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# The application of yoga as a biopsychosocial-spiritual approach to social work

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## ABSTRACT

There is growing evidence emerging from the biomedical, behavioral science, and mental health literature suggesting that yoga may be an effective treatment for a wide range of mental health symptoms. Curiously, there has been very little social work literature published about yoga's therapeutic potential. As one of the most popular complementary and alternative approaches to health in the United States, yoga is not to be overlooked as a potential social work methodology to reach diverse populations and improve or complement mental health treatment rates and outcomes. Yoga's multifaceted ability to affect well-being makes it an important therapeutic approach to mental health that is well-aligned with social work's biopsychosocial-spiritual perspective on assessment and treatment. The goal of this theoretical study is to further explore yoga's potential as a social work approach by reviewing the effects of yoga on mental health and considering its biological, psychological, social, and spiritual implications as grounded in the literature. The study concludes with practice recommendations and cautions for the application of yoga to social work as well as implications for social work research, education, and policy.

# THE APPLICATION OF YOGA AS A BIOPSYCHOSOCIAL-SPIRITUAL APPROACH TO SOCIAL WORK

A project based upon an independent investigation, submitted in partial fulfillment of the requirements for the degree of Master of Social Work.

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# CHAPTER I

## Introduction

In my first-year social work field internship at a residential substance abuse program for women with incarceration histories, one of the staff facilitated a weekly 45-minute yoga class. She was not a professionally trained yoga teacher but enjoyed practicing and sharing yoga with the clients using DVDs and books. The program lacked the resources to provide mats or other equipment but just the same, the class resonated for many of the resident women and in ways that seemed different than when they participated in their other therapeutic groups. Particularly for those women who rarely spoke or otherwise appeared to be disengaged from most program activities, yoga seemed to uniquely capture their interest and attention. Their eyes and faces would noticeably brighten as they eagerly attempted the various poses or breathing exercises.

I had another experience with yoga in my second-year internship at a managed healthcare organization's outpatient mental health clinic. There, as one of the offerings in an adult intensive outpatient program, a professionally trained yoga teacher led weekly 60-minute chair yoga classes. These classes also resonated with the program's participants, although they represented a rather different population than the clients I had worked with in my first-year placement. The style of this teacher, who I will call Kate, was markedly different than that of the staff member, who I will call Joan, who facilitated the classes at the substance abuse program.

Kate, who emphasized Kundalini yoga, would gregariously share her own personal thoughts on yoga philosophy as well as offbeat personal stories during much of the class while Joan, who did not focus on a particular style of yoga, had an understated demeanor she used to encourage clients to share their own reflections. In both cases, however, participants would attentively follow along and afterwards, share that they found the practice beneficial and enjoyable, would attempt to do some of the exercises on their own, or wished to continue attending yoga classes in the community.

These experiences led me to become curious about the application of yoga as a therapeutic treatment for mental health disorders. In examining the existing literature on yoga and its therapeutic benefits, I came across a growing body of evidence suggesting that yoga may be an effective treatment for a wide range of mental health symptoms: anxiety and mood disorders (Chen et al., 2009; Vancampfort et al., 2011), eating disorders (McIver, O'Halloran, & McGartland, 2009), schizophrenia (Vancampfort et al., 2011), and in populations as varied as older adults (Chen et al., 2009), vulnerable youth (Ramadoss & Bose, 2010), and incarcerated men and women (Bilderbeck, Farias, Brazil, Jakobowtiz, and Wikholm, 2013).

In fact, at the time of this writing, a simple search for the term “yoga” in PubMed, a database of biomedical literature, yields 2,374 results. While the first of these articles were published in 1948, two thirds were published in the last ten years alone. In PsycINFO, a database of behavioral science and mental health literature, searching for “yoga” returns 1,565 results. The first of these were published in 1896 and more than half were published in just the last decade. However, the same search for the term “yoga” in Social Work Abstracts, an index of social work and human service journals, yields only

12 results and none published in the last three years. It is curious that, given the therapeutic potential of yoga for mental health, it has received as little attention in the field of social work as it has.

The results of the 2007 National Health Interview Survey (NHIS) conducted by the National Institutes of Health (NIH) show that yoga is one of the most common complementary and alternative health approaches, used by approximately 6% of the nearly 4 in 10 adults in the United States that use such approaches (Barnes, Bloom & Nahin, 2008). The NIH's National Center for Complementary and Alternative Medicine (NCCAM) defines the term "complementary" as the use of non-mainstream approaches to health care *in conjunction with* conventional medicine and the term "alternative" as the use of such an approach *in place of* conventional medicine (Complementary, Alternative, or Integrative Health, 2013, Complementary Versus Alternative section, para. 2).

A popular CAM approach such as yoga is not to be overlooked by the field of social work as a means that is already being used, and can be further applied, to improve or complement mental health treatment rates and outcomes. The 2007 NHIS survey estimates that 5% of adults who use CAM do so to treat mental health symptoms, i.e., anxiety, depression, or stress (Barnes, Bloom & Nahin, 2008). It is unfortunate that CAM such as yoga is not used more widely for mental health, especially given low overall treatment rates for mental disorders. Wang and colleagues found that only 40% of adults with a serious mental illness receive treatment and of those receiving treatment, only 38.9% receive minimally adequate treatment (Wang, Demler, & Kessler, 2002). One major limitation of current studies of yoga is the lack of a clear and consistent operational definition. Generally, yoga in the United States is considered a mind and body practice

