

Review

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The Problem of Dualism in Modern Western Medicine

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ABSTRACT

Dualism is historically important in that it allowed the medical practice to be divorced from church oversight. The reductionist approaches of modern Western medicine facilitate a dispassionate and mechanistic approach to patient care, and dualist views promoted by complementary and alternative medicine are also problematic. Behavioural disorders are multifactorally realizable and emerge apparently chaotically from interactions between internal physiological systems and the patient's environment and experiential history. Conceptualizations of behavioural disorders that are based on dualism deny the primacy of individual physiology in the generation of pathology and distract from therapies that are most likely to produce positive outcomes. Behavioural health professionals should adopt holistic models of patient care, but these models must be based on methodologies that emphasize radical emergence over the artificial separation of the "physical" and "mental." This will allow for the humanistic practice of medicine while simultaneously maximizing the likelihood of treatment success.

Key Words: Dualism; Emergence; Medicine; Nonduality; Physicalism

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Introduction

Historically, Cartesian dualism played a fundamental role in wresting the practice of medicine away from church oversight (Mehta, 2011^[13]). The formal separation of the “mind” from the “body” allowed for religion to concern itself with the noncorporeal “mind,” while dominion over the “body” was ceded to medical science and the academic study of physiology and anatomy (Mehta, 2011^[13]). However, by isolating the “mind” from the “body,” medical practice rooted in dualism discounts the significance of mental states in the maintenance of health and privileges objective evidence of disease over subjective reports provided by patients (Sullivan, 1986^[20]; Mehta, 2011^[13]). In Western medicine, traditional Cartesian dualism facilitates the biological reductionism of disease, supports medical practices that do not necessarily support healing and wellness, promotes a dispassionate and mechanistic approach to patient care, disempowers patients, and discourages humanistic ways of thinking that focus on the whole patient (Switankowsky, 2000^[21]; Shelton, 2013^[17]). The continued embeddedness of dualism is also problematic in that it underpins the artificial conceptual separation of “physical” and “mental” disorders in medical practice. This split has proven particularly troublesome to the field of psychiatry, which has essentially bifurcated into two subgroups: one that focuses on the analysis of the dynamics of the psyche and a second that explores the reductive organic correlates of psychopathology (López-Ibor and López-Ibor, 2013^[12]; Sandberg and Busch, 2012^[15]).

“Physical” Versus “Mental” Disorders

Philosopher Searle (2000^[16]) and others (Singh and Singh, 2011^[19]) have suggested that consciousness is a physiological process just like respiration, circulation, and immune function. In their work, the “mind” is viewed as a dynamic product of the brain, just as digestion is a product of gastrointestinal tract. Indeed, there is no specific category of “mental” diseases that exist separately from the physicality of the central nervous system any more than there is a specific category of “digestive” diseases that exist separate from the physicality of the gut. If this logic is extended to the practice of behavioural medicine, the intentional separation of mental health services from other medical specialties seems preposterous. The fact that modern Western medicine has one set of practitioners for “mental” disorders and an entirely separate set of professionals for all other types of health complaints is nonsensical, and the failure to recognize the reality that “mental” illnesses are, in fact, biological diseases fosters an environment that “others” patients and stigmatizes substance dependency, as well as behavioural, thought, and perceptual disorders (Baker and Menken, 2001^[1]; Wade, 2006^[23]).

It is true that a significant “explanatory gap” exists between physiological function in the nervous system and personal subjective experience, and it is not

at all clear just how individual subjective states (“qualia”) might arise from the biological activity of neurons (Levine, 1983^[11]). Yet, this gap in knowledge does not, by necessity, entail the existence of a nonphysical entity that can account for subjective mental experience. There is no compelling empirical evidence to suggest that behavioural, thought, perceptual, and addictive disorders are rooted in some type of noncorporeal entity that would distinguish them from all other types of physical illness. Rather, they are fundamentally linked to physiological alterations in the central nervous system, just as all other medical disorders have their roots in particular organ systems. However, “mental” illnesses cannot be easily reduced in a mechanistic and causal fashion solely to fully predictable biological and chemical systems that are wholly contained within the patient’s skull. Instead, “mental” illnesses are multifactorally realizable and appear to emerge in an intricate fashion from dynamic and apparently chaotic bidirectional interactions between the individual’s genes, systemic physiology, environment, and sociocultural surroundings. Regrettably, Western medicine has not yet fully embraced this complex reality.

