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The implications of the body-mind-spirit osteopathic tenet: a discussion paper evaluating its clinical relevance in contemporary osteopathic care.

ABSTRACT
A current osteopathic tenet inherited from Native American principles involves viewing each person as a dynamic interaction of body-mind-spirit (BMS). Because of its traditional medicine heritage and current evidence-based approach, the osteopathic profession is, arguably, uniquely positioned to promote evidence-informed person-centered approaches that transcend improvements in pain and musculoskeletal function. It may be particularly relevant in the context of integrating the BMS tenet into osteopathic care according to the diversity of patients' values and sociocultural assumptions towards health, symptoms, and subsequent care, which range from the typical Western to complementary and alternative medicine perspectives. There is currently a lack of robust clinical practice frameworks in this area, confusing patients and practitioners and blurring professional identities. The current commentary provides an opportunity to initiate discussions in the profession with a rationale for creating a roadmap to develop an evidence-informed framework for osteopathic care that integrates the BMS tenet.

MANUSCRIPT

Current osteopathic medicine tenets and principles for patient care were proposed by Rogers et al. [1] to guide effective treatment delivery. The osteopathic tenet that considers each individual a dynamic interaction of body-mind-spirit (BMS) comes from shamanic principles arising from A.T. Still's exposure to Native American healing practices [2]. With its traditional medicine heritage and current evidence-based approach [3], the osteopathic profession has a particular position within the Western medical environment.

To date, the proposed BMS integrative and dynamic view has no operational, clinical framework to guide osteopathic practitioners, despite descriptions from other healthcare providers [4, 5]. From a healthcare perspective, religious beliefs typically refer to belief in supernatural beings, as in traditional religious communities. In contrast, spiritual beliefs refer to individual and personalised beliefs about the transcendent or sacred, and they are often based on personal experience [6].

Incorporating the spiritual dimension into osteopathic scopes of practice and applying the BMS tenet for patients in specific clinical scenarios may foster more holistic, ethical, and compassionate care [7]. Arguably, the spiritual dimension, involved in processes such as cognitive reappraisal of the negative emotional impact of pain, may be considered a top-down, context-dependent form of analgesia [8]. The World Health Organization (WHO) recommendations for osteopathy training [3], the Osteopathic International Alliance's report on the status of the global osteopathic profession [9], and professional osteopathic practice standards [10] advocate person-centered interventions that also consider the spiritual domain. Despite these reported recommendations to improve overall patient health status, some

practitioners may reluctantly include the spiritual dimension with existing top-down coping strategies in Western patient care [11] since spirituality is part of traditional medicines and esoteric healing traditions [12]. This absence of guidelines for applying the BMS tenet and inability to describe possible osteopathic secular scenarios may lead to ethical concerns [10] and limit the evaluation of clinical values. The current commentary provides an opportunity to initiate profession-wide discussions to evaluate the practical and clinical relevance of this undefined BMS tenet in osteopathic care. According to the methodological steps required to develop and evaluate complex interventions [13], I propose a roadmap that incorporates a critical appraisal of current osteopathic care theoretical models to start this evaluation [14]. To clarify the rationale for such a task, I first discuss the need to explore patients' assumptions for health, symptoms, and subsequent care and to explore patients' expectations for osteopathic care and associated scopes of practice. Secondly, I will introduce the Cynefin and the predictive processing frameworks as available tools for practitioners to facilitate a secular use of the BMS tenet in clinical practice.

Tyreman [15] introduced the anthropology-ecological narrative to explicitly recognize two key aspects developed by the osteopathic profession: considering each human as an organism rather than mechanisms and placing the clinical focus for healthcare on a person rather than a disease. This approach may facilitate the understanding of diversity of beliefs in osteopathy regarding health, disease, function, and dysfunction for each person interacting with the environment. Understanding how different factors influence the representation and organization of cultural (i.e., socially learned) behaviors remains one of the central concerns of anthropology. Indeed, this diversity of beliefs may be important for patients seeking osteopathic care since the principles of this profession navigate between typical Western and complementary and alternative medicine (CAM) health assumptions [7].

