulthood. The onset of OCD in adulthood is typically associated with different symptom patterns compared to childhood onset.[13]

2. Developmental Patterns

Childhood and Adolescence: The disorder may present differently in children, with symptoms potentially involving more externalizing behaviors or focusing on fears of harm to others.[14]

Adults: Adult OCD often features more complex and varied symptoms, and may be more resistant to treatment.

C. Prevalence by Gender

Children and Adolescents: OCD is more common in boys than girls in childhood, with a ratio of approximately 2:1.

Adults: The gender ratio in adults is more balanced, with some studies suggesting a slight predominance of females. The lifetime prevalence appears to be relatively equal between men and women.[15,16]

D. Comorbidities

1. Other Mental Health Disorders

Anxiety Disorders: OCD frequently co-occurs with other anxiety disorders, such as generalized anxiety disorder (GAD), social anxiety disorder, and specific phobias.[17]

Depression: Major depressive disorder (MDD) is also commonly comorbid with OCD. The presence of OCD can increase the risk of developing depression, and vice versa.

Tic Disorders: There is a notable association between OCD and tic disorders, especially in childhood.

2. Substance Use Disorders

Individuals with OCD are at an increased risk of developing substance use disorders, often as a way to cope with their symptoms.[18]

E. Impact and Burden

1. Functional Impairment

Daily Life: OCD can significantly impair daily functioning, affecting work, social interactions, and personal responsibilities. The time-consuming nature of obsessions and compulsions often leads to substantial disruptions in daily life.[19,20]

2. Quality of Life

Emotional and Social Impact: The distress caused by OCD symptoms, combined with the impact on personal and social relationships, can lead to a diminished quality of life and significant emotional suffering.[21-23]

3. Economic Burden

Healthcare Costs: The economic burden of OCD includes costs related to treatment, such as therapy and medication, as well as indirect costs related to lost productivity and reduced quality of life.[24,8]

F. Geographical and Cultural Variations

1. Prevalence Across Regions

Global Variations: The prevalence of OCD may vary somewhat across different countries and regions, influenced by factors such as cultural attitudes towards mental health, availability of healthcare resources, and differences in diagnostic practices.[6, 25]

2. Cultural Differences

Symptom Expression: Cultural factors can influence the expression and reporting of OCD symptoms. In some cultures, certain types of obsessions or compulsions may be more common or more likely to be socially stigmatized.[26-28]

Overall, OCD is a prevalent and impactful disorder that affects a significant portion of the population across different ages and genders. Understanding its epidemiology helps in planning effective prevention, diagnosis, and treatment strategies.[29]

SIGN AND SYMPTOMS

Obsessive-Compulsive Disorder (OCD) is characterized by the presence of obsessions, compulsions, or both, which cause significant distress and interfere with daily functioning. Here's a detailed overview of the signs and symptoms of OCD.

A. Obsessions

Obsessions are persistent, intrusive thoughts, images, or urges that cause significant anxiety or distress. Common themes of obsessions include.

1. **Contamination:** Fear of dirt, germs, or chemicals. For example, a person might worry excessively about being contaminated by touching objects or people.[30]
2. **Harming Others:** Fear of accidentally causing harm to others, such as being responsible for a car accident or poisoning someone.
3. **Perfectionism:** Excessive concern with making things "just right" or fear of making mistakes, often leading to excessive checking or arranging.
4. **Symmetry and Order:** Need for objects to be in a particular order or arrangement, or fear that something bad will happen if things are not perfectly arranged.[31]
5. **Religious or Moral Doubts:** Intrusive thoughts about violating moral or religious codes, often leading to excessive guilt or fear of punishment.
6. **Hoarding:** Fear of losing important items or the need to save everything, leading to clutter and difficulty discarding items.[32]

B. Compulsions

Compulsions are repetitive behaviors or mental acts performed in response to obsessions, or according to rigid rules. These actions are intended to reduce the distress caused by obsessions or prevent a feared event. Common compulsions include.[33-36]

1. **Cleaning and Washing:** Repeatedly washing hands, showering, or cleaning objects to alleviate fears of contamination.
2. **Checking:** Repeatedly checking things like locks, appliances, or whether a door is closed to prevent harm or ensure safety.
3. **Counting:** Counting objects, steps, or performing actions a specific number of times to prevent perceived danger or discomfort.
4. **Arranging and Organizing:** Placing items in a particular order or arrangement, often to achieve a sense of balance or prevent something bad from happening.
5. **Repeating Actions:** Repeating actions, such as opening and closing doors or touching objects multiple times, to alleviate anxiety.
6. **Mental Compulsions:** Engaging in mental rituals such as praying, counting, or mentally reviewing past events to prevent harm or neutralize distressing thoughts.

C. Functional Impact

The symptoms of OCD can severely impact daily life in various ways.

1. **Time-Consuming:** Obsessions and compulsions can take up significant amounts of time, often more than an hour a day, interfering with work, school, and personal activities.[37,38]
2. **Emotional Distress:** Individuals with OCD often experience significant distress and anxiety related to their obsessions and the perceived necessity of performing compulsive behaviors.[39]
3. **Impaired Functioning:** The need to engage in compulsions can disrupt daily routines and responsibilities, affecting relationships, job performance, and overall quality of life.
4. **Avoidance:** Individuals may avoid certain situations or places to prevent triggering obsessions or compulsions, which can limit their social interactions and opportunities.

D. Severity and Variability

The severity of OCD symptoms can vary widely among individuals.

1. **Mild to Severe:** Some individuals may have relatively mild symptoms that are manageable with little impact on daily life, while others may experience severe symptoms that are debilitating and interfere with all aspects of their lives.
2. **Fluctuating Symptoms:** Symptoms can fluctuate in intensity, with periods of exacerbation and remission. Stressful life events or changes can sometimes worsen symptoms.[40]

Fig 1: Symptoms of Obsessive-Compulsive Disorder.

Understanding these signs and symptoms is crucial for diagnosing OCD and developing an effective treatment plan.[41] If someone is experiencing symptoms of OCD, seeking help from a mental health professional is essential for proper assessment and intervention.

ETIOLOGY

The etiology of Obsessive-Compulsive Disorder (OCD) is complex and involves a combination of genetic, biological, psychological, and environmental factors. Understanding these contributing elements can help in developing effective treatments and interventions.[42] Here's a closer look at the various factors that are thought to contribute to the development of OCD.

