

## REVIEW ARTICLE

# OBSESSIVE-COMPULSIVE DISORDER: DIAGNOSIS AND MANAGEMENT WITH AN OSTEOPATHIC COMPONENT

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## KEYWORDS:

Biopsychosocial Model  
 Obsessive-Compulsive Disorder  
 Osteopathic Manipulative Treatment  
 Osteopathic Tenets  
 Pharmacotherapy

## ABSTRACT:

Obsessive-compulsive disorder (OCD) is a debilitating neuropsychiatric disorder that affects about one in 40 American adults and one in 100 American children. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), the patient must have the presence of obsessions, compulsions or both. OCD can be covert in presentation and therefore requires physician vigilance with the diagnosis. The efficacy of the physician's interviewing style is extremely important in OCD treatment because typically, long delays in diagnosis often occur and the shame associated with the disorder may inhibit discussion of the symptoms and treatment plans. In addition to serotonin-regulating medications, deciphering the etiology of the patient's obsessions or compulsions is important. Thus, cognitive behavioral therapy supplemented with SSRIs is the true first-line therapy for OCD because it provides a synergistic approach of life discussions, habit training and medication.

Because of the inseparability of physical and mental health, osteopathic medicine offers an effective model for treatment through osteopathic manipulative treatment (OMT). In the holistic view of OMT, somatic, visceral and psychological dysfunctions are united. Thus, physicians who incorporate OMT into their practice can aid in the treatment of psychopathology, such as OCD.

In this article, we will discuss the epidemiology of OCD, the DSM-5 criteria for OCD, the current OCD treatments, the osteopathic approach and how it pertains to OCD treatment, and lastly, OMT and its possible role in treating OCD. Due to a lack of research on osteopathic manipulative medicine (OMM) treatments in OCD, we will also propose a possible study design for further investigation.

## INTRODUCTION

In the United States, about one in 40 adults and one in 100 children have OCD.<sup>1</sup> Moreover, according to the World Health Organization, OCD is one of the top 20 causes of illness-related disability worldwide for individuals between 15 and 44 years of age.<sup>1</sup> Males make up the majority of very early onset cases, with nearly a quarter occurring before age 10. In contrast, females have a much more rapid accumulation of new cases after 10 years of age, with the steepest increase in adolescence. Additionally, there are few new onsets among males or females after the early 30s.<sup>2,3</sup>

It is also noteworthy that OCD commonly presents with other co-occurring psychiatric disorders, the most common being:

- Panic disorder, social anxiety disorder, generalized anxiety disorder or a specific phobia (76%)<sup>2</sup>
- Mood disorders—usually major depressive disorder (63%)<sup>2</sup>
- Tic disorder (up to 29% lifetime history)<sup>4</sup>

OCD is much more common in individuals with certain other disorders, such as among individuals with schizophrenia or schizoaffective disorder (approximately 12%), bipolar disorder, eating disorders (e.g., anorexia nervosa and bulimia nervosa) or even trichotillomania (hair-pulling disorder).<sup>5-7</sup> When these other disorders are diagnosed, the patient should simultaneously be assessed for OCD as well.

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## DIAGNOSTIC CRITERIA

According to the DSM-5 diagnostic criteria for obsessive-compulsive disorder, the patient must have the presence of obsessions, compulsions or both.<sup>8</sup>

The following two principles define obsessions:

1. Recurrent and persistent thoughts, urges and impulses that are experienced, at some time during the disturbance, as intrusive and unwanted, and that cause the person significant distress.<sup>8</sup>
2. The individual attempts to ignore or suppress such thoughts, urges or images, or to neutralize them with some other thought or action (e.g., by performing a compulsion).<sup>8</sup>

Compulsions are defined by the following two principles:

1. Repetitive behaviors (e.g., hand washing) or mental acts that the individual feels driven to perform in response to an obsession or according to rules that must be applied rigidly.<sup>8</sup>
2. The behaviors or mental acts are aimed at preventing or reducing anxiety, distress, or some dreaded event or situation. However, these behaviors or mental acts are not connected in a realistic way with what they are designed to neutralize or are clearly excessive.<sup>8</sup>