that combines physical postures or movement, breathing techniques, and meditation (Complementary, Alternative, or Integrative Health, 2013, Mind Body Practices section, para. 2), though yoga styles range from Bikram, which is done in 100-degree heated rooms to silver yoga, designed for older adults. In the words of George Feuerstein, PhD, a yoga historian, "Yoga is a spectacularly multifaceted phenomenon, and as such it is very difficult to define because there are exceptions to every conceivable rule" (Feuerstein, 1998, p.3). Not all published research provides definitions or descriptions of the poses or breathing exercises used, their duration, or the frequency with which they are practiced. Furthermore, many studies use uncontrolled or non-randomized designs and are often limited by their small sample sizes. Relying on uncontrolled and non-randomized designs makes it difficult to draw conclusions about yoga's effects independent of other, confounding variables (Evans, Tsao, Sternlieb, & Zeltzer, 2009). So while there is literature supporting the applications of yoga I had observed in both of my internships, there is less known about yoga's specific mechanisms of action. Yet it would be unwise to consider interchangeable the many different styles of yoga, a 2,000-year old philosophical tradition originating in India, practiced today in the United States. These different forms may even be considered as distinct interventions, similar to different approaches to psychotherapy such as psychodynamic, cognitive-behavioral, and interpersonal therapies (Bower, Woolery, Sternlieb, & Garet, 2005).

For those seeking to benefit from the mental health therapeutic effects of yoga, there is much information to be sorted through and little in the way of specific guidance. Yoga therapy has in fact begun to emerge as a field of its own, but there are no standards currently in place for the practice of yoga therapy or the use of the term "yoga therapist."

It was only two years ago that the International Association of Yoga Therapists (IAYT) began to implement an accreditation process for yoga training programs (International Association of Yoga Therapists, 2012). Given then that approximately 13 million people (or 6% of the adult population that uses CAM) in America are already practicing yoga as a complementary approach to health, though the definitions of therapeutic yoga are not well-established, it is the position of this paper that it is important for social workers to have a better understanding of what is currently known and theorized about yoga and its therapeutic promise for mental health and consequently, how it may be most appropriately applied to the profession and their constituents as clinical interest in it continues to grow.

The goal of this theoretical study is to further explore yoga's potential as a social work approach to mental health by considering its biological, psychological, social, and spiritual implications as grounded in the literature. The next chapter lays out the biopsychosocial-spiritual theoretical orientation of, and methodological approach to, this study. Chapter Three investigates the phenomenon of yoga's therapeutic potential for mental health. Chapter Four then presents a discussion of the biopsychosocial-spiritual aspects of yoga within the context of social work. The last chapter will consider practice guidelines and cautions for the application of yoga to social work as well as implications for social work research, education, and policy.

# CHAPTER II

## Conceptualization and Methodology

It was physician George Engel who first introduced the biopsychosocial (BPS) model in 1977, resulting in a shift in medicine as well as in social work from the biomedical model, defined by *Stedman's Medical Dictionary* (2006) as a "conceptual model of illness that excludes psychological and social factors and includes only biologic factors in an attempt to understand a person's medical illness or disorder," toward the BPS model (Johnson, 2013). Engel (1977) argued that the "boundaries between health and disease, between well and sick, are far from clear and never will be clear, for they are diffused by cultural, social, and psychological considerations" (p. 133). By taking into account social and psychological factors (mind), which are not considered separate from biologic processes (body), the BPS model allows for an understanding of health that is not merely the absence of somatic signs and symptoms, but a state of physical, mental, and social well-being (Hatala, 2013).

Arguably, the ways in which yoga addresses the mind and body lend itself well to the biopsychosocial model, undoing the mind-body dualism that still persists in medicine today, and towards a more integrated approach to mental health and overall health. Evans et al. (2009) assert that yoga is a holistic practice that affects well-being in multiple ways and that the benefit of yoga is possibly greater than the sum of its parts. "Attempting to reduce benefits to simply stretching limbs, or relaxation techniques may

undermine yoga as a complete system for operating on multiple aspects of the person to achieve health and well-being" (p. 13). Towards that end, they propose an analogue between the physical, psychosocial, and spiritual effects of practice delineated by yoga traditions and the biopsychosocial (BPS) model of health, providing a conceptual model that may offer clues to the possible interacting mechanisms of action of yoga on health (Figure 1).