Based on their Journal, sociocultural assumptions, patients may, therefore, have a different perception towards the 'spirit' component of the BMS tenet and a different emphasis for its relevance to maintain their own health status. According to WHO, "health is a state of complete physical, mental, and social wellbeing and not merely the absence of disease or infirmity" [16]. Conversely, wellness focuses on interrelated dimensions of individuals and can be characterized by emotional, mental, physical, and spiritual health [17]. Emotional health involves the sum of emotional states at any given time; mental health involves the ability to act on information, clarify values and beliefs, and exercise decision-making capacity; physical health involves increasing awareness and knowledge of nutrition and exercise, watching for signs of sickness, understanding recuperative abilities, and protecting oneself from accidents; and spiritual health involves satisfaction and confidence in personal spiritual beliefs and inner strength [17].

From a manual therapy perspective, the WHO detailed care that relies on manual contact for diagnosis and treatment and respects the relationship of BMS in health and disease [3] and in conservative management of the neuromusculoskeletal system, without use of medicines and surgery, where biopsychosocial predispositions and consequences are factors in patient management [18]. With a health emphasis on proper musculoskeletal system function to resist disease processes [3], osteopathic tenets and principles [1] embrace a philosophy of selfregulation that is at the core of CAM's anthropology [19], i.e., vis medicatrix naturae, which adopts a holistic approach to health, does not split a person into different components, and describes healthcare providers as facilitators of these natural healing processes [20]. From an anthropo-ecological perspective, individuals with chronic health ailments, like persistent pain

and physical symptoms, lose their sense of agency, and therefore, regaining agency is one of the aims of osteopathic care [15]. A BMS approach uses art and science to pursue optimal health rather than the absence of sickness [21].

Spirituality is defined as “the search for ultimate meaning, purpose and significance, concerning oneself, family, others, community, nature, and the sacred, expressed through beliefs, values, traditions and practices” [22]. Thus, spirituality can be expressed by formal religions, traditional faiths, or nonreligious elements. However, the ‘spirit’ component of the BMS clinical approach does not equate ‘spirituality’ in a secular Western medical environment, but rather ‘the spiritual dimension of healthcare’. In a systematic review of quantitative research, this spiritual dimension, i.e., a set of specific psycho-physiological aspects of each human being, was associated with positive physical and mental health, leading to increased quality of life and longevity [6].

In the clinical setting, including the spiritual dimension as a nonphysical factor with physical factors is common in traditional medicine and CAM because of its holistic approach to wellbeing and health [23]. In contrast to Western psychosocial care models, a BMS approach to health was developed as in the Eastern healing tradition, where the physical, emotional, and spiritual are inseparable yet distinct aspects of the same reality [5]. In Native American healing traditions, four elements impact wellbeing and must be balanced: context (family, culture, community, environment, history), mind (cognition, emotion, identity), body (physical needs, genetic makeup, practical needs, including financial needs), and spirit (spiritual practices and teachings, dreams, stories) [2]. Among these healing systems, concepts and definitions of wellness, health, and patient care may overlap.

One interesting note here comes from a First Nations Medicine woman that I recently interviewed before writing this paper. She said to me that Maslow's Hierarchy of human needs is right side up for Non Indigenous people but it is upside down for Indigenous people. She said this because they believe in healing the spiritual aspect before the “new house and finances”. This overlap seems more important in Western cultures dominated by a reductionist scientific biomedical approach to healthcare than in CAM traditions. Those sociocultural differences affect patients’ attitudes about healthcare and their ability to understand, manage, and cope with the course of an illness, the meaning of a diagnosis, and the consequences of medical treatment.

