Incorporating the Four Tenets into the Osteopathic Clinical Approach: A Narrative Review

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No funding was received for this article.
Dr. Ching is Editor-in-Chief of the American Academy of Osteopathy(AAO) Journal; Otherwise, the authors report no financial disclosures or conflicts of interest.

Abstract

The Four Tenets of Osteopathic Medicine are taught in the first year of medical school but not often consciously discussed or incorporated into clinical practice. This article reviews research into psychological and physical interconnections, how the patient's self-healing capacities may be viewed, and the theoretical background and application of the structure-function relationship. Regarding rational treatment, the fourth tenet, biopsychosocial and other healing approaches are explored in the context of osteopathic manipulative medicine. Two patient cases are discussed in order to illustrate how these concepts may apply for patients.

Introduction

The four tenets of osteopathic medicine are taught in every osteopathic medical school, usually in the first year of training. They derive from a statement of the faculty of the Kirksville College of Osteopathy and Surgery in 1953 and were modified in 1997 to its present form.[1] The tenets are: 1) the body is a unit and the person is a unit of mind, body, and spirit; 2) the body is capable of self-regulation, self-healing, and health maintenance; 3) structure and function are reciprocally interrelated; and 4) rational treatment is based on an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function.[1] Once the tenets are introduced, they are often not explicitly referenced in Osteopathic Manipulative Medicine (OMM) courses or in the rest of the medical curriculum. However, they may still be expressed in clinical practice: a survey of 2,793 patients that found that patients of DOs related their experience of the tenets in a clinical visit with their experience of empathy and satisfaction.[2] This raises the question of how the four tenets may be expressed through Osteopathic Manipulative Techniques (OMT), which are the physical manipulative techniques, and the osteopathic clinical approach.

The OMM encounter in either the clinic or hospital can affect the patient on multiple levels of the body, mind, and spirit. OMT may provide physical and physiological changes in addition to psychological benefits such as influencing the patient's perception and narrative of pain. In this paper, selected research and narrative cases in the outpatient and inpatient settings are reviewed to provide examples of how an OMM visit can incorporate the osteopathic tenets.

Clinical Summary: Incorporating the Tenets

The Unity of Mind, Body, and Spirit

Osteopathic medicine encourages consideration of the whole patient to find the restrictions to healing and acknowledges that these systems work together. Restrictions that do not allow healing can be physical, psychological, emotional, spiritual, and social. Properly applied OMT can reset the patient's tensegrity system, which is how the body can be efficiently moved through the earth's gravitational field by distributing force through soft tissue in addition to the bony struts.[3] For example, treatment to a dysfunctional fibular head to restore ideal motion will decrease energy expenditure and balance forces throughout the lower extremity and the body. This often contributes to a sense of "feeling taller and lighter" after treatment, where the body is better able to distribute gravitational forces, and psychological lightness. Levine presents the neurological rationale for this:

> Bottom-up processing is more potent than top-down processing in altering our basic perceptions of the world. This potency derives from the fact that we are first and foremost *motor creatures*. *Secondarily*, we employ and engage our observing/perceiving/thinking minds. We think because we are, rather than existing because we think.[4(p281)]

Although we usually think of the intellectual and emotional overlay as being primary in driving our perception of the world, Levine and other researchers emphasize that the physical sensations of our body tend to drive our emotional experience.

As described in the Osteopathic Five Models systems, OMT works primarily through the musculoskeletal system to affect the neurological, respiratory-circulatory, metabolic-energetic, and behavioral systems.[1] For example, Gyer reviews research regarding how spinal manipulation affects the autonomic nervous system, neuroendocrine system, and descending pain pathways.[5] Research indicates that OMT influences heart rate variability and other autonomic measures,[6-8] an important measure of physiologic resilience.