It is important to add that the obsessions or compulsions are time-consuming (generally more than one hour per day). Because of this, they cause clinically significant distress or impairment in social, occupational or other important areas of functioning.<sup>8</sup>

If a patient's obsessive-compulsive symptoms are attributable to a physiological effect of a substance (e.g., drugs of abuse, a medication) or another medical condition, it can NOT be labeled as OCD.<sup>8</sup>

Lastly, it is important to know that OCD is a diagnosis of exclusion. Thus, the disturbances cannot be better explained by the symptoms of another mental disorder such as excessive worries (generalized anxiety disorder) or preoccupation with appearance (body dysmorphic disorder).<sup>8</sup> Given the overlap of some symptoms, a practitioner should always entertain a differential diagnosis, including both psychiatric as well as medical disorders.

Now that we have set a framework for OCD, we will discuss the current therapies utilized to treat OCD, what it means to use an osteopathic approach (through both the tenets as well as the five models of osteopathic medicine) and how it pertains to the treatment of OCD, and lastly, OMT and its possible role in treating OCD. Because there is a lack of research delving into OMT's role in OCD treatment, we will propose a possible study design as well.

## DISCUSSION

### Pharmacotherapy Treatment of OCD

Clomipramine, the tricyclic antidepressant that is the most specific inhibitor of serotonin reuptake, was first shown to be efficacious in the treatment of obsessive-compulsive symptoms in uncontrolled trials in the 1960s.<sup>9</sup> Controlled trials later clearly established the efficacy of clomipramine.<sup>10,11</sup>

The introduction of selective serotonin reuptake inhibitors (SSRIs) in the 1980s represented the next important pharmacotherapeutic advance in the treatment of OCD. Beginning with the demonstration that fluvoxamine (an SSRI) can reduce symptoms in a substantial fraction of patients<sup>12,13</sup> and is superior to tricyclic antidepressants other than clomipramine,<sup>14</sup> numerous studies have shown that SSRIs are effective pharmacotherapy for many patients. Because of their more benign side effect profile, SSRIs are now considered first-line pharmacotherapy for OCD. However, clomipramine continues to be used widely but generally is reserved for monotherapy after SSRI trial failures.

The use of SSRIs and clomipramine in the treatment of OCD differs from the treatment of depression and other anxiety disorders in two important ways. First, higher doses of serotonin reuptake inhibitor medications are typically required before clinical improvement is seen. Second, improvement in OCD tends to be gradual, and an adequate medication trial is at least 10–12 weeks in duration and thus, may take quite a while to obtain results.<sup>15</sup>

There are also several other pharmacologic augmentation strategies for treatment-resistant OCD whose efficacy has not yet been clearly demonstrated. In particular, specific agents with adequate safety profiles and preliminary evidence of OCD symptom reduction include ketamine,<sup>16</sup> riluzole,<sup>17</sup> N-acetylcysteine,<sup>18</sup> memantine,<sup>19</sup> lamotrigine,<sup>20</sup> celecoxib<sup>21</sup> and ondansetron.<sup>22</sup> There is also interest in using nutritional products such as glycine or milk thistle,<sup>23</sup> although there is insufficient evidence to support the routine use of these agents in treating OCD.

Benzodiazepines are effective for the short-term treatment of anxiety disorders,<sup>24</sup> but have limited efficacy in OCD. Clinical trials have not demonstrated a benefit of concomitant benzodiazepine and SSRI pharmacotherapy specifically for OCD and current evidence does not support long-term benefits for improving OCD symptoms.<sup>25</sup> Benzodiazepines are commonly used early on to acutely control distressing anxiety and insomnia before the benefits of SSRIs or cognitive behavioral therapy (CBT) take effect.<sup>26</sup> However, given the significant risk of physiologic dependence and lack of clear long-term benefit, benzodiazepines should be used with restraint, monitored very closely and for a limited duration in OCD patients.