Further, patients and their families have culturespecific ideas and values related to health and illness concepts, reporting of symptoms, expectations for how healthcare will be delivered, and beliefs concerning medication and treatments. In addition, culture-specific values found in CAM, which are different from the dominant Western healthcare culture, influence patients’ roles and expectations and determine how much information about illness and treatment is desirable to orient processes for decision making [24]. Although similar holistic approaches exist in Western cultures, there is frequent confusion since tenets have been removed from the cultural context of their historical and geographical or ethnic setting and are often used without a full understanding of cultural or philosophical underpinnings, beliefs, and values [23]. It highlights the need to explore the BMS osteopathic tenet from a patient’s perspective for secular use in a Western clinical scenario (Table). A qualitative study evaluating patients’ perspectives about their osteopathic care experience reported a path of body awareness that started with seeking pain relief and ended with experiencing the unity of BMS [25]. The diversity of sociocultural health assumptions and values, ranging from Western to CAM

perspectives, may be associated with a diversity of anticipation about what will be encountered during osteopathic care and may evolve over time.

Patients' expectations should, therefore, be formally explored regarding the BMS osteopathic tenet. To plan a therapeutic intervention, practitioners should assess patient beliefs, expectations, and previous experiences of treatment since they can influence therapeutic outcome [26]. Beliefs, perceptions, and values related to physical health vary and influence social and therapeutic theories in the Western clinical setting [17]. According to health belief models, patients may interpret the value of manual therapies that achieve positive physical health outcomes and behaviors differently (Figure). Therefore, patient expectations of osteopathic care should be explored, including treatment and prevention of musculoskeletal (MSK)-related conditions [27], and nonspecific support for wellbeing and health (Table). Current evidence-based models for manual evaluation, diagnosis, and treatment are shaped by neuroscience and pain science [28, 29]. Therefore, practitioners from different professions may use the same manual approaches based on existing evidence.

This commonality is illustrated in current United Kingdom (UK) national guidance for noninvasive treatments for low back pain and sciatica, which specifies that manual therapies can be applied by osteopaths, chiropractors, or physiotherapists [30]. Osteopathic practitioners using a symptom-oriented approach likely have the same scope of practice and services as other professionals. McRae and Hancock [31] investigated how patients perceive five professional services provided by primary care physiotherapists: improved function (77%), pain relief (73%), prevention (71%), diagnosis information (41%), and education (38%) were rated highest for seeking physiotherapy care. The cornerstone of care for MSK pain is patient-centeredness, but it is often undervalued, underrecognized, undertrained, and less important than technical skills and knowledge [32]. Person-centered skills support effective communication when exploring sensitive psychological, social, and lifestyle issues; explaining health information in ways that make sense and do not alarm patients; and coaching patients to change behavior [32].

Osteopathy was an early adopter of person-centered care in Western medicine, and this care has been progressively incorporated into established medical fields [14]. Widespread use of the biopsychosocial model that spread from psychiatry to various health professions, all claiming a patient-centered approach to practice, challenges the defining feature of osteopathic care [33]. Recently, a biopsychosocial-spiritual approach to symptoms [34] explicitly included affective, behavioral, and cognitive spiritual dimensions to optimize the therapeutic alliance for MSK symptoms and function management [7], and it may refine patient-centered care and suggest a clinical application of the BMS osteopathic tenet (Table). Using the spiritual dimension as an existing top-down strategy to address patient purpose and meaning [34] is lacking in osteopathic care and limits the holistic approach for the patient–practitioner relationship [35]. Allbeit, practitioners who are crosstrained in various professions could likely be able to contribute more CAM approaches to their patients. This relationship involves mutual trust and respect, cultivation of faith and hope, and gratification of the patient's physical, emotional, and spiritual needs through the clinician's knowledge and skills [35]. These points have been well demonstrated in the recent COVID -19 Pandemic that resulted in thousands of deaths in many senior care homes where it has been already established that many of these victims simply died from neglect as a primary or at least a major contributing cause. The absence of CAM approaches limits the therapeutic alliance, which relies on empathy, trust, collaboration, agreement on treatment goals and strategies,

and patient-centered communication [36]. A recent systematic review found a lack of evidence of a strong relationship between the therapeutic alliance and MSK pain relief [37]. Although the biomedical aspect is highly valued in clinical research and practice, Taccolini Manzoni et al. [38] suggested that MSK care should include subjective factors, such as pain and emotional aspects, so outcomes are related to issues other than physical treatment.