A. Genetic Factors

1. Family History: Research suggests that OCD may run in families, indicating a genetic component. Individuals with a family history of OCD or related disorders are at a higher risk of developing the condition.[43,44]

2. Genetic Studies: Studies have identified potential genetic markers that may be associated with an increased risk of OCD, though no single gene has been definitively linked to the disorder. The genetic contribution is likelyo involve multiple genes interacting with environmental factors.[11]

B. Neurobiological Factors

1. Brain Structure and Function: Neuroimaging studies have found abnormalities in brain regions involved in the regulation of emotions and behavior, such as the orbitofrontal cortex, anterior cingulate cortex, and basal ganglia. These areas are thought to be involved in the processing of obsessions and compulsions.[45]

2. Neurotransmitters: Dysregulation of neurotransmitters, particularly serotonin, is believed to play a role in OCD. Medications that affect serotonin levels, such as selective serotonin reuptake inhibitors (SSRIs), are often effective in treating OCD, supporting the role of serotonin in the disorder.[46]

C. Psychological Factors

1. Cognitive-Behavioral Models: Cognitive theories suggest that OCD involves maladaptive beliefs and cognitive distortions. For example, individuals with OCD may have inflated responsibility or a tendency to overestimate threats. These cognitive patterns can lead to the development and maintenance of obsessions and compulsions.[47,31]

2. Behavioral Models: From a behavioral perspective, compulsions are seen as learned responses that are reinforced by the temporary relief they provide from anxiety caused by obsessions. Over time, these behaviors become entrenched as coping mechanisms.[48]

D. Environmental Factors

1. Trauma and Stress: Stressful life events, trauma, or significant life changes may trigger or exacerbate OCD symptoms.[49] For some individuals, the onset of OCD may follow a particularly stressful event or period of life.

2. Infection: Some research suggests that streptococcal infections may be linked to the sudden onset of OCD in children, a condition known as Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal infections (PANDAS).[50,51] However, this link is still under investigation and not fully understood.

E. Developmental Factors

1. Early Childhood Experiences: Early life experiences and parenting styles may influence the development of OCD.[52] For example, certain parenting behaviors, such as overprotectiveness or excessive criticism, might contribute to the development of OCD in some individuals.[53]

2. Temperament: Individual differences in temperament, such as high levels of anxiety or perfectionism, may increase the susceptibility to OCD.

F. Biopsychosocial Model

1. Interaction of Factors: The development of OCD is likely the result of an interaction between biological, psychological, and environmental factors. For instance, an individual with a genetic predisposition to OCD may develop the disorder in the presence of certain life stressors or psychological vulnerabilities.[54-56]

Overall, the etiology of OCD is multifaceted, and it is likely that a combination of these factors contributes to the development and maintenance of the disorder. Ongoing research aims to better understand these contributing elements and how they interact, with the goal of improving prevention, diagnosis, and treatment of OCD.

PATHOGENESIS

The pathogenesis of Obsessive-Compulsive Disorder (OCD) involves a complex interplay of genetic, neurobiological, psychological, and environmental factors. Understanding these mechanisms can help in developing more effective treatments and interventions. Here's a detailed look at the various aspects of OCD pathogenesis.

A. Genetic Factors

1. Heritability

Family Studies: Research indicates that OCD tends to run in families, suggesting a genetic predisposition.[57] First-degree relatives of individuals with OCD have a higher risk of developing the disorder compared to the general population.

Twin Studies: Studies on twins suggest that genetic factors contribute significantly to OCD risk. Concordance rates for OCD are higher in identical twins than in fraternal twins, indicating a genetic influence.[58]

2. Genetic Markers

Candidate Genes: While no single gene has been definitively linked to OCD, studies have explored various candidate genes related to serotonin and dopamine pathways.[59-61] However, findings have been inconsistent, and the genetic basis of OCD is likely polygenic, involving multiple genes with small effects.

B. Neurobiological Factors

1. Brain Structure and Function

Orbitofrontal Cortex (OFC): The OFC is involved in decision-making and the processing of reward and punishment. Abnormalities in the OFC are associated with the intrusive thoughts characteristic of OCD.[62]

Anterior Cingulate Cortex (ACC): The ACC is involved in error detection and conflict monitoring. Dysfunction in this area may contribute to the excessive checking and uncertainty experienced in OCD.[63]

Basal Ganglia: The basal ganglia, including structures like the caudate nucleus and putamen, are involved in habit formation and motor control. Abnormalities in this region are thought to contribute to the compulsive behaviors seen in OCD.[64,65]

2. Neurotransmitter Systems

Serotonin: Dysregulation of serotonin, a neurotransmitter involved in mood and anxiety regulation, is strongly associated with OCD. SSRIs (Selective Serotonin Reuptake Inhibitors) are effective treatments for OCD, supporting the role of serotonin.[66]

Dopamine: While the primary focus has been on serotonin, research also suggests that dopamine, another neurotransmitter involved in reward and motivation, may play a role in OCD.[67] Abnormalities in dopamine pathways might contribute to the compulsive aspects of the disorder.

C. Cognitive and Behavioral Factors

1. Cognitive Models

Intrusive Thoughts: Cognitive theories suggest that individuals with OCD have dysfunctional beliefs and cognitive distortions.[68] These include overestimating the likelihood of harm, having an inflated sense of responsibility, and experiencing intense doubt.

Thought-Action Fusion: A cognitive concept where individuals believe that having a distressing thought is morally equivalent to performing the action or that thoughts can cause harm. This leads to increased anxiety and compulsive behaviors.[69]

2. Behavioral Models

Operant Conditioning: Compulsions are often reinforced by the temporary relief they provide from the anxiety caused by obsessions. This reinforcement can lead to the persistence of compulsive behaviors.[70,71]

Avoidance: Avoiding situations that trigger obsessions can perpetuate the disorder by reinforcing the idea that these situations are dangerous, thus maintaining the cycle of avoidance and compulsive behavior.

D. Neurodevelopmental Factors

1. Early Life Experiences

Trauma and Stress: Adverse early life experiences, such as trauma or severe stress, may contribute to the development of OCD by affecting brain development and stress response systems.[72]

2. Developmental Factors

Brain Maturation: Abnormalities in the development of brain structures involved in cognitive and emotional processing may contribute to the onset of OCD, particularly in childhood and adolescence.[73,74]

E. Environmental Factors

1. Stressful Life Events

Triggering Symptoms: Stressful life events or significant changes (e.g., loss, trauma, major life transitions) can trigger or exacerbate OCD symptoms. The stress may interact with underlying vulnerabilities to precipitate the disorder.[75]

2. Infections

PANDAS Syndrome: Some research suggests that streptococcal infections may trigger sudden-onset OCD in children, a condition known as Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal infections (PANDAS). The precise mechanism is still under investigation.[76,77]

F. Interaction of Factors

The pathogenesis of OCD is likely due to the interaction of these various factors rather than a single cause. Genetic predispositions, neurobiological abnormalities[78], cognitive and behavioral patterns[79], and environmental influences all contribute to the development and maintenance of OCD.

Understanding the pathogenesis of OCD is crucial for developing targeted treatments and interventions that address the underlying mechanisms of the disorder.