Lastly, there have been developments in using deep-brain stimulation (DBS), which was initially piloted for the relief of movement disorders such as those found in Parkinson's Disease and now includes neuropsychiatric disorders. This procedure involves the surgical implantation of electrodes and the introduction of targeted electrical stimulation to specific brain regions. In OCD, that target currently is the anterior limb of the internal capsule/nucleus accumbens or the thalamus/subthalamic nucleus.<sup>27</sup> Crossover trials comparing OCD symptomatology and severity when the implanted electrodes are turned on compared with when they off demonstrate significant efficacy (>35% reduction in symptom severity) of DBS for both brain regions.<sup>27</sup> Recent studies have further refined the brain regions of interest, improving treatment outcomes.<sup>28</sup>

## Osteopathic Approach

Osteopathic medicine was founded in 1874 by Andrew Taylor Still, MD, DO. Central to his philosophy and creation of osteopathic medicine, the goal of OMT is to provide patients with the tools they need to restore and maintain their natural, self-healing state.

The four major tenets of the osteopathic medicine are:<sup>30</sup>

1. *The body is completely united; moreover, the person is a fully integrated being of body, mind and spirit.* Because of this, any alterations in any part of the system, including an individual's mental and spiritual health, affect the function of the body as a whole.<sup>29,30</sup>
2. *The body is capable of self-regulation, self-healing and health maintenance.* Health is the natural state of the body, and the body possesses self-regulatory mechanisms that it uses to heal itself from injury. OMT's function is to restore the body's self-healing ability.<sup>29,30</sup>
3. *Structure and function are reciprocally related.* The structure of a body part governs its function, and thus abnormal structure manifests as dysfunction. The function also governs structure. In addition, if the body's overall structure is suboptimal, its functioning and capacity for self-healing will be inhibited as well.<sup>29,30</sup>
4. *Rational treatment is based on an understanding of these three principles.* These basic osteopathic tenets permeate all aspects of health maintenance and disease prevention and treatment. The osteopathic physician examines, diagnoses and treats patients according to these principles.<sup>29,30</sup>

Along with these tenets there are five main models to which osteopathic physicians adhere:

1. Respiratory-Circulatory
2. Neurologic
3. Biomechanical
4. Metabolic-Nutritional
5. Biopsychosocial

The model discussed most often with regards to the treatment of OCD is the Biopsychosocial Model. This model addresses the psychological and social components of a patient's health, as stress is a well-known contributor to illness. Treatment goals include optimizing the psychological and social components of a patient's health. Irritability, tension, anxiety, difficulty concentrating, diminished interest, feeling overwhelmed and sleep disturbances are all common in those suffering from mental dysfunction—including OCD.<sup>31,32</sup> It is important to note that stress and how OCD patients handle their condition will affect all five models, but we will focus our next discussion on treating OCD using the Biopsychosocial Model.

## Treating OCD Using the Biopsychosocial Model

The application of the Biopsychosocial Model is knowledge-based and skill-based. In this model, the physician is trained to acquire knowledge and learn interviewing skills that allow the physician to inquire about other potential influences (e.g., psychological, social and environmental) that may impact the understanding and treatment of the disordered state. The skill and effectiveness of the physician's interviewing style allows for a unique partnership to be established between physician and patient. This relationship is extremely important in OCD treatment because typically long delays in diagnosis often occur and the shame associated with the disorder may inhibit people from mentioning the symptoms.<sup>33</sup>

OCD is a neurologically-based illness with emotional, mental and behavioral symptoms. As OCD is often covert in presentation, diagnosis requires more vigilance than other common psychiatric disorders. It is because a person suffering from OCD may feel a sense of shame or embarrassment and their symptoms may go un- or under-reported. Thus, primary care physicians can greatly benefit their patients by screening more actively for this disorder. Once the correct diagnosis is made, education and treatment interventions can greatly enhance the quality of life for individuals with OCD.<sup>34</sup>

With regards to screening, The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) is considered the gold standard assessment tool for OCD symptom severity and possesses good psychometric properties.<sup>35</sup> The Y-BOCS has good internal consistency, interrater reliability and test-retest reliability over two weeks.<sup>36</sup> Additionally, the Y-BOCS demonstrates good convergent validity with clinician-rated measures of OCD impairment and self-reported obsessive-compulsive symptoms.<sup>36</sup> Furthermore, the Y-BOCS score has demonstrated sensitivity to both pharmacologic and evidence-based psychotherapy treatments.<sup>37</sup>