Recently, a qualitative study investigated perceived nature, role, function, and value of the spiritual dimension in UK osteopathic practices, and three main themes were identified: practitioners' beliefs on holism from a CAM perspective (existence of physical and nonphysical interactions and self-healing processes), therapeutic relationship (practitioner self-awareness and sense of connectedness), and intuitive engagements (transpersonal connection through touch and intuition) [39]. A survey of American occupational therapists found the spiritual dimension was an important part of life for 89% of respondents, helped with daily job responsibilities for 79%, and was considered a very important dimension of health and rehabilitation by 84% [4]. However, 63% were undecided or disagreed that the spiritual dimension was within the scope of occupational therapy practice; this result may be attributed to education since 82% reported their academic training did not prepare them to address this need in clinical practice [4]. The findings from these studies [4, 39] have relevance for incorporating the spiritual dimension in a clinical framework. Unlike the chiropractic profession with its conflicting views about the scope of practice (evidence-based MSK management versus vitalistic approach [40]), the absence of clinical frameworks associated with the osteopathic BMS tenet has no impact on professional identity. It appears to be simply ignored despite its association with holism, which is a key feature of CAM, and highlights current concerns of a lack of clear scope for such practices to inform patients seeking osteopathic care.

Meeting specific expectations of patients given broad scopes of practice may be confusing for osteopathic practitioners defining themselves as holistic, person-centered, manual professionals who optimize, restore, and maintain a person's natural structure, function, and wellbeing [3, 41]. The United States (US) is the only country with two medical professions (allopathic and osteopathic) that incorporate hands-on approaches. Thus, US osteopathic physicians are fully licensed and practice the full scope of medicine. Outside the US, osteopaths struggle to define scope of practice since it varies depending on country regulations and definitions, e.g., MSK pain and function, persistent physical symptoms, nonphysical symptoms, and promotion of wellbeing or health [3]. In the UK, osteopaths are allied health professionals and can only advertise to treat conditions based on evidence associated with their treatments' efficacy, mostly for MSK-related conditions [42]. They are also required to refer patients when there is a limited or negative evidence base for osteopathy effectiveness [42]. In France, osteopathy is a professional title shared by medical and nonmedical healthcare professionals and by nonhealthcare professionals; they can only treat conditions based on manual palpatory findings associated with somatic dysfunctions, again a MSK-related scope of practice [43]. In countries where osteopathic professionals are not regulated, they can claim a wider scope of practice beyond MSK-related conditions, raising ethical concerns since these professionals are not regulated. Therefore, the role and applicability of the BMS tenet for osteopathic medicine [1] remains unclear for osteopathy outside the US despite inclusion in international documents [3]. While the usual scope of practice for osteopathic practitioners is MSK pain and function [44], research supports osteopathic care for complaints of non-MSK origin. Treatment of irritable bowel syndrome [45], lower urinary tract symptoms [46], pediatric conditions [47, 48], neonatology [49],

pneumonia [50], and gynecology and obstetrics issues [51] have been documented.

Osteopathic approaches for conditions associated with chronic inflammatory disease have also been reported [52], but results are inconsistent. Reductionist models for osteopathic practices, such as somatic dysfunction, may be a limiting factor for clinical encounters and associated scopes of practice [14]. Introducing evidence-based knowledge into osteopathic practices may better describe MSK and non MSK-related conditions. Palpatory findings associated with allostatic load [53, 54], the biopsychosocial model [55, 56], an interoceptive paradigm for manual therapy alone [57, 58] or combined with mindfulness-based approaches [57], the enactive approach to pain [59], and the predictive processing theory to symptoms perception [60, 61] have been discussed within osteopathic frameworks for practice. This adoption may foster contributing and collaborative perspectives toward mainstream healthcare [14] and enlarge the profession's scope of practice beyond MSK-related conditions. However, incorporating the same evidence used by all healthcare professionals may challenge our professional identity and the distinctiveness of osteopathic practitioners.