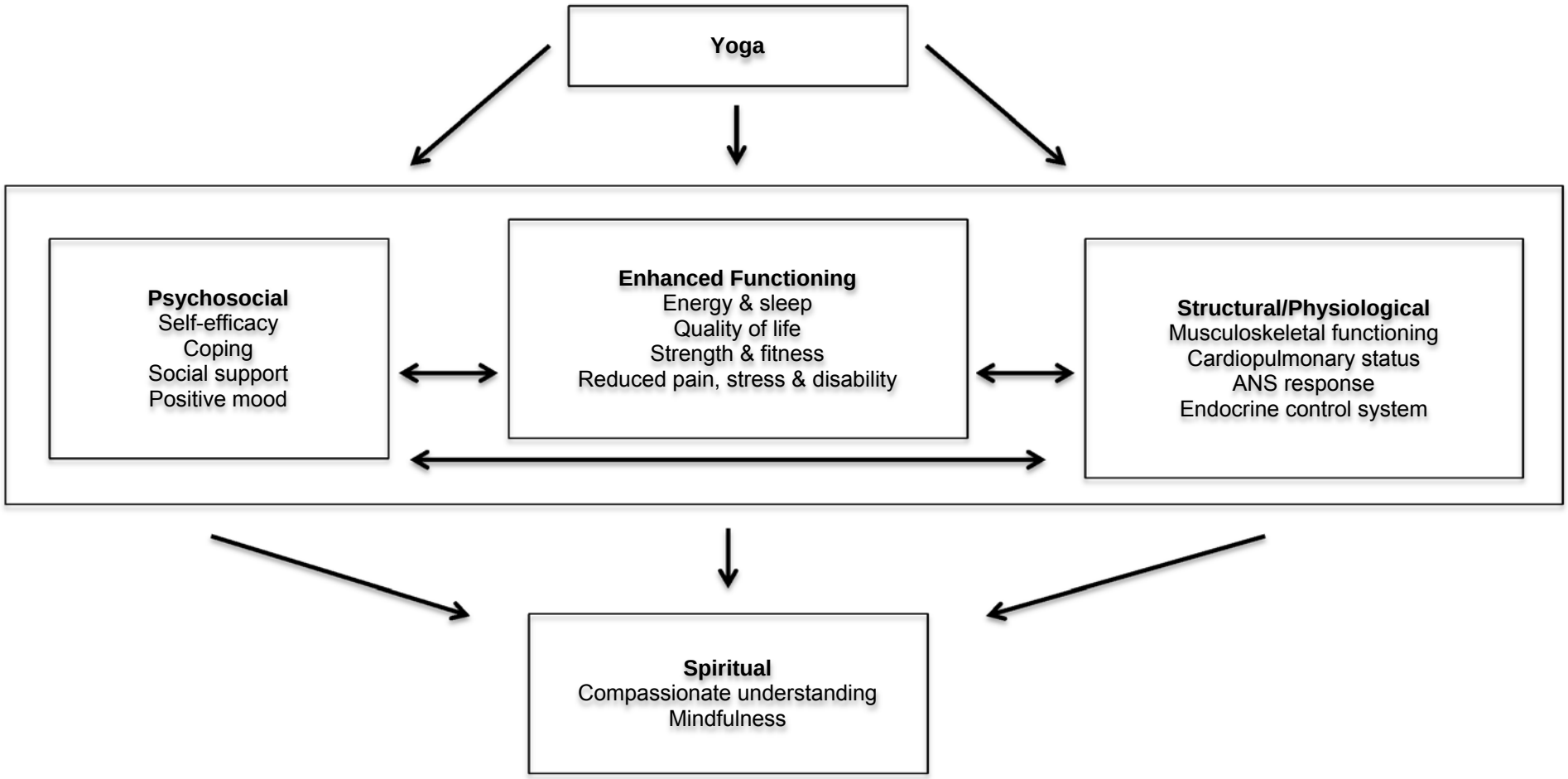


*Figure 1.* Conceptual model of the biopsychosocial benefits of yoga. Reprinted from "Using the Biopsychosocial Model to Understand the Health Benefits of Yoga," by S. Evans, J. I. Tsao, B. Sternlieb, & L. K. Zeltzer, 2009, *Journal of Complementary & Integrative Medicine*, *6*(1), 3. Copyright 2009 by The Berkeley Electronic Press.

One manner in which mind-body dualism continues to contribute to rising U.S. healthcare costs today is that when patients' mental health concerns go unaddressed or inappropriately treated, costs rise as a result of unsuccessful efforts to identify a biologic defect or underlying problem (Johnson, 2013). As previously mentioned, Wang and colleagues found that only 40% of adults with a serious mental illness receive treatment and of those receiving treatment, only 38.9% receive minimally adequate treatment (Wang, Demler, & Kessler, 2002). Further complicating matters, Druss and Walker (2011) found that as many as 29% of medical patients are co-morbid for a mental health disorder and as many as 68% of patients with mental disorders are co-morbid for a medical condition.

Yoga, with its potential to act upon multiple aspects of a person to achieve well-being, could therefore be seen as a particularly promising approach to improve health. The medical establishment already seems to think so. As noted previously, a simple search for the term "yoga" in PubMed, a database of biomedical literature, yields 2,374 results. While the first of these articles were published in 1948, two thirds were published in the last ten years alone. Yet the same search for the term "yoga" in Social Work Abstracts, an index of social work and human service journals, yields only 12 results and none published in the last three years. If the primary mission of the social work profession, as the National Association of Social Workers' (NASW) (2008) Code of Ethics Preamble states, is "to enhance human wellbeing" then it would seem that social workers have some catching up with the existing biomedical literature to do in considering the psychosocial and spiritual potential of yoga as a therapeutic approach with multiple dimensions and perhaps multiple applications.

Towards that end, this study will use and expand upon the conceptual model of biopsychosocial benefits proposed by Evans et al. (2009) to examine the literature on yoga and

its therapeutic potential for enhancing mental health. Although the authors refer to the model as "biopsychosocial," it should be noted that it might be more appropriately named "biopsychosocial-spiritual," as they also include spiritual factors. As Hatala (2013) notes, spirituality is an important and widely available cultural resource for empowerment and health and furthermore, important relationships between spirituality and health exist at the individual level as well as in broader sociopolitical processes such as group identity, community resilience and collective empowerment.

In the following chapter, I will review the phenomenon of yoga and its benefits for mental health, as evidenced in the literature. The chapter that follows will explore some of the biological, psychological, social, and spiritual features salient to social work. The study will conclude with practice implications that social workers can use to guide how they might use yoga as a mental health intervention or refer their clients in doing so and a discussion of future directions for research, education, and policy.