DIAGNOSIS

Diagnosing Obsessive-Compulsive Disorder (OCD) involves a comprehensive assessment by a mental health professional, typically a psychiatrist, psychologist, or clinical social worker. The diagnostic process includes several key components.

A. Clinical Interview

1. Detailed History: The clinician will gather information about the individual's symptoms, including the nature, frequency, and duration of obsessions and compulsions.[80] They will also inquire about the impact of these symptoms on daily functioning and quality of life.

2. Symptom Assessment: Questions will focus on specific obsessions (e.g., fears of contamination, harming others) and compulsions (e.g., excessive handwashing, checking behaviors). The clinician will assess how these symptoms align with OCD and whether they meet diagnostic criteria.[81]

B. Diagnostic Criteria

1. Diagnostic and Statistical Manual of Mental Disorders (DSM-5): In the DSM-5, OCD is classified under Obsessive-Compulsive and Related Disorders. The criteria include:[82-84]

- Presence of obsessions, compulsions, or both.
- The obsessions or compulsions are time-consuming (e.g., taking more than one hour per day) or cause significant distress or impairment in social, occupational, or other important areas of functioning.
- The symptoms are not attributable to the effects of a substance or another medical condition.
- The disturbance is not better explained by another mental disorder.

C. Differential Diagnosis

1. Rule Out Other Conditions: The clinician will consider other disorders that might present with similar symptoms, such as generalized anxiety disorder, specific phobias, or eating disorders.[41] It's important to distinguish OCD from these conditions as it can affect treatment approaches.

2. Consider Comorbidities: OCD often co-occurs with other mental health conditions like depression or tic disorders. The assessment will look at these potential comorbidities to ensure a comprehensive understanding of the individual's mental health.[85]

D. Assessment Tools

1. Self-Report Questionnaires: Tools such as the Yale-Brown Obsessive Compulsive Scale (Y-BOCS) or the Obsessive-Compulsive Inventory (OCI) may be used to quantify the severity of symptoms and assess specific areas of concern.[86]

2. Structured Interviews: Some clinicians use structured or semi-structured diagnostic interviews designed to assess OCD and related disorders comprehensively.

E. Physical Examination

While OCD is primarily a psychological diagnosis, a physical examination might be conducted to rule out other medical conditions or to assess overall health, especially if there are physical complaints that might be related to OCD symptoms.[87]

F. Collaboration and Input

1. Family and Caregivers: Input from family members or caregivers can provide additional insights into the individual's symptoms and functioning, helping to paint a fuller picture of the condition.[88,89]

The diagnosis of OCD is based on a combination of these assessments, and it aims to ensure that the individual receives the most accurate diagnosis and appropriate treatment plan. Accurate diagnosis is crucial for effective treatment and management of OCD.

PREVENTION

Preventing Obsessive-Compulsive Disorder (OCD) can be challenging, as the disorder often develops due to a combination of genetic, biological, and environmental factors. However, there are strategies that may help reduce the risk or mitigate the severity of OCD. Here are some approaches that can be considered.

A. Early Intervention

1. **Monitoring Symptoms:** Early recognition of symptoms in individuals at risk (such as those with a family history of OCD) can facilitate timely intervention.[90] Early treatment can potentially prevent the development of full-blown OCD or reduce its severity.
2. **Professional Guidance:** Seeking professional advice when experiencing anxiety, intrusive thoughts, or compulsive behaviors can help address these issues before they escalate into OCD.[91]

B. Stress Management

1. **Coping Strategies:** Learning and practicing stress management techniques, such as mindfulness, relaxation exercises, and healthy coping mechanisms, can help manage stress, which may contribute to the onset or worsening of OCD symptoms.[92]
2. **Healthy Lifestyle:** Regular physical activity, balanced nutrition, and sufficient sleep support overall mental health and can help reduce susceptibility to stress-related disorders, including OCD.

C. Psychoeducation

1. **Understanding OCD:** Educating individuals and families about OCD, including its symptoms and treatment options, can increase awareness and reduce stigma. This

knowledge can encourage early help-seeking behavior and adherence to preventive measures.[93,94]

2. **Identifying Triggers:** Learning to recognize and manage potential triggers for obsessive-compulsive behaviors can help prevent them from becoming more ingrained.

D. Cognitive-Behavioral Strategies

1. **Cognitive-Behavioral Techniques:** Techniques such as cognitive restructuring and exposure exercises can be beneficial in managing anxiety and preventing the development of more severe OCD symptoms. Engaging in cognitive-behavioral therapy (CBT) principles can be helpful even for individuals who do not have full-blown OCD.[95]

E. Family Support

1. **Open Communication:** Encouraging open communication and support within families can help individuals express their concerns and seek help early. Family members can also learn about how to provide support and manage their own reactions to OCD symptoms.[96]

F. Avoiding Substance Abuse

1. **Substance Use:** Avoiding excessive use of substances, including alcohol and recreational drugs, is important as substance abuse can exacerbate mental health conditions, including OCD.

G. Resilience Building

1. **Developing Resilience:** Building resilience through life skills training, problem-solving abilities, and emotional regulation can help individuals better cope with stress and potential triggers for OCD.[3, 97]

H. Routine Medical Care

1. **Regular Check-ups:** Maintaining regular visits with healthcare professionals can help monitor and address any emerging mental health concerns early, reducing the likelihood of these issues developing into more severe conditions like OCD.[98]

While these strategies may not entirely prevent OCD, they can help manage symptoms, reduce risk factors, and improve overall mental health. If someone shows signs of OCD, seeking professional help early is crucial for effective management and intervention.

TREATMENT

Treatment for Obsessive-Compulsive Disorder (OCD) often involves a combination of psychotherapy, medication, and sometimes lifestyle adjustments. The goal is to help individuals manage their symptoms, reduce anxiety, and improve their quality of life. Here's a closer look at the primary treatment options.

A. Cognitive-Behavioral Therapy (CBT)

1. **Exposure and Response Prevention (ERP):** This is the most effective form of CBT for OCD. It involves gradually exposing individuals to the sources of their anxiety (obsessions) and helping them resist the urge to perform their compulsive behaviors.[99] Over time, this approach can reduce the power of the obsessions and decrease the frequency of compulsions.
2. **Cognitive Restructuring:** This component helps individuals identify and challenge irrational beliefs and cognitive distortions related to their obsessions, aiming to alter the patterns of thinking that contribute to their anxiety and compulsions.[100]

B. Medication

1. **Selective Serotonin Reuptake Inhibitors (SSRIs):** Medications such as fluoxetine, fluvoxamine, and sertraline are commonly prescribed for OCD.[101] SSRIs can help alleviate the symptoms by increasing serotonin levels in the brain, which can help reduce anxiety and the intensity of obsessions and compulsions.
2. **Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs):** In some cases, medications like venlafaxine may be used, though SSRIs are typically preferred.[102]

C. Other Therapies

1. **Acceptance and Commitment Therapy (ACT):** This therapy focuses on helping individuals accept their thoughts and feelings rather than trying to control or avoid them. It emphasizes mindfulness and values-based living.
2. **Mindfulness-Based Cognitive Therapy (MBCT):** This combines cognitive therapy with mindfulness strategies to help individuals develop a different relationship with their thoughts and reduce compulsive behavior.[103]

D. Support and Education

1. **Psychoeducation:** Learning about OCD and its treatment can empower individuals and their families, reduce stigma, and improve treatment adherence.