Does Mind-Body/Complementary and Alternative Medicine Provide an Alternative?

Unfortunately, the growing field of mind-body/complementary and alternative medicine (CAM) does not provide a coherent alternative to the dualism that pervades mainstream Western medicine. Although most CAM practitioners reject the notion that the mind and body are separate entities, they frequently still refer to the “mind” in a way that suggests a noncorporeal, independent entity that exerts causal control over physiological processes related to health and disease. Examples include the common use of phrases like “mind over matter” and “training the mind to focus on the body.”

Even leaders in the CAM field (such as Chopra) who promote explicitly nondualist theories rooted in Eastern traditions revert to explanations of healing that could be interpreted as broadly dualist (Chopra, 2011^[4]; Blackmore, 2012^[3]; Jain, *et al.*, 2015^[8]). Consider the recent examples of Chopra’s work, such as a session at the 2016 Science of Consciousness conference in Tucson AZ entitled “How Your Mind Can Change Your Genes.” On its face, this is not a controversial statement, given medicine’s growing understanding of epigenetics and the many ways in which human physiological systems can self-modify. However the question remains, just what does Chopra mean by “your,” and why does he make such a clear linguistic distinction between “your mind” and “your genes?” It seems that Chopra has fallen into a dualist trap by conceptualizing “your” voluntary thoughts, feelings, and habits as something separate from and having agency over, “your” body. Chopra (2011^[4]) is essentially correct when he states: “In a nutshell, we now realize that for every mental state there must be a corresponding state of physiology.” The problem with this statement is that it

again implies a duality between one's physiology and one's subjective mental experience. Chopra seems resistant to recognize that the mental states that he refers to are unlikely to be the product of a noncorporeal biofield (see Jain, *et al.*, 2015^[8]) but rather are the summation of all the bidirectional interactions between the individual's genes, systemic physiology, environment, and sociocultural surroundings (all of which can be entirely accounted for in observable and measurable physical systems) at any given moment.

Physiological Nonduality: A Path Forward for Medicine?

Simply put, subjective mental states are solely the product of apparently chaotic and hitherto unpredictable interactions between individual physiology and all of the environmental and sociocultural components that these physical processes intermingle with, all of which themselves emerge from physical systems external to the individual. Subjective mental experience is grounded entirely in the physical world: this is the proper nonduality that needs to be recognized. Individuals are, in some sense, a "lived-body:" a physical system for which the totality of internal states and experiences is derived from continuous bidirectional interactions with an external environment and broad sociocultural matrices that are not fully reducible to their constituent parts (Gold, 1985^[6]). This nuanced conceptualization of the relation between what has historically been referred to as the "mental" and the "physical" can be referred to as *physiological nonduality*. This concept is easily distinguished from other forms of physical monism in that it emphasizes phenomenal emergence and interactions between individual physiological processes and factors (all of which are wholly grounded in the physical world) that exist exterior to the boundaries of the individual's personal physicality.

Mental phenomena are not independent entities from the brain; rather, they are simply the state that a brain is in (much like water can be a solid, liquid, or gas; Searle, 2000^[16]). In this sense, mental states are clearly grounded in the underlying physicality of the brain and the rest of the central and peripheral nervous system without being wholly and predictably reducible to them as yet. Yet, the specifics of how these states arise remain an open question. Are discrete mental events the product of the synchronization of representational neuronal cell assemblies, are they the consequence of the dynamic looping of electrophysiological activity in the brain's thalamocortical complex, or do they arise from quantum events in neuronal microtubules (Singer, 1998^[18]; Tononi and Koch, 2008^[22]; Hameroff and Penrose, 2014^[7])? Regardless, it is clear that human understanding of the physical substrates of mental phenomena remains woefully incomplete.