# CHAPTER III

## Yoga's Therapeutic Potential for Mental Health

This chapter reviews randomized controlled trials (RCTs) that tested yoga interventions, which included physical postures as well as meditation or breathing exercises, on mental health measures with interesting results. Relying on uncontrolled and non-randomized designs make it difficult to draw conclusions about yoga's effects independent of other, confounding variables. This review is limited to RCTs in hopes of reducing some of this difficulty. Existing RCT studies on the effects of yoga on mental health are primarily clustered around the following clinical conditions: depression, stress and trauma, and eating disorders.

### Depression

Depression is a complex disorder that can be difficult to treat successfully. The usual care for depression, pharmaceutical management and cognitive therapy, appears to be less effective then previously thought. Evaluation of large-scale studies on these methods has shown large participant dropout rates and low remission rates as well as generalized reporting bias (Mathew and Charney, 2009; Pigott et al., 2010; and Turner et al., 2008). Yoga is showing promise as an alternative or complement to current usual care treatment methods.

In a 2004 study, Woolery et al. examined the effects of a short-term Iyengar yoga course on mood in a small sample (n=28) of mildly depressed young adults (mean age=21.5) none of who had formal diagnoses or significant yoga experience. Iyengar yoga is based on the teachings of B.K.S. Iyengar. This style was selected for the study because within the tradition, specific

poses and sequences of poses are considered particularly effective for improving depression. Subjects who participated in the course's bi-weekly, hourly yoga classes for five weeks showed significant decreases in self-reported symptoms of depression and anxiety in comparison to subjects in the control group, who were asked to maintain their routines and not to begin any yoga or other mind-body program during the study.

Examining the effects of yoga at the other end of the life span, Chen et al. (2009) conducted a study with healthy older adults (mean age=69). Study participants (n=128) who did not have previous experience in yoga were assigned either to a waitlist control group or a 70-minute silver yoga exercise program that met three times per week for six months. Rather than for any particular effect on symptoms, silver yoga, which was designed by the researchers, was chosen to accommodate the physical limitations of older adults. The experimental group showed significant improvement in most mental health measures, including depression scores, after the intervention and many of these improvements were maintained throughout the study. Furthermore, participants in the experimental group outperformed participants in the waitlist control group on all mental health measures.

In a small study (n=18) of clinical subjects, Kinser, Bourguignon, Whaley, Hauenstein, and Taylor, (2013) found that in comparison to controls, women who participated in an 8-week yoga intervention experienced a similar decrease in depression, but a unique decrease in negative ruminations. Study participants had a diagnosis of moderate to severe major depression disorder or dysthymia and did not have a regular yoga or meditation practice. Unlike the previous study, the yoga intervention included a weekly 75-minute gentle Hatha yoga group class and daily home practice component with a DVD and handouts while subjects in the control group engaged in a weekly series of 75-minute health education sessions, which involved lectures and videos as

well as included handouts. Interestingly, participants who practiced more at home did not necessarily have a greater decrease in symptoms or ruminations. Although it is still as yet unclear what the minimum effective "dose" of yoga may be and whether it includes home practice or group classes (Uebelacker et al., 2010), the findings of this study suggest that one of yoga's unique effects may be to decrease ruminations.

These studies suggest that while yoga may be a promising treatment at least as effective as exercise for depression in various healthy and clinical populations, the mechanisms of yoga's specific effects, one of which may be its ability to decrease ruminations, and specifically, what particular styles or "doses" are effective are not yet clear. Similarly, in their meta-analysis of the effectiveness of yoga for depression, Cramer, Lauche, Langhorst, and Dobos (2013) conclude that despite methodological drawbacks of the studies, yoga could be considered a complementary treatment option for patients with depressive disorders and individuals with elevated levels of depression. The authors included nine RCTs with 452 participants and found moderate evidence for the short-term effects of yoga on the severity of depression compared to usual care though limited evidence compared to relaxation and aerobic exercise. Perhaps yoga's long-term effects on depression are significantly different than those of relaxation or aerobic exercise. This remains to be seen, however, as no meta-analysis on the long-term effects of yoga could be conducted due to the scarcity and heterogeneity of the RCTs.

**Stress and Trauma**

**Stress.** While stress itself is not considered a condition in the DSM, the DSM-5 includes a new chapter, which groups trauma with stressor-related disorders such as adjustment disorder. Furthermore, psychological stress and the associated chronic inflammatory response have been linked to nearly all chronic conditions (Chrousos, 2009; McEwan, 1998; Black, 2006; Cohen,

Janicki-Deverts, & Miller, 2007). In young people in particular, unmanaged stress is believed to be a contributing and/or causal factor in the development of mental health problems, including anxiety and depression (Suldo, Shaunessy, & Hardesty, 2008). Several RCTs have looked at yoga's promise as a stress management tool particularly in institutional settings.

***School.*** Khalsa, Hickey-Schultz, Cohen, Steiner, and Cope (2012) found that students (n=121) in a high school who participated in two to three weekly 30 to 40-minute Yoga Ed sessions for 11 weeks showed statistically significant differences relative to controls who participated in their regular physical education classes on measures of anger control and fatigue/inertia. Yoga Ed is a secular program currently being implemented in a number of schools in the U.S. Furthermore, while most measures worsened in the control group over time, changes in the yoga group over time were either minimal or showed slight improvements, suggestive of yoga's potential in playing a protective or preventative role in the maintenance of mental health.