2. **Support Groups:** Joining support groups can provide emotional support, share coping strategies, and offer a sense of community with others who understand the challenges of OCD.[104]

E. Lifestyle Adjustments

1. **Stress Management:** Techniques such as exercise, relaxation training, and stress management strategies can help mitigate the impact of stress on OCD symptoms.
2. **Healthy Habits:** Maintaining a balanced diet, adequate sleep, and regular physical activity can contribute to overall well-being and support mental health.[105]

F. Advanced Treatments (for severe cases)

1. **Deep Brain Stimulation (DBS):** This is considered for individuals with severe OCD who have not responded to other treatments. It involves implanting electrodes in specific brain regions to modulate neural activity.
2. **Transcranial Magnetic Stimulation (TMS):** This non-invasive procedure uses magnetic fields to stimulate nerve cells in the brain, which can be helpful for those who do not respond to traditional treatments.[106]

Effective treatment for OCD is often tailored to the individual's specific needs and may require a combination of these approaches. Working with a mental health professional can help develop a comprehensive treatment plan and adjust it as needed to address symptoms and improve overall functioning.

COMPLICATIONS

Obsessive-Compulsive Disorder (OCD) can lead to various complications that affect an individual's overall well-being, daily functioning, and quality of life. These complications can arise from the disorder itself or from the ways in which individuals attempt to manage their symptoms. Here are some common complications associated with OCD.

A. Impaired Daily Functioning

1. **Impact on Daily Life:** OCD symptoms, such as time-consuming rituals or avoidance behaviors, can interfere with work, school, and personal responsibilities.[107] This can lead to difficulties in maintaining employment or academic performance.

2. **Social Withdrawal:** Individuals with OCD may withdraw from social activities or relationships due to shame, embarrassment, or the need to perform rituals, leading to isolation and decreased social support.[108]

B. Comorbid Mental Health Conditions

1. **Depression:** Many individuals with OCD experience depression, either as a direct consequence of the disorder or due to the stress and frustration of managing OCD symptoms.
2. **Anxiety Disorders:** OCD often co-occurs with other anxiety disorders, such as generalized anxiety disorder, social anxiety disorder, or specific phobias.
3. **Eating Disorders:** Some individuals with OCD may develop eating disorders, such as anorexia or bulimia, especially if their compulsions involve food or body image concerns.[109-111]

C. Physical Health Issues

1. **Chronic Stress:** The chronic stress and anxiety associated with OCD can contribute to physical health problems, such as gastrointestinal issues, headaches, or chronic pain.[112]
2. **Compulsive Behaviors:** Compulsions, such as excessive handwashing or checking, can lead to skin irritation, infections, or physical injuries.

D. Substance Abuse

1. **Self-Medication:** Individuals with OCD may turn to alcohol or drugs as a means of coping with their symptoms, which can lead to substance abuse and additional health and legal issues.[113]

E. Relationship Strain

1. **Family and Relationship Impact:** OCD can strain relationships with family members, friends, and romantic partners, particularly if they are involved in or affected by the individual's compulsive behaviors.[114,115] The stress and frustration of managing OCD can create conflicts and misunderstandings.

F. Reduced Quality of Life

1. **Overall Well-Being:** The persistent nature of OCD symptoms can lead to a diminished quality of life, affecting an individual's emotional well-being, life satisfaction, and sense of self-worth.

G. Economic Burden

1. Financial Impact: The cost of treatment, including therapy, medication, and other medical expenses, combined with potential loss of income due to impaired functioning, can create a significant economic burden for individuals and their families.[116]

H. Increased Risk of Self-Harm

1. Severe Cases: In severe cases, individuals with OCD may experience significant distress and hopelessness, which can increase the risk of self-harm or suicidal thoughts.[98]

I. Disruption of Daily Routines

1. Routine Impact: Compulsions can disrupt normal daily routines, such as sleep, eating, and personal hygiene, further complicating overall health and well-being.[117]

Addressing these complications often requires a comprehensive approach that includes effective treatment for OCD, support for comorbid conditions, and strategies to manage the impact on daily life and relationships. Seeking help from mental health professionals and engaging in a well-rounded treatment plan can help mitigate these complications and improve overall functioning and quality of life.

CONCLUSION

Obsessive-Compulsive Disorder (OCD) is a complex and multifaceted mental health condition characterized by persistent, distressing obsessions and repetitive compulsions. Its impact on individuals can be profound, affecting their daily functioning, emotional well-being, and quality of life. The pathogenesis of OCD involves an intricate interplay of genetic, neurobiological, psychological, and environmental factors, which together contribute to the development and maintenance of the disorder. OCD is a challenging disorder with a significant impact on individuals and their families. Its multifaceted nature requires a comprehensive approach to treatment, incorporating both psychological and pharmacological interventions. Ongoing research into the etiology and pathogenesis of OCD holds promise for improved understanding and development of more targeted therapies. Awareness, early intervention, and support are key to improving outcomes and enhancing the quality of life for those affected by OCD.