Supervenient mental states appear to wholly emerge in a bottom-up way from underlying physical systems in the brain, but also exert top-down causality upon

these subvenient physical substrates (Peterson, 2006^[14]). For example, genes that code for protein products related to specific personality characteristics (such as D2 dopamine receptors in the brain) influence the probability of individual approach/avoidance behaviours in high- or low-risk social interactions and environments. Particular degrees of exposure to these environments can then alter (through changes in gene methylation) the expression of genes whose protein products then influence future behaviours, as well as the expression of the traits of various behavioural and perceptual disorders (Kendler, 2005^[10]; Sandberg and Busch, 2012^[15]). These changes in protein expression then further modify behaviour, and this process continues in an apparently chaotic and hitherto unpredictable fashion in a bidirectional loop across the lifespan of the individual.

It would be erroneous to view these relationships as closed loops made up of substrates that are fully understood at every level of analysis. Given the field's current knowledge of the brain, it is premature to conclusively identify neurons or microtubules as the most fundamental subvenient base for mental states because our knowledge of the physical world likely remains incomplete in important ways (Peterson, 2006^[14]). As such, the type of physiological nonduality advocated for in this paper shares much with Philip Clayton's (2004^[5]) notions of radical emergence. The philosophical position of radical emergence is particularly useful in the present context because unlike dualist approaches, it does not wall off certain categories (such as the "mind") as incompatible with scientific analysis and explanation (Peterson, 2006^[14]). Radical emergence declares both materialism and dualism to be false, yet at the same time, recognizes mental states as supervenient emergent entities that arise from an undefined subvenient physical substrate (Peterson, 2006^[14]).

Some health professionals have noted the importance of patient intentionality in successful therapeutic work and have used this to support the existence of dualism through an argument that can be summarized as "minds change brains" (for example, see Beauregard and O'Leary, 2007^[2]; Joubert, 2014^[9]). This claim is problematic because it is both nonscientific (as the hypothesis of the existence of a noncorporeal "mind" is not falsifiable through measurement) and not parsimonious. Radical emergence/physiological nonduality provides an effective counter-argument to such claims as it hypothesizes a mechanism for how mental states and properties can solely be the product of physical things and yet have causal effects on the very physical things that produced them. This explanation fits well with how we understand the natural world to actually work and does not entail the presence of nonphysical entities (the existence of which can neither be proven nor disproven) that causally affect the physical world.

A second common medical argument against reductionist monist explanations of mental disorders has rested on the generally low efficacy rates of pharmacological interventions intended to treat these disorders (Joubert, 2014^[9]). Without question, the vast majority of drugs used to treat brain

disorders suppress symptoms rather than treat causes of disease, have low rates of long-term treatment success, and produce unacceptable side effects. However, such outcomes should not be interpreted as a fatal indictment of psychopharmacology and the fundamental assumptions upon which the field rests. The brain's activity is rooted in a complex biochemical system, one that is poorly understood. The fundamental biology and chemistry that underlies most mental disorders is not at all clear, and even if it was, various physiological characteristics of the central nervous system (such as the utilization of neurotransmitters and specific receptor subtypes across multiple distinct neural systems) create major roadblocks to the subtle, highly directed, and effective pharmacological alteration of brain function. The pharmacological tools available in the current clinical arsenal are blunt instruments that have been developed from a very limited understanding of the very systems they are directed toward. Imagine a fine Swiss wristwatch that keeps poor time because of a defect in its movement. If the only tools at the watch technician's disposal are a large hammer, a metal file, and a chisel, the technician will be unable to effectively alter the watch's function for the better. Yet, the reality remains that the watch is not properly keeping time purely because of a physical problem with its movement – there is no need to invoke the specter of a dysfunctional “watch mind” to account for its behaviour. In other words, just because one does not have access to the proper tools to effectively fix a physical problem in a complex system, one should not then assume that the problem itself must be nonphysical in origin.