In another preliminary school-based study, Mendelson et al. (2010) evaluated fourth and fifth graders (n=97) assigned to either a mindfulness program consisting of four weekly 45-minute sessions for 12 weeks or a waitlist control group. The mindfulness program included yoga-based physical activity, breathing techniques, and guided mindfulness exercises. Study findings suggest that the intervention had a positive impact on problematic responses to stress including rumination, intrusive thoughts, and emotional arousal in addition to being attractive to students, teachers, as well as school administrators.

***Workplace.*** Yoga appears to also be potentially well suited to other institutional settings such as the workplace. In a trial comparing employee volunteers who did not have significant meditation or yoga experience (n=239) assigned either to a therapeutic yoga worksite stress

reduction program, one of two mindfulness-based programs, or a control group that participated only in assessment, Wolever et al. (2012) found that the mind-body intervention groups showed significantly greater improvement on perceived stress and sleep quality. The study specifically used Viniyoga for its 12-week (12-hour) therapeutic yoga program because of its potential impact on stress. The authors note that Viniyoga's emphases on the breath and the adaptation of the practice to the practitioners may be particularly salient to stress management. It is unclear whether the mindfulness-based programs also included a yoga posture component. Further research comparing yoga with other mind-body practices could help to elucidate the effects of yoga's various elements.

Another workplace study (n=30) by Granath, Ingvarsson, von Thiele, & Lundberg (2006) compared 10 weekly sessions of Kundalini yoga, the main focus of which was on physical exercise, with a cognitive behavioral therapy (CBT)-based program. All participants showed significant improvements on measures of stress. There was no significant difference in outcome between the two programs, suggesting that the yoga program was as effective, but not more so, than the CBT-program. Further research is needed in order to examine how a yoga program that focuses on mind-body elements, rather than physical exercise as the experimental yoga intervention did, may have different outcomes in comparison to CBT.

***Other institutional settings.*** In a study (n=100) conducted in a very different institutional setting, Bilderbeck et al. (2013) found that prisoners who participated in a 2-hour weekly Hatha yoga class for 10 weeks showed increased self-reported positive affect and reduced stress and psychological distress as well as better performance on a cognitive-behavioral task assessing impulsivity and attention as compared to participants in the control group, who were asked to continue their usual activities.

Finally, Bonura and Pargman (2009) examined the effects of chair yoga, modified from Hatha yoga, compared to walking, chair aerobics, or social games with participants (n=42, mean age=83) in a senior living facility. Each intervention involved 30 minutes of activity for three days per week for six weeks. At the end of the study, the yoga group showed the most stress reduction. Interestingly, 88% of the participants were already engaged in some kind of physical activity prior to the study. The researchers propose that in a population of already active older adults, yoga may provide additional mental health benefits above and beyond other forms of exercise such as aerobics and walking. Furthermore, the yoga intervention was more popular among the participants than both walking and games. Examining why this may be so could offer important insight into factors that encourage exercise motivation and adherence.

Taken together, these studies suggest that yoga offers an attractive intervention for reducing or managing stress in institutional settings ranging from schools to workplaces, senior living facilities, and prisons. Yoga appears to be at least as effective as other active interventions such as exercise, other mind-body programs, and CBT, and may offer unique benefits, such as preventative or protective factors as well as exercise motivation and adherence. Further research is needed to understand the differential impact, if any, of different mind-body interventions or different styles of yoga.

**Trauma.** There is also some intriguing evidence that suggests yoga has promise as a somatic treatment modality for trauma. Imaging studies have shown that Broca's area, a major language center of the brain, can become deactivated in response to traumatic reminders, a finding that may explain why patients with post-traumatic stress disorder (PTSD) are often at a loss for words to discuss their trauma (Shin et al., 1999). Unfortunately, traditional mental health care may be insufficient to address this. Talk therapies can even increase dysregulation (Ford,

Courtois, Steele, van der Hart, & Nijenhuis, 2005).

Van der Kolk (2006) observes that instead, interoceptive, or body-oriented, therapies can directly confront a core clinical issue in PTSD: that traumatized individuals are prone to experience the present with physical sensations and emotions associated with the past. By facilitating bodily self-awareness and self-regulation, yoga can help patients prevent overwhelming emotions by achieving control over their physiological states through breathing and movement (Van der Kolk, 2006).

A pilot study by van der Kolk (2006) with female subjects (n=8) with PTSD showed that only those who had participated in eight 75-minute sessions of Hatha yoga showed significant decreases in frequency of intrusions and severity of hyperarousal symptoms compared to those randomly assigned to eight sessions of dialectical behavior therapy (DBT).

**Eating disorders**

There are fewer RCTs about yoga as an innovative intervention for eating disorders but the few that have been published yield encouraging results. Medical prognosis for eating disorders is generally poor, with mortality ratios as high as 20% (Papadopoulos, Ekbom, Brandt, & Ekselius, 2009; Steinhausen, Boyadjieva, Griogoroiu-Serbanescu, & Neumärker, 2003; Steinhausen, Seidel, & Winkler, 2000). Despite a wide range of available treatments, only about 50% of patients recover (Speranza, Loas, Wallier, & Carcos, 2007). Additional or alternative promising approaches such as yoga could help improve the rate of recovery.

In a study of women (n=50) who identified with diagnostic criteria for binge eating disorder (BED), had a body mass index (BMI) > 25, and did not regularly practice yoga, McIver et al. (2009) found that small yet statistically significant reductions for BMI, hips and waist measurement were obtained in the yoga group as compared to the waitlist control group.