While osteopathic patients expect a better outcome from combined manual and nonmanual approaches than a manual approach alone, patients seeking symptomatic relief are more likely to expect manual than nonmanual approaches [27]. While meeting patient expectations for the osteopathic BMS tenet may benefit professional identity, clear sense-making for manual and nonmanual approaches must be evaluated and combined with existing evidence to delineate future scopes of osteopathic care (Table).

Tyreman [62] described health as a silent experience because patients have little awareness they are healthy until symptoms require attention. Patients may seek osteopathic care to promote health with or without physical symptoms [63]. Therefore, different types of approaches may coexist to help patients according to their beliefs, preferences, and expectations associated with their underlying sociocultural health assumptions (Figure). The interaction of different skills, knowledge, and professional values is complex but crucial for positive patient satisfaction and clinical outcomes. A recent questionnaire investigated decision-making processes when selecting different approaches for osteopathic care [64]. It was based on a theoretical model of three therapeutic approaches: the treater, communicator, or educator [64]. Tyreman [62] described complexity levels in osteopathic practice requiring different decision-making processes and therapeutic roles for practitioners and suggested a tool to manage this complexity. From a Welsh word for habitat, the Cynefin framework was designed for decision making in management but is applicable when uncertainty and complexity challenge insight, prediction, and decision [65, 66]. This framework is also useful for biology and medicine [67, 68]. Lunghi and Baroni [69] proposed a version of the Cynefin framework to inform the reasoning and decision-making processes in osteopathic care. Osteopathic manipulative techniques—passive approaches where minimalists use direct, indirect, or combined techniques on the body and maximalists use systemic, homeostatic-adaptogenic techniques on the impaired body system—may be combined with active approaches, such as lifestyle, exercise, nutritional advice, and top-down strategies (mindfulness, stress management) [69].

Person-centered osteopathic care that includes the spiritual dimension as another top-down strategy can be described in the Western secular context using this framework. The four domains of the Cynefin framework may illustrate current symptom or nonsymptom-based approaches in osteopathic care (Figure). In the simple and complicated domains, a symptom-based model drives the decision-making process for evaluation, diagnosis, and treatment;

and management strategies are usually selected from evidence and practitioner experience of similar clinical contexts. In the complex and chaotic domains, multiple considerations—narratives about individual meaning, purpose, and significance concerning self, family, proximities, community, nature, and the sacred expressed through beliefs, values, traditions, and practices—are usually incorporated during evaluation, diagnosis, and treatment. The Cynefin domains also highlight the difference in the sequence of practitioner actions. To identify the linear relation between cause and effect and deal with simple/complicated, potentially knowable situations, practitioners perceive, categorize or analyze, and respond. In complex scenarios, the relationship between cause and effect can be perceived only retrospectively; practitioners hypothesize, perceive, and respond with an emergent practice. In chaotic scenarios with unknowable and unpredictable conditions, where cause-effect relationships are unknown, the approach is to act, perceive, and respond to discover novel practice.

The inclusion of the spiritual dimension in this framework aims to better understand and balance patients' and practitioners' sociocultural health assumptions. Avoiding misinterpretation of patients' expectations by providing practitioners with different options from the four domains may foster a stronger therapeutic alliance through a person-centered approach. Because differing patient expectations and needs exist in osteopathic care, asking the right questions during shared decision making and expectation management appears crucial for practitioners (Table). To facilitate this process in pain management and research, Geurts et al. [70] suggested the use of validated questionnaires that incorporate different types of expectations as useful tools to ensure manageable answers from patients and discover genuine needs that should be incorporated into the pain treatment plan. In this scenario, the Figure is not meant as a model for osteopathic practice but to represent clinical complexity where the spiritual dimension may be introduced following evaluation of beliefs and expectations of patients and practitioners within different scopes of practice (Table).