REFERENCES

1. Stewart SE et al. Meta-analysis of association between obsessive-compulsive disorder and the 3′ region of neuronal glutamate transporter gene SLC1A1. Am. J. Med. Genet. B Neuropsychiatr. Genet, 2013; 162: 367–379.
2. Burguiere E, Monteiro P, Feng G & Graybiel AM Optogenetic stimulation of lateral orbitofrontostriatal pathway suppresses compulsive behaviors. Science, 2013; 340: 1243–1246.
3. Kariuki-Nyuthe C, Gomez-Mancilla B & Stein DJ Obsessive compulsive disorder and the glutamatergic system. Curr. Opin. Psychiatry, 2014; 27: 32–37.
4. Review of the gut microbiome in obsessive-compulsive disorder. Depress. Anxiety, 2015; 33: 171–178.
5. Renna ME, O'Toole MS, Spaeth PE, Lekander M & Mennin DS The association between anxiety, traumatic stress, and obsessive-compulsive disorders and chronic inflammation: a systematic review and meta-analysis. Depress. Anxiety, 2018; 35: 1081–1094.
6. Fineberg NA et al. Probing compulsive and impulsive behaviors, from animal models to endophenotypes: a narrative review. Neuropsychopharmacology, 2009; 35: 591–604. naturalistic two-year follow-up study. Am. J. Psychiatry, 2002; 159: 263–268.
7. Lochner C et al. Gender in obsessive–compulsive disorder: clinical and genetic findings. Eur. Neuropsychopharmacol, 2004; 14: 105–113.
8. Torresan RC et al. Symptom dimensions, clinical course and comorbidity in men and women with obsessive-compulsive disorder. Psychiatry Res, 2013; 209: 186–195.
9. Rapp AM, Bergman RL, Piacentini J & Mcguire JF Evidence-based assessment of obsessive–compulsive disorder. J. Cent. Nerv. Syst. Dis, 2016; 8: 13–29.
10. Du Toit PL, van Kradenburg J, Niehaus D & Stein DJ Comparison of obsessive-compulsive disorder patients with and without comorbid putative obsessive-compulsive spectrum disorders using a structured clinical interview. Compr. Psychiatry, 2001; 42: 291–300.
11. Goodman WK et al. The Yale-Brown Obsessive Compulsive Scale. I. Development, use, and reliability. Arch. Gen. Psychiatry, 1989; 46: 1006–1011. [PubMed: 2684084] The Y-BOCS remains the gold standard measure for assessing symptom severity in OCD.
12. Rosario-Campos MC et al. The Dimensional Yale–Brown Obsessive–Compulsive Scale (DYBOCS): an instrument for assessing obsessive–compulsive symptom dimensions. Mol. Psychiatry, 2006; 11: 495–504.

13. Storch EA et al. Florida obsessive-compulsive inventory: development, reliability, and validity. J. Clin. Psychol, 2007; 63: 851–859.
14. Rosario MC et al. Validation of the University of São Paulo Sensory Phenomena Scale: initial psychometric properties. CNS Spectr, 2009; 14: 315–323.
15. Eisen JL et al. The Brown Assessment of Beliefs Scale: reliability and validity. Am. J. Psychiatry, 1998; 155: 102–108.
16. Albert U, Baffa A & Maina G Family accommodation in adult obsessive–compulsive disorder: clinical perspectives. Psychol. Res. Behav. Manag, 2017; 10: 293–304.
17. Brakoulias V, Perkes IE & Tsalamanios E A call for prevention and early intervention in obsessive-compulsive disorder. Early Interv. Psychiatry, 2017; 12: 572–577.
18. Fineberg NA et al. Early intervention for obsessive compulsive disorder: an expert consensus statement. Eur. Neuropsychopharmacol, 2019; 29: 549–565.
19. Sarris J, Camfield D & Berk M Complementary medicine, self-help, and lifestyle interventions for obsessive compulsive disorder (OCD) and the OCD spectrum: a systematic review. J. Affect. Disord, 2012; 138: 213–221.
20. Stewart SE et al. Meta-analysis of association between obsessive-compulsive disorder and the 3′ region of neuronal glutamate transporter gene SLC1A1. Am. J. Med. Genet. B Neuropsychiatr. Genet, 2013; 162: 367–379.
21. Kariuki-Nyuthe C, Gomez-Mancilla B & Stein DJ Obsessive compulsive disorder and the glutamatergic system. Curr. Opin. Psychiatry, 2014; 27: 32–37.
22. Turna J, Grosman Kaplan K, Anglin R & Van Ameringen M "What's bugging the gut in OCD?" A review of the gut microbiome in obsessive-compulsive disorder. Depress. Anxiety, 2015; 33: 171–178.
23. Renna ME, O'Toole MS, Spaeth PE, Lekander M & Mennin DS The association between anxiety, traumatic stress, and obsessive-compulsive disorders and chronic inflammation: a systematic review and meta-analysis. Depress. Anxiety, 2018; 35: 1081–1094.
24. Fineberg NA et al. Probing compulsive and impulsive behaviors, from animal models to endophenotypes: a narrative review. Neuropsychopharmacology, 2009; 35: 591–604.
25. Mataix-Cols D et al. Symptom stability in adult obsessive-compulsive disorder: data from a naturalistic two-year follow-up study. Am. J. Psychiatry, 2002; 159: 263–268.
26. Lochner C et al. Gender in obsessive–compulsive disorder: clinical and genetic findings. Eur. Neuropsychopharmacol, 2004; 14: 105–113.
27. Torresan RC et al. Symptom dimensions, clinical course and comorbidity in men and women with obsessive-compulsive disorder. Psychiatry Res, 2013; 209: 186–195.

28. Rapp AM, Bergman RL, Piacentini J & Mcguire JF Evidence-based assessment of obsessive–compulsive disorder. J. Cent. Nerv. Syst. Dis, 2016; 8: 13–29.
29. du Toit PL, van Kradenburg J, Niehaus D & Stein DJ Comparison of obsessive-compulsive disorder patients with and without comorbid putative obsessive-compulsive spectrum disorders using a structured clinical interview. Compr. Psychiatry, 2001; 42: 291–300.
30. Rosario MC et al. Validation of the University of São Paulo Sensory Phenomena Scale: initial psychometric properties. CNS Spectr, 2009; 14: 315–323.
31. Eisen JL et al. The Brown Assessment of Beliefs Scale: reliability and validity. Am. J. Psychiatry, 1998; 155: 102–108.
32. Albert U, Baffa A & Maina G Family accommodation in adult obsessive–compulsive disorder: clinical perspectives. Psychol. Res. Behav. Manag, 2017; 10: 293–304.
33. Brakoulias V, Perkes IE & Tsalamanios E A call for prevention and early intervention in obsessive-compulsive disorder. Early Interv. Psychiatry, 2017; 12: 572–577.
34. Fineberg NA et al. Early intervention for obsessive compulsive disorder: an expert consensus statement. Eur. Neuropsychopharmacol, 2019; 29: 549–565.
35. Sarris J, Camfield D & Berk M Complementary medicine, self-help, and lifestyle interventions for obsessive compulsive disorder (OCD) and the OCD spectrum: a systematic review. J. Affect. Disord, 2012; 138: 213–221.
36. Murphy DL et al. Obsessive—compulsive disorder as a 5-HT subsystem-related behavioural disorder. Br. J. Psychiatry, 1989; 155: 15–24.
37. Karabanow O Double-blind controlled study in phobias and obsessions. J. Int. Med. Res, 1977; 5(Suppl. 5): 42–48.
38. López-Ibor JJ et al. Double-blind comparison of fluoxetine versus clomipramine in the treatment of obsessive compulsive disorder. Eur. Neuropsychopharmacol, 1996; 6: 111–118.
39. Zohar J & Judge R Paroxetine versus clomipramine in the treatment of obsessive–compulsive disorder. Br. J. Psychiatry, 1996; 169: 468–474.
40. Bisserbe J, Lane R & Flament M A double-blind comparison of sertraline and clomipramine in outpatients with obsessive-compulsive disorder. Eur. Psychiatry, 1997; 12: 82–93.
41. Bandelow B et al. Guidelines for the pharmacological treatment of anxiety disorders, obsessive–compulsive disorder and posttraumatic stress disorder in primary care. Int. J. Psychiatry Clin. Pract, 2012; 16: 77–84.