Furthermore, self-reported reductions in binge eating and increases in physical activity were also statistically significant. The primary aim of their yoga intervention, which included weekly 60-minute sessions for 12 weeks, was to encourage participants to develop a daily yoga practice in three domains: physical awareness, breath awareness, and concentrative meditation, including eating mindfully.

As part of a larger mixed-methods study, the researchers also conducted a qualitative analysis (McIver, McGartland, & O'Halloran, 2009). Their analysis revealed a positive shift experienced by the women during the program, summarized by the general structural description: disconnection versus connection. Women's comments suggested that the program appeared to encourage a healthy reconnection to food as well as the development of physical self-empowerment through the cultivation of present-moment awareness. The authors suggest that yoga may have contributed to lessening the shame associated with disordered eating (Doran & Lewis, 2012), evidenced by their quantitative data showing improvements in participants' body image and self-esteem scores. The study furthermore observes that the physicality of yoga might have also contributed to a gradual sense of improved well-being, particularly evident in participant observations about how movement, which was initially difficult, became easier, as well as expressed increases in physical energy.

Finally, in their study on yoga treatment on outcomes among adolescents with diagnosed eating disorders (n=50), Carei, Fyfe-Johnson, Breuner, and Brown (2010) found that the yoga group, who participated in individual, bi-weekly 1-hour Viniyoga sessions for 8 weeks, in addition to standard care, demonstrated greater decreases in eating disorder symptoms compared to the standard care only control group. Both the yoga and control groups maintained current BMI levels and decreased in anxiety and depression but only yoga appeared to significantly

reduce food preoccupation. Given the strength of this effect, it is suggested that yoga may function effectively as an acute intervention. One hypothesis is that focusing attention on yoga poses may reduce food preoccupation. Participants frequently endorsed this, commenting after yoga sessions, “This is the only hour in my week when I don’t think about my weight.” These studies corroborate an earlier conjecture by Mitchell, Mazzeo, Rausch, and Cooke (2007) that yoga interventions that specifically addressed body attitudes could achieve more fruitful results than a non-specific yoga intervention. It appears that particularly in the treatment of eating disorders, mind-body and physical components are not only important to include but to carefully consider in the design of the intervention.

Taken together, this literature review suggests that yoga practice has the potential as a complementary or alternative treatment to effectively ameliorate mental health conditions such as depression, stress and trauma, and eating disorders in a range of populations. Unsurprisingly, further research is required to confirm yoga’s various specific effects and their underlying mechanisms, particularly in the long-term, but it appears that its various components make it a uniquely multidimensional approach. The next chapter considers the biological, psychological, social, and spiritual ways in which yoga may contribute to current social work approaches to mental health. The final chapter of the study discusses practice recommendations and cautions as well as areas for future research, education, and policy.

# CHAPTER IV

## The Biopsychosocial-spiritual Components of Yoga

Expanding upon the conceptual model of yoga's biopsychosocial benefits first proposed by Evans et al. (2009) (see Figure 1), this chapter considers some of the other biological, psychological, social, and spiritual aspects of yoga salient to its application as a therapeutic approach to mental health within social work.

### Biological

Exercise has long been considered an acceptable and effective method for improving and maintaining physical as well as emotional health. Research suggests that in addition to offering physical and physiological benefits similar to other forms of exercise (Ross and Thomas, 2010), however, yoga has its own unique effects by down regulating the sympathetic nervous system and reducing the body's stress response.

**Cortisol.** Yoga is conjectured to lower cortisol, a hormone that measures stress response system activation, through its focus on slow, conscious breathing (Visceglia & Lewis, 2012). Lengthened exhalation and breathing with increased airway resistance have been hypothesized to lead to physiological changes through stimulation of the vagus nerve (Brown & Gerbarg, 2005) and reactivation of the parasympathetic system. By strengthening the body's ability to relax itself, yogic breathing may help to improve the regulation of the autonomic nervous system.

Interestingly, although elevated cortisol levels are generally associated with negative physiological consequences such as dopamine dysregulation, a hallmark of schizophrenia pathophysiology (Visceglia & Lewis, 2012), higher *morning* cortisol levels have been associated with self-esteem, hardiness, and tenacity, as well as lower levels of nervousness, depression, and emotional lability (Zorrilla, DeRubeis, & Redei, 1995; Branstadter, Baltes, Kirschbaum, & Hellhammer, 1992). Woolery et al.'s (2004) study found suggestive evidence of higher morning cortisol levels and reported improved mood in those who participated in yoga classes compared to controls.

**γ-Aminobutyric acid (GABA).** In addition to cortisol, another biological correlate by which yoga may impact emotions is the neurotransmitter γ-Aminobutyric acid (GABA). Medications that increase GABA system activity are prescribed for anxiety disorders (Preston, O'Neal, & Talaga, 2013). A study by Streeter et al. (2010) also demonstrated positive correlations between yoga, greater improvements in mood and anxiety, and increased thalamic γ-Aminobutyric acid (GABA) levels. The effect of yoga on GABA levels, like cortisol levels, may be due to the ability of yoga practices to increase parasympathetic nervous system activity (Khattab, Khattab, Ortak, Richardt, & Bonnemeier, 2007). Furthermore, the yoga intervention was associated with greater improvements in mood and decreases in anxiety compared to the metabolically-matched walking intervention, suggesting that the effect of yoga on mood and anxiety is not solely due to the metabolic demands of physical activity. Intriguingly, in comparison with the authors' previous study (Streeter et al., 2007), this study's results suggest that the associated change in GABA levels may increase with yoga experience.