According to long-held views in the field of cognitive science, the brain receives sensory stimuli, interprets them, and produces behavior in response like an input-output information processing system. However, current evidence indicates that what we perceive is a balance between top-down knowledge-based prediction and bottom-up incoming sensory evidence [71]. According to predictive processing (PP) theory, the brain is a homeostatic machine that makes Bayesian subpersonal statistical inferences [71] and functions as a hierarchical, multilevel predictive machine that anticipates distal causes of internal and external sensory stimuli and minimizes discrepancies between prediction and received stimuli [71, 72]. Perception is an active process with the brain predicting and testing hypotheses against incoming sensory evidence [73], where anticipation and action are two-way bidirectional inferences [73-75]. In the PP theory, the brain continually generates predictions about its environment and responds to prediction errors [76], which updates the generative model [71, 75]. The three brain networks that process bodily signals and shape bodily self-consciousness are firstperson perspective (experiences from which the individual perceives the world [exteroception]), self-location (experience of where the individual is in space [proprioception]), and self-identification with the body (experience of owning a body [interoception]) [76]. This processing and integration of multisensory bodily signals may have relevance for osteopathic practitioners since symptoms can be considered differently [61] and affect choice of manual or nonmanual procedures for patients [58]. Variations in bodily signals are also involved in health, since symptoms are not perceived if they remain within the

healthy body condition hypothesis [60], and may help patients and practitioners consider nonsymptomatic approaches in osteopathic care. Touch in manual therapy, aside from well-known exteroceptive and proprioceptive functions, may be explained by an interoceptive function based on interstitial myofascial tissue receptors and human C-tactile fibers [77]. The skin and myofascial system is the largest interoceptive generator [78], and sometimes variations in interoceptive inputs prompt the brain to mistakenly infer pain and, thus, feel pain [60]. Anxiety, fear, threat perception, and catastrophizing are emotional states that often accompany this disorder and may worsen symptoms through vigilance to predicted pain [60]. In chronic pain patients, the brain may unconsciously initiate sensations of pain, minimizing prediction errors to confirm input predictions to the detriment of subjective wellbeing [60]. Calsius et al. [78] suggested dysfunctional body awareness may contribute to psychosomatic disorders and medically unexplained symptoms; Ongaro and Kaptchuk [60] suggested it contributes to perception of persistent physical symptoms. Expanding evidence related to body awareness from the PP theory [61] may provide a rationale for expanding scope of practice beyond MSK pain and function (Figure). Body awareness is a key feature in normal functioning and general health and has components amenable to manual treatment [78].

One important aspect of an evidence-oriented framework in line with the BMS tenet is guiding practitioners with osteopathic manipulative techniques most likely to meet patient expectations. From descriptions of clinical findings for conditions associated with sensitization states, D'Alessandro et al. [58] proposed conceptual foundations for theoretical use of interoceptive networks to guide osteopathic practice. A more proprioceptive approach with techniques inducing joint motion (soft tissues, manipulations, mobilizations), a more interoceptive approach involving light touch without joint motion (cranial, visceral, myofascial techniques), or a combination of both could be used. Proposed osteopathic manipulative techniques, relying on involvement of the putative brain processing bodily signals, are meant as a theoretical construct to clarify the current commentary and start investigating the clinical value of the BMS osteopathic tenet (Table). Some osteopathic manipulative techniques require patients to lie down, relaxed with eyes closed, focusing on physical changes in their body during treatment. This environment may favor processes leading patients to meditative states [79, 80] and be associated with positive outcomes if an additional bottom-up approach is discussed, agreed upon, and expected from patients. Negative outcomes could occur if the approach is not discussed or part of the patient's belief system and expectations, possibly causing recall of psychological distress [79]. This intuitive and speculative approach is a starting point for robust assessment to guide practitioners and patients in their joint decision-making process of osteopathic care (Figure). These considerations are crucial and must be addressed for appropriate and ethical use of the osteopathic BMS tenet and for proper patient consent (Table). Combinations of top-down approaches with touch interventions may integrate immediate bodily experience with mindful self-awareness [80] and be used to investigate the spiritual dimension of the BMS osteopathic tenet (Table). Since brain interoceptive networks are connected to autonomic and emotional brain areas, those networks are the substrate for body awareness and affect normal or dysfunctional psychosomatic functioning [78].