42. Issari Y, Jakubovski E, Bartley CA, Pittenger C & Bloch MH Early onset of response with selective serotonin reuptake inhibitors in obsessive-compulsive disorder. J. Clin. Psychiatry, 2016; 77: e605–e611.
43. Varigonda AL, Jakubovski E & Bloch MH Systematic review and meta-analysis: early treatment responses of selective serotonin reuptake inhibitors and clomipramine in pediatric obsessivecompulsive disorder. J. Am. Acad. Child Adolesc. Psychiatry, 2016; 55: 851–859.
44. da Conceição Costa DL et al. Can early improvement be an indicator of treatment response in obsessive-compulsive disorder? Implications for early-treatment decision-making. J. Psychiatr Res, 2013; 47: 1700–1707.
45. Greist JH et al. WCA recommendations for the long-term treatment of obsessive-compulsive disorder in adults. CNS Spectr, 2003; 8: 7–16.
46. Batelaan NM et al. Risk of relapse after antidepressant discontinuation in anxiety disorders, obsessive-compulsive disorder, and post-traumatic stress disorder: systematic review and metaanalysis of relapse prevention trials. BMJ, 2017; 358: j3927.
47. Erzegovesi S et al. Clinical predictors of drug response in obsessive-compulsive disorder. J. Clin. Psychopharmacol, 2001; 21: 488–492.
48. Ravizza L, Barzega G, Bellino S, Bogetto F & Maina G Predictors of drug treatment response in obsessive-compulsive disorder. J. Clin. Psychiatry, 1995; 56: 368–373.
49. Belotto-Silva C et al. Group cognitive-behavioral therapy versus selective serotonin reuptake inhibitors for obsessive-compulsive disorder: a practical clinical trial. J. Anxiety Disord, 2012; 26: 25–31.
50. Simpson HB et al. Cognitive-behavioral therapy versus risperidone for augmenting serotonin reuptake inhibitors in obsessive-compulsive disorder: a randomized clinical trial. JAMA Psychiatry, 2013; 70: 1190–1199.
51. Cavanagh K Geographic inequity in the availability of cognitive behavioural therapy in England and Wales: a 10-year update. Behav. Cogn. Psychother, 2013; 42: 497–501.
52. Zhou D-D et al. Augmentation agents to serotonin reuptake inhibitors for treatment-resistant obsessive-compulsive disorder: a network meta-analysis. Prog. Neuropsychopharmacol. Biol. Psychiatry, 2019; 90: 277–287.
53. Dougherty DD et al. Open-label study of high (30 mg) and moderate (20 mg) dose escitalopram for the treatment of obsessive–compulsive disorder. Int. Clin. Psychopharmacol, 2009; 24: 306–311.

54. Ninan PT et al. High-dose sertraline strategy for nonresponders to acute treatment for obsessivecompulsive disorder. J. Clin. Psychiatry, 2006; 67: 15–22.
55. Pampaloni I et al. High-dose selective serotonin reuptake inhibitors in OCD: a systematic retrospective case notes survey. J. Psychopharmacol, 2009; 24: 1439–1445.
56. Coluccia A et al. Adult obsessive–compulsive disorder and quality of life outcomes: a systematic review and meta-analysis. Asian J. Psychiatry, 2016; 22: 41–52.
57. Coluccia A, Ferretti F, Fagiolini A & Pozza A Quality of life in children and adolescents with obsessive–compulsive disorder: a systematic review and meta-analysis. Neuropsychiatr. Dis. Treat, 2017; 13: 597–608.
58. Farris SG, McLean CP, Van Meter PE, Simpson HB & Foa EB Treatment response, symptom remission, and wellness in obsessive-compulsive disorder. J. Clin. Psychiatry, 2013; 74: 685–690.
59. Cicek E, Cicek IE, Kayhan F, Uguz F & Kaya N Quality of life, family burden and associated factors in relatives with obsessive–compulsive disorder. Gen. Hosp. Psychiatry, 2013; 35: 253–258.
60. Grover S & Dutt A Perceived burden and quality of life of caregivers in obsessive-compulsive disorder. Psychiatry Clin. Neurosci, 2011; 65: 416–422.
61. Hollander E, Stein DJ, Fineberg NA, Marteau F & Legault M Quality of life outcomes in patients with obsessive-compulsive disorder. J. Clin. Psychiatry, 2010; 71: 784–792.
62. Aardema F, O'Connor K (2003). "Seeing white bears that are not there: Inference processes in obsessions". Journal of Cognitive Psychotherapy, 17: 23–37. doi:10.1891/jcop.17.1.23.58270. S2CID 143040967.
63. Carter, K. "Obsessive–compulsive personality disorder." PSYC 210 lecture: Oxford College of Emory University. Oxford, GA. 11 April 2006.
64. National Institute for Health and Clinical Excellence (NICE) (November 2005). "Obsessive-compulsive disorder: Core interventions in the treatment of obsessive-compulsive disorder and body dysmorphic disorder". Information about NICE Clinical Guideline 31. UK National Health Service (NHS). Archived from the original on 12 January 2017. Retrieved 24 July 2016.
65. Imai H, Tajika A, Narita H, Yoshinaga N, Kimura K, Nakamura H, et al. (April 2022). "Unguided Computer-Assisted Self-Help Interventions Without Human Contact in Patients With Obsessive-Compulsive Disorder: Systematic Review and Meta-analysis". Journal of Medical Internet Research, 24(4): e35940. doi:10.2196/35940. PMC 9073609. PMID 35451993.