More attention should be placed on health promotion and disease prevention by providing adequate time to educate patients about their diseases, including symptomatology and manifestations, treatment plan, and the assurance of the physician's assistance. This proactive approach leads to a healthier lifestyle for the patient but demands more time from the physician.<sup>38,39</sup> Also, an essential component of treatment for OCD is to reassure the patient that they have a disorder and that they are not "at fault" for these behaviors.<sup>34</sup> After all, negative self-appraisals of intrusive thoughts are the most central symptoms in OCD and they uniquely predict co-occurring symptoms of anxiety and depression, suggesting that these symptoms should be prioritized in theory and treatment of OCD.<sup>40</sup>

The patient may have other influences contributing to the disordered state. A major part of the Biopsychosocial Model is placing more attention on nonorganic factors, such as psychological, social and spiritual factors. Moreover, with OCD, one must dedicate ample time to determining life stressors and evaluating as many social risk factors as possible.<sup>40,41</sup> This is especially important with mental health disorders such as OCD because the effects of different stressors must be thoroughly assessed and considered.<sup>41</sup> If these other factors are not accounted for, then the treatment plan may fail.

In OCD one cannot solely rely on medications, but also must spend time deciphering what drives the patient's obsessions or compulsions. This is because often, OCD symptoms are exacerbated by psychosocial stressors, which may serve as a modifiable aspect of treatment.<sup>41</sup> Thus, CBT and, if needed, SSRIs, in combination are the true first-line therapy for OCD because it provides a synergistic approach of medication, life discussions and habit training.<sup>42</sup>

### The Role of Osteopathic Manipulative Treatment in Treating OCD

Because of the inseparability of physical and mental health, osteopathic medicine offers an effective method for treatment of these issues through OMT.

The diagnosis and treatment of somatic dysfunctions provide the practitioner with a system of clinical problem-solving that provides an opportunity to approach the patient holistically. At every level of the central nervous system, the neurophysiology of somatic dysfunction inseparably links viscera, soma and psyche through complex visceros-somatic, somato-visceral, somato-psychological and psycho-somatic feedback relationships. One component of these complex relations cannot become problematic without impacting the others, and treatment of any one aspect is not complete without consideration of the others.<sup>43-45</sup>

The term *psycho-somatic* refers to the interaction between the psyche (mind) and the soma (body). More properly referred to as "psychophysiological disorders," this group of disorders presents primarily as physical conditions that are affected by emotional factors (OCD included). They typically involve a single organ system and are usually associated with increased activity of the autonomic nervous system.<sup>45,46</sup>

The psycho-somatic pathway can be explained neuro-physiologically through segmental facilitation. This is found in association with spinal somatic dysfunction. Many psychological conditions cause increased cortical activity, which focuses on neurological impulses to specific spinal levels, causing dysfunction.<sup>43,44</sup> This produces segmental hypersensitivity to nociceptive stimuli, which in turn results in increased cortical awareness of structures, somatic and/or visceral, innervated by the facilitated segment.<sup>44</sup> It also explains of how emotional distress (from OCD), acting through descending pathways, can be directed by the facilitated segment to result in gastrointestinal hypermotility or bronchospasm.<sup>43,44,47</sup>

The converse, a somato-psychological pathway, is shown when an individual experiences physical discomfort, along with an accompanying psychological response. Pain is transmitted to the central nervous system by nociceptive neurons. This results in segmental facilitation, and impulses continue up the spinal cord, through the limbic system, where emotional associations can be made, eventually reaching cortical awareness.<sup>47</sup>

OMT has also been recommended to reduce stress-related musculoskeletal tension and sympathetic hyperactivity found in association with most psychiatric illnesses, including schizophrenia,<sup>48</sup> depression,<sup>49,50</sup> anxiety (including OCD)<sup>49,50</sup> and somatoform disorders.<sup>49,50</sup> It is important to point out that OMT

has been recommended as an appropriate procedure for all age groups, including children and the elderly.<sup>50</sup>