From the earliest days of osteopathy, Still and other osteopaths treated psychological and psychiatric conditions through OMM, especially demonstrated in the Still-Hildreth Sanatorium in Macon, MO.[9-11] Floyd E. Dunn, DO, two-time president of what is now the American College of Osteopathic Neurologists and Psychiatrists, wrote several papers on his experience of treating psychiatric patients. He wrote, "Psychiatrists in the osteopathic profession have always held to an osteopathic approach to both etiology and therapy in these psychoneuroses. Lesion pathology, it is believed, determines the organ or avenue through which the personality will find somatic expression for unresolved conflicts."[12] There were several reports of osteopathic structural findings at the Still-Hildreth Sanatorium.[12-14] A more recent study by Iwata et al reported the osteopathic structural findings for 60 neuropsychiatric patients at the Chicago Osteopathic Hospital.[15]

Multiple approaches have been developed to work with the psyche and body in OMM. Upledger,[16] Barral,[17] and Huzij[18] are examples of some osteopathic authors that have described a systematic approach to somatoemotional or psychosomatic problems. Little discussed how psychological patterns may be expressed by and treated through the musculoskeletal system, specifically myofascial.[19] Tozzi described how treating the fascial system may affect the patient's psychology.[20] Sampath, Katare, and Tumilty reviewed how the neurophysiological model of OMM can explain effects at multiple levels of the central nervous system, as well as the "dual axes"[21] of hypothalamic-pituitary-adrenal and hypothalamic-pituitary-genital, which can affect inflammation and pain tolerance, among other effects. Reeves included OMT as an adjunctive treatment for PTSD in returning veterans.[22] Collebrusco et al developed a protocol for treating PTSD with OMT.[23,24] Liem and Neuhuber developed another approach for osteopathically treating psychoemotional trauma.[25]

There have been multiple studies examining the relationship between OMT and reducing anxiety,[26-28] anxiety and depression,[29,30] depression,[31,32] and ADHD symptoms[33] with mixed results. A systematic review was published by Williams, et al, showing small improvements in psychological symptoms after spinal manipulation; they speculate that there may be psychological effects in decreasing the patient's pain with manipulation, such as reducing distress and fear.[34]

Addressing spiritual concerns in a clinic visit may occur because of patients' distress or sadness about disease processes, or through discussion of physical findings with an emotional component.[16,17] Culver and Kell report about their experience of incorporating spiritual concerns into a pain management treatment plan.[35] They used a questionnaire to inquire about their patients' religious and spiritual beliefs. They define "religious" as relating to the practice of a particular religion, whereas "spiritual" refers to the exploration of general existential questions, such as, "What is the purpose of human life?" In their article, they note that, "Spiritual concerns, spiritual distress, and spiritual despair can have as great an influence on treatment success as physical or mental concerns, distress, and despair."[35,p59] For physicians, being able to have such a dialogue can be important for an open discussion. In *Foundations of Osteopathic Medicine*, 4th edition, Fernandez-Sweeney and Rogers discuss characteristics that encourage such a therapeutic relationship.[36] OMM may affect the mind and spirit through the body but also the body through the mind and spirit, as predicated in this tenet.

The Body is Capable of Self-Regulation, Self-Healing, and Health Maintenance

In the osteopathic medical approach, the body has the inherent capacity for self-healing but there may be obstacles in the way: the osteopathic physician's job is to help identify and ameliorate the obstacles to the full expression of health. An important sub-text in osteopathy is to work with the patient's health and function, rather than try to impose an external force that osteopathic physicians think will fix the problem. Fred Mitchell Jr., DO, describes this approach in the following terms:

> This osteopathic bias can be expressed as a system of values that regards mobilization of the patient's intrinsic resources to improve health as more important than too great reliance on the extrinsic resources of the health care system.[37(p24)]

Mitchell's description of the bias was likely referring to the mobilization of the patient's physiological, psychological, and emotional resources to improve health. This could be done through using OMT to influence physiological health and a holistic, patient-centered approach to engage psychological and emotional resources. An aspect of altering the patient's psychological and emotional resources is offering a different interpretation of symptoms and physical findings that limit catastrophizing and improve functional adaptation and psychological flexibility.[38]

Another way of interpreting osteopathic treatment is to allow health to be expressed by the patient's body by reducing the obstructions from health. Dr. Edward G. Stiles' Area of Greatest Restriction screen is an example of identifying significant restrictions and optimizing physiologic health with OMT.[39,40] This can compliment the osteopathic tenet of self-healing if the physician's aim is to focus treatment on the barriers to function. By addressing these primary restrictions, the body has the opportunity to address the remaining secondary limitations.