Topdown therapies, such as clinical hypnosis, imagery, psychology, cognitive behavioral therapy, or meditation, shift cerebral function involving brain connectivity in structures regulating autonomic, neuroendocrine, and emotional behaviors [79]. Synergies of bottom-up and topdown strategies, i.e., touch and mindfulness-based approaches, have been proposed for treatment of people with depression, who usually have low bodily awareness, lack of trust

in the body, and a feeling of helpless exposure to bodily and sensorimotor reactions, such as muscle tension, shallow breathing, low energy, and exhaustion [80]. A care package combining osteopathy, secular mindfulness, and acceptance and commitment therapy known as the Osteopathy, Mindfulness and Acceptance-based Programme (OsteoMAP) was designed to maximize combined effects of these interventions [81]. The OsteoMAP pilot study showed this innovative combination of evidence-based treatments was feasible, beneficial, and well received [81]. Osteopathic care integrating top-down and bottom-up dynamics in diagnosis and treatment has been proposed for psychological distress associated with anxiety, depression, substance abuse, eating or personality disorders, and posttraumatic stress disorder [79].

A review by van Elk and Aleman [82] proposed a brain PP theory that accounts for mystical experiences, personal experiences of God, and acceptance and maintenance of religious beliefs. Their psycho-physiological perspective, which relies on bodily selfconsciousness dysfunctional patterns, may explain spiritual experiences caused by weighting of interoceptive over exteroceptive signals, changes in the interoceptive or exteroceptive error monitoring process, or individual differences in practice, brain structure and function, and development in relation to interoception [82]. Temporary changes in multisensory integration from altered self-referential processing may underlie treatment in traditional and shamanic healing practices [82]. It seems likely that A.T. Still was familiar with these practices from living with Native Americans [2].

A recent review explored the neural correlates of mindfulness-based approaches, touch, and interoception to identify neurophysiological evidence that clarifies potential mechanisms of manual therapy interventions that combine touch and mindfulness with patients' interoceptive outcomes [57]. Therefore, osteopathic care may be described as manual and nonmanual support for reappraisal of maladaptive beliefs and brain predictions in patients [83], and top-down therapies may provide a rationale for investigating ‘mind’ and ‘spirit’ components of the BMS osteopathic tenet in clinical practice (Table). Typically, Western practitioners do not include the spiritual dimension in clinical practice because of its ambiguous role and lack of appropriate evaluation tools but mostly because of theoretical and practical knowledge gaps [4]. Evaluating belief systems of patients in a biopsychosocial-spiritual model of osteopathic care [34] may be key for meaning and purpose for some patients since the spiritual dimension may not be considered an additional psychological construct [84]. Inclusion of the spiritual dimension in the biopsychosocial model for MSK care was proposed to patients because of its potential top-down influence on pain as a coping strategy for chronic or deadly conditions but required consent [7]. To build the therapeutic alliance [37], osteopathic practitioners should consider whether patient belief systems are a conscious part of their expectations [34]. In a phenomenographic study of low back pain patients, clinical interactions were considered very negative and disempowering or empowering and life changing [85]. To shift patients from passive receivers to autonomous agents required healthcare professionals to be present and patients to understand their pain experience [85]. Pain education, exercises, and mindfulness-based stress reduction activities (yoga, tai chi, progressive relaxation) are top-down and bottom-up therapeutic strategies for evidence-based chiropractic care of low back pain patients [86]. Similar combinations of manual approaches with meditation [79, 87], stress management [88], or mindfulness-based exercises [79, 89] may allow patients to become more involved in their integrated care.