Osteopathic medicine has always considered the integration of psyche and soma, just as it has soma and viscera, as part of its theory and practice. Thus, physicians who incorporate OMT into their practice will be able to aid in treating patients with psychopathology (including OCD) as somatic, visceral and psychological dysfunctions are inseparable.<sup>45</sup>

### Osteopathic Manipulative Treatment Protocol in Treating OCD

There are currently no studies done on the effectiveness of an OMT protocol for treating OCD. However, there is literature showing the effectiveness of OMT as a treatment for anxiety.<sup>51-52</sup> It should be noted that there is a debate about whether OCD is appropriately classified as an anxiety disorder or if OCD deserves its own category of disorder. However, according to the American Psychiatric Association, OCD is still considered an anxiety disorder.<sup>53</sup> Whether or not OCD has distinct neurobiology has yet to be fully proven; but it is highly responsive to psychological treatments that involve cognitive and behavioral modification of anxiety symptoms and thus, it is typically considered an anxiety disorder.<sup>33</sup>

First, in OMT, the physician will inspect the area of interest. Second, the physician will palpate certain areas of interest to test for somatic dysfunction and restriction<sup>54</sup> that are seen in Table 1.

TABLE 1.

Areas of interest to test for somatic dysfunction in the OCD patient

CRANIAL	DIAPHRAGMS	JUNCTIONS
<ul style="list-style-type: none"> <li>• Vault</li> <li>• Face TMJ</li> </ul>	<ul style="list-style-type: none"> <li>• Tentorium Cerebelli</li> <li>• Thoracic Outlet</li> <li>• Respiratory</li> <li>• Pelvic</li> </ul>	<ul style="list-style-type: none"> <li>• Occipito-Atlantal (OA)</li> <li>• Cervical-Thoracic</li> <li>• Thoracic-Lumbar</li> <li>• Lumbar-Sacral</li> </ul>
OA Joint	Autonomic Connections	Cervical and Thoracic Spine
Core Link between Sacrum and Occiput	Hyoid Bone	Ribs

After diagnosing the patient, OMT techniques are performed to address the dysfunctions. The top four techniques (denoted with an asterisk \*) in Table 2 should be performed on every OCD patient.<sup>54</sup> These techniques are considered to be the "high yield" techniques for anxiety disorders. Other suggested techniques that are used in anxiety disorder treatments are listed in Table 2.<sup>51</sup> It is important to be aware that for all of these techniques, the contraindications are all the same—avoid using the techniques if there is acute regional pathology.

The sample protocol outlined here is a combination of OMT techniques used for anxiety disorders as well as how to perform them. Clinical pearl: it is imperative that the physician allows the somatic dysfunctions to guide the treatment and not the converse.

TABLE 2.