Structure and Function are Reciprocally Interrelated

In Western medical practice today, much emphasis is placed on the importance of biochemistry, in the forms of labs and medications. If there are physical problems, they are often relegated to surgery or physical therapy. The opportunity to address neuromusculoskeletal integration of the body is underutilized: this refers to how the neurological and musculoskeletal systems are integrated with each other and also with every other system in the body. As I.M. Korr, PhD, emphasized, a skilled osteopath will be able to ascertain the functioning of systems of the body through palpation of the tissues at anatomically important locations.[41] This osteopath would be able to influence the body's functions in terms of physical mechanics and also the neurological, vascular, and lymphatic systems.[42] This, in turn, will influence the body's biochemistry. Carl P. McConnell, DO, discussed osteopathic etiology: "First, structure determines function; secondly, natural chemical immunity is dependent on structural intactness; and thirdly, operative adjustment will set structure aright."[43] In other words, the body's structural integrity impacts how well it functions: biochemistry and structural integrity are interconnected. If the structural integrity is re-established, then normal biochemistry will be re-established.

Through working with the body's neuromusculoskeletal integration, OMT can impact both structure and function. For example, using the respiratory-circulatory model, one can use lymphatic OMT techniques to decrease inflammatory-mediated pain.[44,45] The analysis of a large patient database demonstrated that OMT for low back pain is more helpful than patient-centered care.[46] For patients treated by DOs, patients with low back pain had more improvements in low back pain intensity, back pain disability, and the pain impact score than those treated by MDs and were treated more often with OMT.[47] Additionally, Moustafa and Diab found that upper cervical manipulation, affecting structure, was associated with statistically significant differences in Beck Depression Inventory, Beck Anxiety Inventory, and pain catastrophizing.[48]

Rational Treatment

Rational treatment of a patient should include consideration of the factors involved in the patient's problems and the best ways to affect them. For example, in patients with chronic pain, both physical and biopsychosocial management should be considered. Multiple authors have considered integrating osteopathic and biopsychosocial management.[49-57] Carnes, Mars, Plunkett, Nanke, and Abbey conducted a study in the United Kingdom, which integrated cognitive behavioral therapy and osteopathic manipulation in 147 patients with chronic pain.[51] These subjects reported this program improved pain, mood, coping abilities, and psychological flexibility.[51]

There have been other attempts from various fields to examine how healing occurs. From an anthropological perspective, Thomas J Csordas, PhD developed a framework for describing the process of healing. This includes: 1) encouraging a predisposition for healing by which the patient can be persuaded that healing is possible, 2) the empowerment of the patient through a therapeutic application, and 3) transformation of the patient's experience.[58] This paradigm can also be applied to healing in osteopathic medicine. Ted J Kaptchuk, OMD expanded this framework to a comparison of Navajo (Dineh) healing, acupuncture, and biomedical (Western) medical approaches.[59]

The structure and timing of an OMM visit also has implications for patient outcomes. In the OMM clinic, half an hour to hour-long visits help to create space for meaningful interaction, to create the "therapeutic bias" that Kaptchuk describes.[59] Seeing patients with chronic conditions on a regular basis creates longitudinal relationships. The physician can encourage different ways of social interaction outside of the clinic visit and may also provide a nonjudgmental touchstone, or reference point, for the patient.