If indeed yoga's effects are not solely due to its metabolic impact as a physical activity, then the psychological, social, and spiritual mechanisms by which it influences emotional and mental health especially warrant a closer examination.

**Psychological**

**Embodiment.** Neuroscience research supports that yoga may allow for emotional healing that traditional psychotherapy does not. As Van der Kolk (2006) observes, because the dorsolateral prefrontal cortex (dlPFC), which is involved with insight, understanding, and planning for the future, has no connecting pathways to the parts of the brain that generate and elaborate emotions, "the part that needs to be functional in order to engage in the process of psychotherapy, has very limited capacity to squelch sensations, control emotional arousal, or change fixed action patterns" (p. 281). Instead, it may be necessary to also focus on a patient's *physical* self-experience. According to Mehling et al. (2011), body awareness involves attention to and awareness of the internal sensations of the body. In turn, bodily sensations are thought to affect our thought processes (Ogden, Minton, & Pain, 2006). Thus, "understanding of one's overall state is not arrived at by simply asking what it is one thinks, but also in asking what and how one feels, and it is made salient with the awareness of the bidirectional movement between the sensations of the body and the corresponding thoughts in the mind" (Head & Hammer, 2013, p. 112-113). Yoga promotes awareness of this bidirectional movement and feedback cycle. For example, one way it is thought that yoga might influence emotion is through changes to breathing patterns, different sets of which have been linked to the six emotions of joy-laughter, sadness-crying, fear-anxiety, anger, erotic love, and tenderness (Bloch, Lemeignan, & Aguilera, 1991; Telles, Singh, Joshi, & Balkrishna, 2010).

Decades before, Stern's (1985) work, derived from studies of infant-mother

communication, suggests that much psychological change results from the nonverbal rather than the verbal. Twemlow, Sacco, and Fonagy's (2008) psychoanalytic theory of action, "embodiment of mind," conceptualizes that physical practices such as yoga address the kinesthetic quality of early attachment experiences and trauma, which cannot be accurately or directly verbalized because they were formed before language was available to the patient. While their paper focuses on the violent patient struggling with aggression, it stands to reason that their theory also extends to other types of patients for whom language routes into problematic areas are ineffective or demand a degree of honesty as well as a capacity for abstraction and psychological mindedness, which may not be available. The authors go on to note that while traditional psychotherapy is often disembodied and ignores the body, "embodiment gives pride of place to the body, creating healing pathways… and giving form and grace to the whole self" (Twemlow, Sacco, & Fonagy, 2008, p. 11).

**Experiential.** Cognitive-experiential self-theory (CEST) offers another conceptual framework by which we might understand the nonverbal and physical healing experiences yoga can offer. CEST is a psychodynamic theory, which posits that human information processing is composed of two parallel and interacting systems: a rational system and an emotionally driven experiential system. Epstein (1994) compares the fundamental attributes of the rational and experiential systems as follows:

Table 1

*Comparison of the experiential and rational systems.*

| **Experiential system** | **Rational system** |
|---|---|
| 1. Holistic | 1. Analytic |
| 2. Affective: Pleasure-pain oriented | 2. Logical: Reason oriented |
| 3. Associationistic connections | 3. Logical connections |
| 4. Behavior mediated by "vibes" from past experiences | 4. Behavior mediated by conscious appraisal of events |
| 5. Encodes reality in concrete images, metaphors, and narratives | 5. Encodes reality in abstract symbols, words, and numbers |
| 6. More rapid processing: Oriented toward immediate action | 6. Slower processing: Oriented toward delaying action |
| 7. Slower to change: Changes with repetitive or intense experience | 7. Changes more rapidly: Changes with speed of thought |
| 8. More crudely differentiated: Broad generalization gradient; stereotypical thinking | 8. More highly differentiated |
| 9. More crudely integrated: Dissociative, emotional complexes; context-specific processing | 9. More highly integrated: Cross-context processing |
| 10. Experienced passively and preconsciously: We are seized by our emotions | 10. Experienced actively and consciously: We are in control of our thoughts |
| 11. Self-evidently valid: "Experiencing is believing" | 11. Requires justification via logic and evidence |



CEST assumes that the processing of the experiential system is generally dominant over the rational system because it is less effortful and more compelling due to its association with emotion. Because this influence is usually outside of awareness, the rational system fails to control it. From the perspective of CEST then, traditional psychotherapy invites clients to become aware of and to change the experiential and unconscious system through the use of the rational and conscious system. Yoga on the other hand, makes direct use of the experiential system, and I would argue, more successfully in cases where the rational system may not be able to access the experiential system, as in trauma or where a client may not have or be inclined to make use of the rational system features necessary for psychotherapy (analysis, logic, verbal expression).

The two figures below conceptualize how information processing between the two systems differs between traditional psychotherapy and yoga. Traditional psychotherapy elicits change through verbal exchange between therapist and client and encourages efforts within and/or outside the therapy session. Changes are then re-integrated in the rational system, as in the process flow below:


*Figure 2. CEST conceptualization of information processing in traditional psychotherapy.*

In contrast, yoga invites participants to apply efforts that can then lead to changes outside of yoga, not necessarily requiring, though perhaps strengthened by, the mediating effect of the rational system as activated in therapy or logical thought.


*Figure 3. CEST conceptualization of information processing in yoga.*

As item 11 from Table 1 suggests, "experiencing is believing." Particularly as yoga allows for, and in fact requires, bodily experience to which psychotherapy does not traditionally give great attention.