66. van Loenen I, Scholten W, Muntingh A, Smit J, Batelaan N (February 2022). "The Effectiveness of Virtual Reality Exposure-Based Cognitive Behavioral Therapy for Severe Anxiety Disorders, Obsessive-Compulsive Disorder, and Posttraumatic Stress Disorder: Meta-analysis". Journal of Medical Internet Research, 24(2): e26736. doi:10.2196/26736. PMC 8874794. PMID 35142632.
67. Huppert & Roth: (2003) Treating Obsessive-Compulsive Disorder with Exposure and Response Prevention. The Behavior Analyst Today, 4(1): 66 – 70. BAO Archived 23 March 2010 at the Wayback Machine
68. Klein DF (August 2000). "Flawed meta-analyses comparing psychotherapy with pharmacotherapy". The American Journal of Psychiatry, 157(8): 1204–1211. doi:10.1176/appi.ajp.157.8.1204. PMID 10910778.
69. Fisher PL, Cherry MG, Stuart T, Rigby JW, Temple J (1 October 2020). "People with obsessive-compulsive disorder often remain symptomatic following psychological treatment: A clinical significance analysis of manualised psychological interventions". Journal of Affective Disorders, 275: 94–108. doi:10.1016/j.jad.2020.06.019. ISSN 0165-0327. PMID 32658831. S2CID 220521468.
70. Schneider SC, Knott L, Cepeda SL, Hana LM, McIngvale E, Goodman WK, et al. (May 2020). "Serious negative consequences associated with exposure and response prevention for obsessive-compulsive disorder: A survey of therapist attitudes and experiences". Depression and Anxiety, 37(5): 418–428. doi:10.1002/da.23000. ISSN 1091-4269. PMID 32048376. S2CID 211085261.
71. Jalal B, Chamberlain S, Robbins T, Sahakian B (2022). "Obsessive-compulsive disorder-contamination fears, features, and treatment:novel smartphone therapies in light of global mental health and pandemics (COVID-19)". CNS Spectrums, 27(2): 138. doi:10.1017/S1092852920001947. PMC 7691644. PMID 33081864. Retrieved 29 February 2024.
72. Twohig MP, Hayes SC, Masuda A (March 2006). "Increasing willingness to experience obsessions: acceptance and commitment therapy as a treatment for obsessive-compulsive disorder". Behavior Therapy, 37(1): 3–13. doi:10.1016/j.beth.2005.02.001. PMID 16942956.
73. Twohig MP, Abramowitz JS, Bluett EJ, Fabricant LE, Jacoby RJ, Morrison KL, et al. (1 July 2015). "Exposure therapy for OCD from an acceptance and commitment therapy (ACT) framework". Journal of Obsessive-Compulsive and Related Disorders, 6: 167–173. doi:10.1016/j.jocrd.2014.12.007. ISSN 2211-3649.

74. Hayes SC. "ACT Association for Contextual Behavioral Science". contextualscience.org. Retrieved 7 July 2022.
75. Hayes SC, Strosahl K, Wilson KG (2012). Acceptance and commitment therapy: the process and practice of mindful change (2nd ed.). New York: Guilford Press. ISBN 978-1-60918-962-4. OCLC 713181786.
76. O'Connor, K., Aardema, F., & Pelissier, M.-C. (2005). Beyond reasonable doubt: Reasoning processes in obsessive-compulsive disorder and related disorders. Chichester: John Wiley & Sons.
77. Aardema, F., O'Connor, K. P., Emmelkamp, P. M., Marchand, A., & Todorov, C. (2005). Inferential confusion in obsessive-compulsive disorder: the inferential confusion questionnaire. Behaviour Research & Therapy, 43: 293-308.
78. O'Connor, K. (2002). Intrusions and inferences in obsessive compulsive disorder. Clinical Psychology & Psychotherapy, 9: 38-46.
79. O'Connor, K., & Aardema, F. (2012). Clinician's handbook for obsessive compulsive disorder: Inference-based therapy. Chichester: Wiley-Blackwell.
80. Aardema F, Bouchard S, Koszycki D, Lavoie ME, Audet JS, O'Connor K (2022). "Evaluation of Inference-Based Cognitive-Behavioral Therapy for Obsessive-Compulsive Disorder: A Multicenter Randomized Controlled Trial with Three Treatment Modalities". Psychotherapy and Psychosomatics, 91(5): 348–359. doi:10.1159/000524425. ISSN 1423-0348. PMID 35584639. S2CID 248890026.
81. Koran LM, Hanna GL, Hollander E, Nestadt G, Simpson HB (July 2007). "Practice guideline for the treatment of patients with obsessive-compulsive disorder". The American Journal of Psychiatry, 164(7 Suppl): 5–53. PMID 17849776.
82. Skapinakis P, Caldwell DM, Hollingworth W, Bryden P, Fineberg NA, Salkovskis P, et al. (August 2016). "Pharmacological and psychotherapeutic interventions for management of obsessive-compulsive disorder in adults: a systematic review and network meta-analysis". The Lancet. Psychiatry, 3(8): 730–739. doi:10.1016/S2215-0366(16)30069-4. PMC 4967667. PMID 27318812.
83. Wheaton MG, DeSantis SM, Simpson HB (October 2016). "Network meta-analyses and treatment recommendations for obsessive-compulsive disorder". The Lancet. Psychiatry, 3(10): 920. doi:10.1016/S2215-0366(16)30280-2. PMC 6690590. PMID 27692263.
84. Hirschtritt ME, Bloch MH, Mathews CA (April 2017). "Obsessive-Compulsive Disorder: Advances in Diagnosis and Treatment". JAMA, 317(13): 1358–1367. doi:10.1001/jama.2017.2200. PMID 28384832. S2CID 13660201.

85. Simpson HB, Wetterneck CT, Cahill SP, Steinglass JE, Franklin ME, Leonard RC, et al. (1 March 2013). "Treatment of obsessive-compulsive disorder complicated by comorbid eating disorders". Cognitive Behaviour Therapy, 42(1): 64–76. doi:10.1080/16506073.2012.751124. PMC 3947513. PMID 23316878.
86. "Antidepressants for children and teenagers: what works for anxiety and depression?". NIHR Evidence (Plain English summary). National Institute for Health and Care Research, 3 November 2022. doi:10.3310/nihrevidence_53342. S2CID 253347210.
87. Boaden K, Tomlinson A, Cortese S, Cipriani A (2 September 2020). "Antidepressants in Children and Adolescents: Meta-Review of Efficacy, Tolerability and Suicidality in Acute Treatment". Frontiers in Psychiatry, 11: 717. doi:10.3389/fpsyt.2020.00717. PMC 7493620. PMID 32982805.
88. Correll CU, Cortese S, Croatto G, Monaco F, Krinitski D, Arrondo G, et al. (June 2021). "Efficacy and acceptability of pharmacological, psychosocial, and brain stimulation interventions in children and adolescents with mental disorders: an umbrella review". World Psychiatry, 20(2): 244–275. doi:10.1002/wps.20881. PMC 8129843. PMID 34002501.
89. Arroll B, Elley CR, Fishman T, Goodyear-Smith FA, Kenealy T, Blashki G, et al. (July 2009). Arroll B (ed.). "Antidepressants versus placebo for depression in primary care". The Cochrane Database of Systematic Reviews, 2009; (3): CD007954. doi:10.1002/14651858.CD007954. PMC 10576545. PMID 19588448.
90. "Review Finds SSRIs Modestly Effective in Short-Term Treatment of OCD". Archived from the original on 13 April 2013.
91. Fineberg NA, Brown A, Reghunandanan S, Pampaloni I (September 2012). "Evidence-based pharmacotherapy of obsessive-compulsive disorder". The International Journal of Neuropsychopharmacology, 15(8): 1173–1191. doi:10.1017/S1461145711001829. hdl:2299/216. PMID 22226028.
92. "Sertraline prescribing information" (PDF). Archived (PDF) from the original on 16 June 2015. Retrieved 30 January 2015.
93. "Paroxetine prescribing information" (PDF). Archived from the original (PDF) on 19 February 2015. Retrieved 30 January 2015.
94. Pignon B, Tezenas du Montcel C, Carton L, Pelissolo A (November 2017). "The Place of Antipsychotics in the Therapy of Anxiety Disorders and Obsessive-Compulsive Disorders". Current Psychiatry Reports, 19(12): 103. doi:10.1007/s11920-017-0847-x. PMID 29110139. S2CID 41312623.