Patient empowerment and narrative flexibility are parts of biopsychosocial management,[52] which Csordas[58] and Kaptchuk[59] also describe. An example of how patient empowerment and narrative change can occur with OMT is through using the Muscle Energy Technique (MET). This is an approach that positions a dysfunction region at a restrictive barrier and then has the patient push towards ease for 3-5 seconds and then relax. The practitioner repositions the region to the new barrier and then has the patient push towards ease again, and repeats this process several times, until the dysfunction is significantly improved. Mitchell describes the psychological effects of this technique:

> One of the important issues in the doctor/patient relationship concerns power and autonomy. Empowerment of the patient is a basic tenet of the osteopathic philosophy. One powerful psychological effect resulting from the use of MET derives from the patient's recognition that he is using his own muscles in a collaborative treatment effort. This helps to increase his autonomy and responsibility for corrective or preventative self-care.[37(p23-24)]

For someone who has been living with chronic pain and is afraid to do anything to provoke worse pain, their natural response is to avoid moving, which may paradoxically make the pain and inflammation worse. The muscle energy approach has the practitioner gently move the dysfunctional area until it almost starts hurting (also known as the "feather's edge of the barrier") and then has the patient engage their muscles in a small motion. This helps to physically correct the dysfunction and often improves pain and discomfort: it also changes the patient's narrative that movement often causes pain. Patients find that they can then move without pain and that they themselves are integral to this process of healing, thus directly encouraging the process of patient empowerment that Mitchell alludes to, and which Csordas[58] and Kaptchuk[59] describe in other healing paradigms.

As mentioned above, OMT can affect pain through easing of biomechanical restrictions, modulation of inflammation, and influencing the CNS modulation of pain, as well as its psychological effects. Bradford discusses how OMT for patients with emotional disorders may work on a physiological level, affecting the neurological system through touch.[60] As opposed to Mitchell, who describes muscle energy as a way for the patient to gain more empowerment,[37] Bradford mentions how the patient's passivity during treatment may be calming and allow the patient to explore the true roots of distress: both approaches may be true in different circumstances. Fryer describes how passive articulation may help the patient to feel supported even in a potentially painful situation.[53] Elkiss and Jerome review the psychological aspects of touch and the physiological results of affecting limbic, autonomic, musculoskeletal, neurological, endocrine, and immune systems.[61] There may also be a connection with interoceptive body awareness.[62]

In the hospital setting, Pomykala, McElhinney, Beck, and Carreiro conducted a questionnaire-based survey of 195 patients that investigated their subjective view of how OMT affected their hospital stay. Of the 160 respondents, 43% reported a decreased need for pain medications, 74% had a decrease in pain, 90% had decreased anxiety, 98% felt that OMT helped their overall comfort level, 94% felt that OMT was helpful in their recovery, and 98% would recommend it for other patients in the hospital.[63] This study showed that OMT can help with the inpatient experience as well as pain.

Through affecting the body's structure (anatomy) and function (physiology), the patient's mind and spirit can also be affected.[38,50-52,56] If the physician also consciously incorporates psychological approaches that encourage healing, the impact could go beyond simplistic manipulation and towards true healing. Two narrative case studies are included below to illustrate this osteopathic approach in the clinic and hospital settings. These are used with the permission of the patients.

Clinic Case Study

TD is a 50 year old female with psoriatic arthritis diagnosed in her forties who has been receiving OMM treatment for twenty years to address her chronic, decades-long pain. She has a medical history of diffuse joint pain that began during her early teenage years, including her shoulders, hands, fingers, hips, knees, and ankles. These complaints are described as daily pain and stiffness which last for several hours. She is currently under the care of a rheumatologist. She has had suboptimal relief with methotrexate, Enbrel, Cosentyx, Stelara, Xeljanz, and Remicade.

She works as a nurse and helps care for her children and grandchildren. She is grateful to be well enough to continue her work, but she has had to alter her schedule. Her muscle and joint pain no longer allow her to work 12-hour shifts but require limiting her shifts to 8 hours.

TD credits OMT with keeping her as active as she can be. She receives OMT treatments every 2-3 weeks and reports, "OMT has helped me manage my pain and symptoms to continue a full-time job and still enjoy hobbies and family activities." She feels this frequency of treatments help to "keep my body aligned and functioning at its best."

She feels that there is a connection between her physical and emotional health. Her emotions can exacerbate or ease her muscle and joint pain. If she is having a bad day or week, she can look forward to her next appointment. She states her reaction to stress improves after her treatments. She says, "It helps physically and emotionally. My stress level is lower when I leave after treatment." The time she spends with the physician allows for discussion on various topics, some medical and some conversational. Conversation plays a role in the success of OMM treatments: to her, OMM would be less effective without talking. "I love talking and interacting with my providers. They are great listeners and are very therapeutic. I always feel more relaxed after a treatment."