OMT techniques to use when treating the OCD patient

TECHNIQUE	BASIC STEPS
OA Articulatory*	Stabilize the atlantoaxial joint (AA) joint such that it is not being affected in this treatment. Position hands to be able to feel the OA junction and then mobilize OA gently to free it.
Hyoid Evaluation and Treatment*	Stabilize hyoid bone and gently, rhythmically move it back and forth until the release of the fascial restrictions nearby.
TMJ: Fascial Unwinding*	Stabilize the outside of the jaw and place thumbs inside of the mouth. Keep thumbs near the molar teeth and grasp them firmly, but not too tightly as to introduce an extra vector. Allow jaw to glide into its freedoms and follow it throughout.
Costo-Chondro-Sternal Release*	Patient is supine. The physician places one hand on the sternum and the cervical-thoracic (C-T) junction. Assess the patient's freedoms in the three cardinal planes by moving the anterior or top hand in the following directions: superior/inferior, left/right and clockwise/counterclockwise. Next, place the top hand in a position such that it engages all three freedoms ("stack the freedoms") and the lower hand on the C-T junction should be doing the opposite motions — hold until a release is felt.
Sub-occipital Release	Patient is supine. The physician places fingers in the patient's suboccipital area. Apply gentle lateral and superior traction by pushing elbows together and tractioning superiorly.
Spencer's Technique	Patient is in a lateral recumbent position so that one shoulder is facing up at a time while stabilizing the scapula. Each step is repeated seven times. Step 1 (Extension): Take shoulder and extend (elbow bent) to the end of the range of motion (ROM). Step 2 (Flexion): Flex elbow straight to the end of the ROM. Step 3 (Circumduction): With elbow bent, start with small circles and gradually get bigger going clockwise, then repeat going counterclockwise. Step 4 (Circumduction with traction): With elbow straight up to the ceiling, start with small circles and get gradually bigger going clockwise; then repeat going counterclockwise. Step 5 (Abduction): Bend elbow and patient holds the physician's forearm creating a fulcrum — then abduct into the barrier. Step 6 (Adduction): Same hold as an abduction but adduct instead. Step 7 (Internal rotation): Have arm bent and behind the patient. Use the elbow as a fulcrum and gently pull towards the physician (anteriorly). Step 8 (Abduction with traction): Put the patient's hand on the physician's shoulder, hold the proximal upper extremity around the rotator cuff with both of the physicians' hands, lean back and gently stretch the scapula.
Cervical Spine Myofascial Release	Direct or Indirect Technique: palpate to make a good purchase of the patient's cervical fascia. Move the fascia into either the position of restriction or ease and hold until a release is felt.
Lumbar Spine Muscle Energy	Patient is supine and the physician brings lumbar spinal muscles to the edge of the restrictive barrier. Next, the patient is asked to move towards their direction of freedom while the physician applies an isometric force for 3–5 seconds. The patient relaxes for 3–5 seconds and then the patient is brought further into their restrictive barrier. Repeat three times and perform a passive stretch into the restrictive barrier at the end of treatment.
Sacral Muscle Energy	Patient is supine and the physician brings the sacrum to the edge of the restrictive barrier. Next, the patient is asked to move towards their direction of freedom while the physician applies an isometric force for 3–5 seconds. The patient relaxes for 3–5 seconds and the patient is brought further into their restrictive barrier. Repeat three times and perform a passive stretch into the restrictive barrier at the end of treatment.

\*Denotes the four techniques that should be done on every OCD patient.

## OMT EFFECTS ON OCD STUDY DESIGN

A possible cohort study looking at the effects of OMT on OCD may be conducted by dividing participants into three groups. One group is treated with SSRIs alone, another with SSRI and OMT and the last group with SSRI and a sham OMT (performed by a PhD/ non-healthcare professional or student). The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), as discussed previously, would be used to measure the patient's OCD severity scores at three different time points: pre-treatment, three months into treatment and six months into treatment. A repeated-measures ANOVA could be used to analyze statistical differences between the time points. The comparison of these results would give an interesting perspective regarding the treatment of OCD patients with OMT.

In addition, a qualitative component to our study design could be interjected by monitoring the participants for irritability, tension, anxiety, difficulty concentrating, diminished interest, feeling overwhelmed and sleep disturbances that they felt throughout the treatment course at those same three time points.

## CONCLUSION

OCD is a chronic and severe psychiatric disorder that is often incapacitating when left untreated. Patients suffering from OCD often attempt to hide their symptoms due to the embarrassing or disturbing content of their thoughts. Many individuals isolate themselves because of their symptoms and avoid their exposure to potentially anxiety-provoking situations. Unfortunately, because of this, there is often a long delay between the time when an individual develops OCD symptoms and when they first obtain treatment.

Early diagnosis and treatment minimize symptom severity and level of disability. Thus, the better the connection that a physician and patient has, the more likely the patient will come in earlier with their concerns. Ultimately, if treated correctly, the more likely it is that the patient will have positive results. Lastly, it is crucial to note that OMT can have immense effects on the somato-visceral and somato-psychological pathways and should be considered as an aid in the treatment of OCD.

## ACKNOWLEDGMENTS

The authors would like to thank Glenn Kalash, DO (from Nassau University Medical Center), who is board certified in Psychiatry, Forensic Psychiatry, Psychosomatic Medicine and Brain Injury Medicine for his input and correspondence throughout this project.

## AUTHOR DISCLOSURES

No relevant financial affiliations or conflicts of interest.

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