LIMITATIONS AND FUTURE PERSPECTIVES

Because some in the osteopathic profession view each person as a dynamic integration of BMS, shifting perspective is challenging because this tenet is not defined or associated with a scientific rationale, clear osteopathic practices, and clinical interest for patients and practitioners. The purpose of the current commentary was to promote discussions within the profession for development of an evidence-informed framework for osteopathic care in line with the BMS tenet and enable practitioners to clarify scope of practice. This discussion paper has several limitations. The PP perspective was meant to facilitate understanding of clinical combinations of manual and nonmanual approaches, such as the spiritual dimension, in osteopathic care. However, perceptual inference—multisensory integration of exteroceptive, proprioceptive, and interoceptive inputs amenable to osteopathic care—may describe integrative approaches in line with the BMS osteopathic tenet but does not fully address perception-action coupling of dynamic social interactions. In those environments, perception and action need to work simultaneously since sensory events can originate from personal actions or others' actions [90]. A variety of activities and social interactions form and express each person's life, requiring adaptation to the ever-changing world [62]. More than the biomedical approach, the split of a person into different components probably expresses the Western dichotomy between an immaterial mind and a material body [59]. An artificial split, implied by the osteopathic BMS tenet, may be useful for educational and research purposes and for defining and revising scopes of practice to strengthen osteopathic professional identity. This view is probably restrictive as a model for osteopathic practice because it cannot include all possible clinical scenarios (Figure).

An enactive-based approach for persistent physical symptoms may be more suited to describe patients' ailments during interactions with their environment. Because enactivism suggests cognition arises through dynamic interaction between an acting organism and its environment [91], mental processes are embodied (brain and bodily structures and processes), embedded (functioning in a related external environment), enacted (neural processes and things the organism does), and extended (into the organism's environment) [92]. In the context of pain, Stilwell and Harman [59] consider pain a relational and emergent process of sense-making through a lived body that cannot be separated from world experiences. Similarly, de Haan [93] proposed mental health disorders, including those associated with persistent pain, are structurally disordered patterns of sense-making. According to enactivism, a biased individual's sense of the world (overly threatening or meaningless, or overly meaningful or chaotic) is associated with inappropriate sense-making or insufficient attunement to situations [93]. In this approach, osteopathic practitioners should focus not only on the person, but also on the individual's interaction with the environment as a single dynamical system [93-95]. Through enactivism, understanding complexity of clinical conditions requires practitioners to consider the complex and dynamic person-environment system, including the four critical dimensions related to physiological, existential, experiential, and sociocultural aspects [93]. The osteopathic BMS tenet may have a role in this complex and dynamic person-environment system. Using this within-person BMS tenet may be challenging but, in the absence of a robust scientific model to guide osteopathic care, the profession must rely on its tenets and principles. In the Western environment shaped by the biomedical model, the osteopathic profession remains the only one in the MSK field to explicitly claim each patient as a dynamic interaction of BMS. This distinctiveness should create a stronger professional identity even though some fear a merging of osteopathy with other MSK professions because of the similar evidence base, best care practices, and MSK scope of practice.

The osteopathic profession has a unique opportunity for the future, namely, promoting integrative care through its BMS tenet and incorporating manual approaches for symptom and nonsymptom-based treatments. The current missing part, i.e., the spiritual dimension, should be introduced in the clinical scenario for patients' existing top-down coping strategies to address purpose and meaning. This revolutionary movement around the BMS tenet, which turns our perspective back to A.T. Still's vision of osteopathy formed by observing Native American traditional healers and modern scientific concepts [2], is another opportunity to demonstrate to mainstream medicine the richness and variety of osteopathic care and its associated scopes of practice. Nonetheless, as pointed out by Tyreman [96], I hope the profession will adopt appropriate critical thinking toward A.T. Still's tenets and associated clinical practices while developing robust scientific models for practice. I am a very content Osteopathic practitioner when addressing the possibilities of CAM use because I have the priviledge of being crosstrained in many disciplines one of which is Recreation Therapy. I often resort to this when I detect that a patient seems to be down trodden with the hassles of life that cam sometimes overwhelm patients who have had unfortunate circumstances to deal with through no fault of their own.

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