TD is able to live a fulfilling life, with her children, grandchildren, and work, which she credits to OMM. She remains active and hopeful that she will continue to do so in the future. OMM

plays a vital role in the improvement and stability of her physical and emotional health. If she had not found OMM, she believes, “I would feel hopeless at this point of my life.”

Hospital Case Study

RG is a 56-year-old male patient with paraplegia since 1989 due to lower thoracic fracture and spinal cord injury, with subsequent chronic recurrent wounds requiring multiple procedures. He was hospitalized in 2025 for acute on chronic osteomyelitis of the pelvis and sepsis. He had multiple surgical procedures, including the removal of the left femoral remnant and a thigh flap closure over a Stage IV left ischial pressure ulcer. After the sacral flap closure, he was required to lie flat for 6 weeks in a hospital bed to allow for healing. The OMM team was consulted to help with right upper extremity pain. He declined physical therapy because his strength was still intact.

On examination, the patient had multiple myofascial trigger points and rib dysfunctions. The chronic paraplegia affected his core stability and this caused altered diaphragm motion, leading to marked hypertrophy of the diaphragm and altered rib mechanics. To move his trunk required him to fire the diaphragm muscle, which also altered his scapulothoracic mechanics. Having to lie on his back for 6 weeks was psychologically difficult for him because he had been very active prior to this admission and worked as a mechanic. This forced loss of function took a significant psychological toll on a very independent and motivated person.

During his stay, he was treated with more direct OMT approaches, as the patient expressed better result and relief when he was more physically involved in the treatment. Muscle energy was very useful because it allowed the patient to be more involved in the treatment than passive techniques: this helped to engage the mind-body-spirit connection in our treatments.

He was visited by the OMM team 3-4 times per week, over multiple weeks. During this time, the patient started to direct treatment and become more motivated. He was better able to describe his sensations, such as a “miserable feeling” in his body because he wasn’t moving. He had great relief and immediate improvement in mood with lymphatic treatments.

Because the patient was necessarily immobile after his sacral flap surgery, the treatment was designed to improve his self-healing ability and use his motivation for autonomy. In this case, he was encouraged to use resistance bands for self-treatment of specific muscles, generally the shoulder girdle muscles. We adjusted positioning, such as placing a pillow lower on his shoulders to allow passive neck extension. This pillow positioning helped to correct tension headaches that were caused by watching a TV at the foot of the bed.

The patient completed his 6 weeks of supine recovery with preserved function through his shoulders and torso, other than some unavoidable atrophy of his arm muscles due to reduced use. He was prescribed a gradual and staged return to work due to protocols for his wound healing. In general, he was immensely thankful for the part that OMM played in his convalescence: he noted improved pain, mood, and level of autonomy at a time when he did not have much control. In his case, OMM was uniquely suited to provide him the best opportunity to heal himself.

Discussion

Incorporation of the four tenets into an osteopathic office visit or hospital stay has been demonstrated to make a difference for patients' experiences. The OMM encounter can affect the patient in multiple aspects of the body, mind, and spirit. OMT, in addition to having physiological benefits, can also have psychological ones, including changing the patient's experience and narrative about their pain.

There have already been attempts to standardize incorporating biopsychosocial approaches with osteopathic medicine. Individual physicians may use these approaches to help their patients. A large study in the United States could be designed to examine the impact of the effects of manipulation and biopsychosocial approaches on the patients' experiences of pain, such as the intensity of pain, quality of life, pain catastrophizing, and disability. The effects of the OMM visit, however, cannot be reduced to a simple physiological vs psychological duality: the healing effect occurs through a combination of both factors. A possible comparison group, therefore, may be one with patients who are treated only with medications through tele-health.

Conclusions

Osteopathic medical training and clinical practice in the United States may benefit from the more conscious inclusion of the four tenets and consideration of how relatively simple biopsychosocial interventions may contribute to patients' healing process.

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