95. Komossa K, Depping AM, Meyer M, Kissling W, Leucht S (December 2010). "Second-generation antipsychotics for obsessive compulsive disorder". The Cochrane Database of Systematic Reviews, (12): CD008141. doi:10.1002/14651858.CD008141.pub2. PMID 21154394. S2CID 205193449.
96. Koran LM, Hanna GL, Hollander E, Nestadt G, Simpson HB (July 2007). "Practice guideline for the treatment of patients with obsessive-compulsive disorder" (PDF). The American Journal of Psychiatry, 164 (7 Suppl). American Psychiatric Association: 5–53. PMID 17849776.
97. Cybulska EM (February 2006). "Obsessive-compulsive disorder, the brain and electroconvulsive therapy". British Journal of Hospital Medicine, 67(2): 77–81. doi:10.12968/hmed.2006.67.2.20466. PMID 16498907.
98. Perera MP, Mallawaarachchi S, Miljevic A, Bailey NW, Herring SE, Fitzgerald PB (October 2021). "Repetitive Transcranial Magnetic Stimulation for Obsessive-Compulsive Disorder: A Meta-analysis of Randomized, Sham-Controlled Trials". Biological Psychiatry. Cognitive Neuroscience and Neuroimaging, 6(10): 947–960. doi:10.1016/j.bpsc.2021.03.010. PMID 33775927. S2CID 232408932.
99. Barlow, D. H. and V. M. Durand. Essentials of Abnormal Psychology. California: Thomson Wadsworth, 2006.
100. Bosanac P, Hamilton B, Lucak J, Castle D (2018). "Identity challenges and 'burden of normality' after DBS for severe OCD: a narrative case study". BMC Psychiatry, 18(1): 186. doi:10.1186/s12888-018-1771-2. PMC 5998583. PMID 29895269.
101. Barlas S (8 April 2009). "FDA Approves Pioneering Treatment for Obsessive-Compulsive Disorder". Psychiatric Times. 26 (4). Archived from the original on 10 July 2009.
102. Surgical Procedures for Obsessive–Compulsive Disorder Archived 25 July 2008 at the Wayback Machine, by M. Jahn and M. Williams, PhD,. BrainPhysics OCD Resource, Accessed 6 July 2008.
103. O'Donohue W, Ferguson KE (2006). "Evidence-Based Practice in Psychology and Behavior Analysis". The Behavior Analyst Today, 7(3): 335–347. doi:10.1037/h0100155.
104. Freeman J, Garcia A, Frank H, Benito K, Conelea C, Walther M, et al. (2014). "Evidence base update for psychosocial treatments for pediatric obsessive-compulsive disorder". Journal of Clinical Child and Adolescent Psychology, 43(1): 7–26. doi:10.1080/15374416.2013.804386. PMC 3815743. PMID 23746138.

105. Rapoport JE (1989). Obsessive-compulsive Disorder in Children & Adolescents. Washington: American Psychiatric Press.
106. Adams PL (1973). Obsessive Children: A Sociopsychiatric Study. Philadelphia: Brunner / Mazel.
107. D'Alessandro TM (2009). "Factors influencing the onset of childhood obsessive compulsive disorder". Pediatric Nursing, 35(1): 43–46. PMID 19378573.
108. Eddy KT, Dutra L, Bradley R, Westen D (December 2004). "A multidimensional meta-analysis of psychotherapy and pharmacotherapy for obsessive-compulsive disorder". Clinical Psychology Review, 24(8): 1011–1030. doi:10.1016/j.cpr.2004.08.004. PMID 15533282. S2CID 6582600.
109. Chang K et al. Clinical evaluation of youth with pediatric acute-onset neuropsychiatric syndrome (PANS): recommendations from the 2013 PANS Consensus Conference. J. Child Adolesc. Psychopharmacol, 2015; 25: 3–13.
110. Subramaniam M, Soh P, Vaingankar JA, Picco L, Chong SA (May 2013). "Quality of life in obsessive-compulsive disorder: impact of the disorder and of treatment". CNS Drugsm, 27(5): 367–383. doi:10.1007/s40263-013-0056-z. PMID 23580175. S2CID 8038340.
111. Boileau B (2011). "A review of obsessive-compulsive disorder in children and adolescents". Dialogues in Clinical Neuroscience, 13(4): 401–411. doi:10.31887/DCNS.2011.13.4/bboileau. PMC 3263388. PMID 22275846.
112. Thamby A, Khanna S (2019). "The role of personality disorders in obsessive-compulsive disorder". Indian Journal of Psychiatry, 61(7): S114–S118. doi:10.4103/psychiatry.IndianJPsychiatry_526_18. PMC 6343421. PMID 30745684.
113. "Obsessive-Compulsive Disorder (OCD)". National Institute for Mental Health. September 2022. Retrieved 15 March 2023.
114. Summers J, Sinnott-Armstrong W (2019). "Obsessive Compulsive Disorder: A Little History". Clean Hands: Philosophical Lessons from Scrupulosity. Oxford University Press. p. 19. ISBN 978-0-19-005869-2.
115. Friedrich P (29 April 2016). The Literary and Linguistic Construction of Obsessive-Compulsive Disorder: No Ordinary Doubt. Springer. ISBN 978-1-137-42733-5. Plutarch (1951). Selected Lives and Essays. Classics Club, p. 375.
116. Osborn I (1998). Tormenting Thoughts and Secret Rituals: The Hidden Epidemic of Obsessive-Compulsive Disorder. New York City, New York: Dell Publishing. ISBN 978-0-440-50847-2.

117. Awaad R, Ali S (15 July 2015). "Obsessional Disorders in al-Balkhi's 9th century treatise: Sustenance of the Body and Soul". Journal of Affective Disorders, 180: 185–189. doi:10.1016/j.jad.2015.03.003. PMID 25911133.
118. Al-Balkhi A, Misri M, al-Hayyat M (2005). Masālih al-Abdān Wa-al-Anfus (in Arabic). Cairo: Ma'had al-Makhtūtāt al-'Arabīyah. Jenike MA, Baer L, Minichiello WE (1986). Obsessive Compulsive Disorders: Theory and Management. Littleton, MA: PSG Publishing.