The notion of a physiological nonduality that is distinct from traditional mechanistic biological reductionism, other conceptualizations of physical monism, and Chopra's “dualism-masked-as-nonduality” is not particularly radical or novel (for example, see Searle's (2000^[6]) proposal of biological naturalism), but it is a concept that has not been fully and intentionally embraced by either the mainstream medical or CAM communities. It is unlikely that healing is, as Chopra and colleagues define it, “the restoration of harmony” in subtle energy flow (Jain, *et al.*, 2015^[8]). Such a proposition flies in the face of accepted scientific methodology as it is not a particularly parsimonious explanation nor is it supported by any broad measure of scientific consensus based on the results of well-designed empirical studies. Instead, one might define healing as a restoration of the optimized functioning of all organ systems relative to the environment within which these systems are operating. This definition emphasizes the centrality of the external environment to health, while also maintaining the primacy of individual physiology in the production and maintenance of healthy states. This definition also provides a nondual explanation without needing to invoke vagaries such as “energy flow” and the “restoration of harmony.” Using this definition, one might conceptualize “healing” from social anxiety disorder (as defined by the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*) as entailing the nervous system self-modifying

to become better equipped at recognizing potential external stressors and threats, and to be more able to effectively and appropriately regulate activity in both the hypothalamic-pituitary-adrenocortical axis and various cortical and subcortical networks in response to these external stimuli. Note that, these are the specific neurobiological changes that likely underlie the effectiveness of cognitive-behavioural therapy in treating social anxiety disorder.

At first blush, this definition may appear to be little more than a reiteration of the “health as absence of disease” model that underpins much of mainstream reductionist medicine (Mehta, 2011^[13]). The key difference is that this biological nondualist definition accounts for the emergence of health and disease states from intertwined, bidirectional, and recursive interactions between the physiology of the individual and his/her environment and past experience. This systems orientation, which recognizes the centrality of interactions with environmental and sociocultural factors, conceptualizes health and disease states as originating from the bidirectional relationships between physical systems that are not limited to just the patient’s own internal physiological states. The interactive nature of this conceptualization accounts for the individual self-modification of physiological activity related to health and disease, without requiring a nonphysical entity (such as a noncorporeal “mind”) to make it happen.

The End of the Concept of “Mental Illness?”

The term “mental illness” should be abandoned and replaced with the term “brain disorder” (Baker and Menken, 2001^[1]). Behavioural, perceptual, and addictive disorders should be treated as emergent pathologies with fundamentally organic causes within the nervous system, just like pathologies occurring in any other organ system (Baker and Menken, 2001^[1]). The separation of the “physical” and “mental” is a distraction for both physicians and patients alike as it surely results in clinicians treating these different categories of maladies in functionally different ways. Importantly, these distinctions may contribute to patients’ willingness to pursue unorthodox treatments that lack significant evidentiary support. Mainstream Western physicians must move toward a more holistic model of patient care, but such a model needs to be grounded in a nondualist philosophy based in radical emergent monism that rejects the traditional reductive materialist approaches to health and disease (Clayton, 2004^[5]; Peterson, 2006^[14]).

Although Chopra (2011^[4]) is correct in asserting that one of the CAMs most significant accomplishments is returning the power of care to the patient, the assertion that an interactive dualist approach is essential for treating patients with care and dignity must be rejected (Switankowsky 2000^[21]). A physical monist approach to healthcare can be employed that is compassionate and empowering in regards to patient care. A biological nondualist approach to behavioural

medicine can account for both the environmental and sociocultural matrix that the patient is functioning in, as well as the enormous degree of self-modification that is possible in human physiological systems. By conceptualizing the patient's physiology as having emergent causal efficacy upon the broader interactive physical system that the patient is embedded in, physiological nondualism effectively addresses the concern of patient disenfranchisement that has become a symptom of mainstream medicine. In this way, physiological nondualism replicates one of the key benefits of CAM (according to Chopra, 2011^[4]) without relying on therapeutic techniques or theories that lack significant empirical backing. Although several CAM approaches (such as acupuncture) have a high level of efficacy in double-blind placebo controlled trials, it is reasonable to question the value of CAM therapies that fail to meet this burden of proof, particularly if such therapies are being used *in lieu* of more mainstream approaches that do have demonstrated records of effectiveness. Simply put, truly effective treatments for brain disorders will not focus on manipulations that lack widespread empirical support (such as problematic imbalances in energy fields or flow) nor will they be based in overly simplistic, mechanistic, and reductive models of human disease.

The most compassionate and effective patient care should not attempt to treat fictions or mask physical processes in the cloak of Eastern spirituality or quantum mysticism. Rather, clinicians should approach the patient's condition holistically and focus on the complex physiological phenomena (such as central nervous system inflammation, alterations in multiple neurotransmitters across numerous systems, immune suppression, changes in microbiota, and elevated corticosteroid production) that bidirectionally interact with environmental and sociocultural factors to produce the behavioural or perceptual pathology of interest.

Concluding Remarks [Figure 1]

Critics of biological reductionism in Western medicine are correct in asserting that reductionism has had a negative impact on the quality and efficacy of patient care. However, the dualist separation of the "physical" and the "mental" has also proven to be damaging to patients suffering from brain disorders. Modern Western medicine must do a better job at incorporating the environmental and sociocultural complexities of patients' lives into strategies for care. But such a broad view of the origins of pathology must not come at a cost of denying the fundamental primacy of the patient's physiology to the production of states of health and disease. A physiologically nondualist approach based on Clayton's (2004^[5]) radical emergence provides the best conceptual path forward for improving the care of patients suffering from diseases of the brain while avoiding the traps of dualism and reductionism that have plagued Western medicine throughout its history.

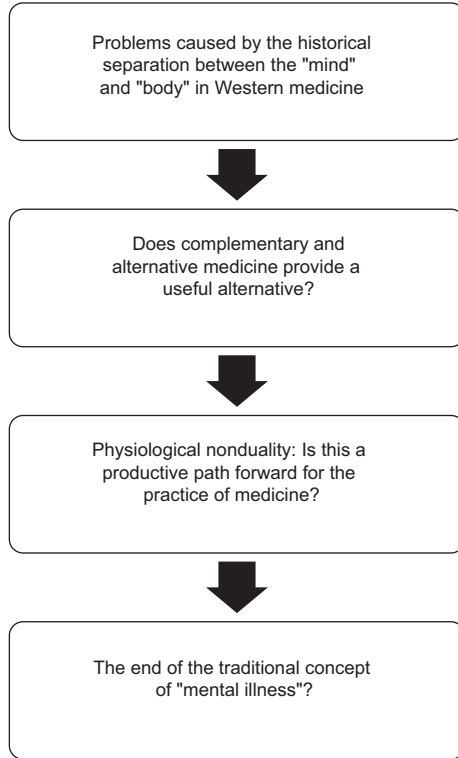


Figure 1: Flowchart of paper

Take Home Message

The perpetuation of dualism and biological reductionism in behavioural medicine has negatively impacted the quality and efficacy of patient care. A theoretical approach based on radical emergence and physiological nonduality provides the best conceptual path forward for improving the care of patients suffering from diseases of the brain.

Conflict of interest

None declared.

Declaration

This is my original, unpublished work and not submitted for publication elsewhere.

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An overview of the primary argument proposed in this manuscript was accepted for presentation at The Science of Consciousness 2016, April 26–30, 2016, Tucson AZ, USA.

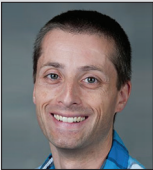
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Questions that this Paper Raises

1. How might subjective mental states specifically arise from interactions between an individual's internal physiological processes, experiential history, and surrounding environment?
2. Neuroscience is the only branch of biomedical science where the organ system being investigated is also the very thing doing the investigating ("brains studying brains"). Does this present particular challenges to objectively studying inherently subjective phenomena? Does this make us "cognitively closed off" from the objective study of mental states?
3. Given the inherently subjective nature of mental events, is it even possible to completely cast off dualism as a way of conceptualizing how these events come into being?
4. Is physiological nonduality a meaningful theoretical/conceptual step forward for the field of behavioural medicine?

About the Author



Mathew Gendle Ph.D. is a full-time Professor in the Department of Psychology at Elon University in Elon NC, USA. Dr. Gendle joined Elon's faculty in 2003 after completing his Ph.D. at Cornell University. At Elon, Dr. Gendle teaches courses in behavioural neuroscience, neuropharmacology, consciousness, and global studies. Dr. Gendle's research focusses on: (1) how nutrition, drugs of abuse, and neurotoxins affect cognition, especially functions associated with the prefrontal cortex; and (2) perceptual, neurobiological, and philosophical aspects of human consciousness.