**Self-regulation and self-efficacy.** Attachment theory offers yet another interesting conceptual model through which to understand yoga's psychological effects. Dales and Jerry (2008) assert that attachment theory is fundamentally a regulatory theory in which there are two modes of affect regulation: *interactive regulation*—the ability to regulate emotional states through interactions with other individuals in interconnected contexts and *autoregulation*—the ability to regulate internal psychobiological states in autonomous contexts without others. According to Schore (2006), recent advances in attachment and intersubjectivity theory suggest that a major focus of therapeutic treatment is not on increasing the client's solitary coping skills but on instead helping the client restore his or her ability to use relational regulation (as cited in Dales and Jerry, 2008). That is, in a therapeutic setting, clients can experience dysregulated states and through this they can learn—initially through regulation with another—how to tolerate these states (Dales and Jerry, 2008). Clients can then reflect upon these experiences and eventually learn how to regulate them themselves in a more effective manner (Schore, 2006, as cited in Dales and Jerry, 2008). In this framework, instead of teaching clients coping strategies, which are left hemisphere/cognitive techniques, therapy encourages clients to let themselves take comfort from another who is able to help them return to homeostasis, a right hemisphere/affective technique (Schore, 2006, as cited in Dales and Jerry, 2008).

Yoga offers opportunities for participants to learn both left hemisphere/cognitive and right hemisphere/affective techniques, autonomously as well as interactively with others. Yoga postures may be experienced as uncomfortable and affectively dysregulating. When practiced in solitude, yoga encourages autoregulation. When practiced with a teacher or in a class, yoga also allows for interactive practice tolerating and reflecting upon experience through connection with

others. This connection with others appears to be an especially powerful aspect of yoga's social component as the following discussion explores.

**Social**

**Connectedness.** Not unrelated to the concept of interactive and auto regulation, Head and Hammer (2013) propose combining relational-cultural theory (RCT), which emphasizes the promotion of growth-fostering relationships, with yoga to promote a healthy way to view the self and cultivate authentic relationships. Within RCT, relationships include both the relationship with the self and relationships with others. They cite Surrey (1991), who offers the following explanation of growth in and from relationships, "It is not through separation but through more highly articulated and expanded relational experience that individual experience takes place" (p. 60). The underlying belief is that we develop through relationships, and it is our disconnection in relationships that causes disease (Miller and Stiver, 1991).

In their qualitative study on yoga as an intervention for depression, Kinser, Bourguignon, Taylor, and Steeves (2013), participants consistently cited how much they enjoyed sharing their experience with others. Intriguingly, the authors note that although participants did value active engagement with others, their findings suggest that there was an equal or greater benefit from the *nonverbal* shared consciousness:

> The shared experience was important…for coping…shared consciousness was there, when everyone was there together…it makes you feel a feeling of connectedness of everything…You walk out of there feeling in touch with the condition of others, not just what's going on with me, but what's going on with everything, which is very reassuring. When you're in a depressed state, you feel very alone…but feeling whole and part of a whole is where the value really is. (p. 407)

It has in fact been suggested that this sense of connectedness has a more powerful impact on depression than direct social support (Williams & Galliher, 2006). By encouraging positive group interactions, the intervention yoga classes may have enriched individuals' sense of self and

belonging in the world (Kinser et al., 2013). Thusly, yoga group classes may be an important way to enhance the well-being of an individual through connection with others (Seppala, Rossomando, & Doty, 2013).

**Transcendence.** Another way in which yoga's social impact on well-being may be explained is through the experience of self-transcendence in a group class. In an unusual discussion of hive psychology, which posits an explanation for individuals' desire to lose themselves as part of a larger social organism, Haidt (2008) argues that while the joy that flows from merging with a group, such as experienced in a yoga class, is rarely mentioned in psychology, experiences of collective joy often stand out as peak moments of happiness when people reflect upon their lives and as such, may be actually important for the study of well-being (Kahneman, 1999).

**Spiritual**

Connectedness and transcendence is also part of the spiritual component of yoga, as one participant in a qualitative study by Dittmann and Freedman (2009) explains:

> On my worst day, I can slow down and be and then remember that I don't have to do this by myself and what I'm experiencing isn't going to last forever and there is something so much more powerful and greater than me that is holding me all the time and I can only get to that place through yoga. (p. 284)

These themes were echoed in Derezotes' (2000) program evaluation of yoga and meditation training with adolescent sex offenders. When asked about spirituality, all but one felt that the training assisted them with their own spiritual development. One teen stated, "I get in touch more with my soul inside (p. 106)." Another said, "I didn't used to care what I said, how I said, or what I did. Now I care more about others (Derezotes, 2000, p. 107)." A third teen shared, "Now I want to help more than hurt people. I am able to see myself as a person more than just as a sex offender (Derezotes, 2000, p. 107)."

These participant observations eloquently capture yoga's spiritual dimensions as well as mirror Hatala's (2013) description of spirituality as "a search for the sacred, or a process through which people seek to discover, hold on to, and, when necessary, transform whatever they hold sacred in their lives (p. 260)."

The figure below offers a modified conceptualization of Evans et al.'s (2009) model of the biopsychosocial benefits of yoga, which further expands the psychosocial and spiritual components of yoga and their interlinking effects. Yoga's multifaceted ability to affect well-being makes it an important therapeutic approach to mental health that is well-aligned with social work's biopsychosocial-spiritual perspective on assessment and treatment. The following, and concluding, chapter discusses practice implications as well as considerations for research, education, and policy in regards to the application of yoga to social work.

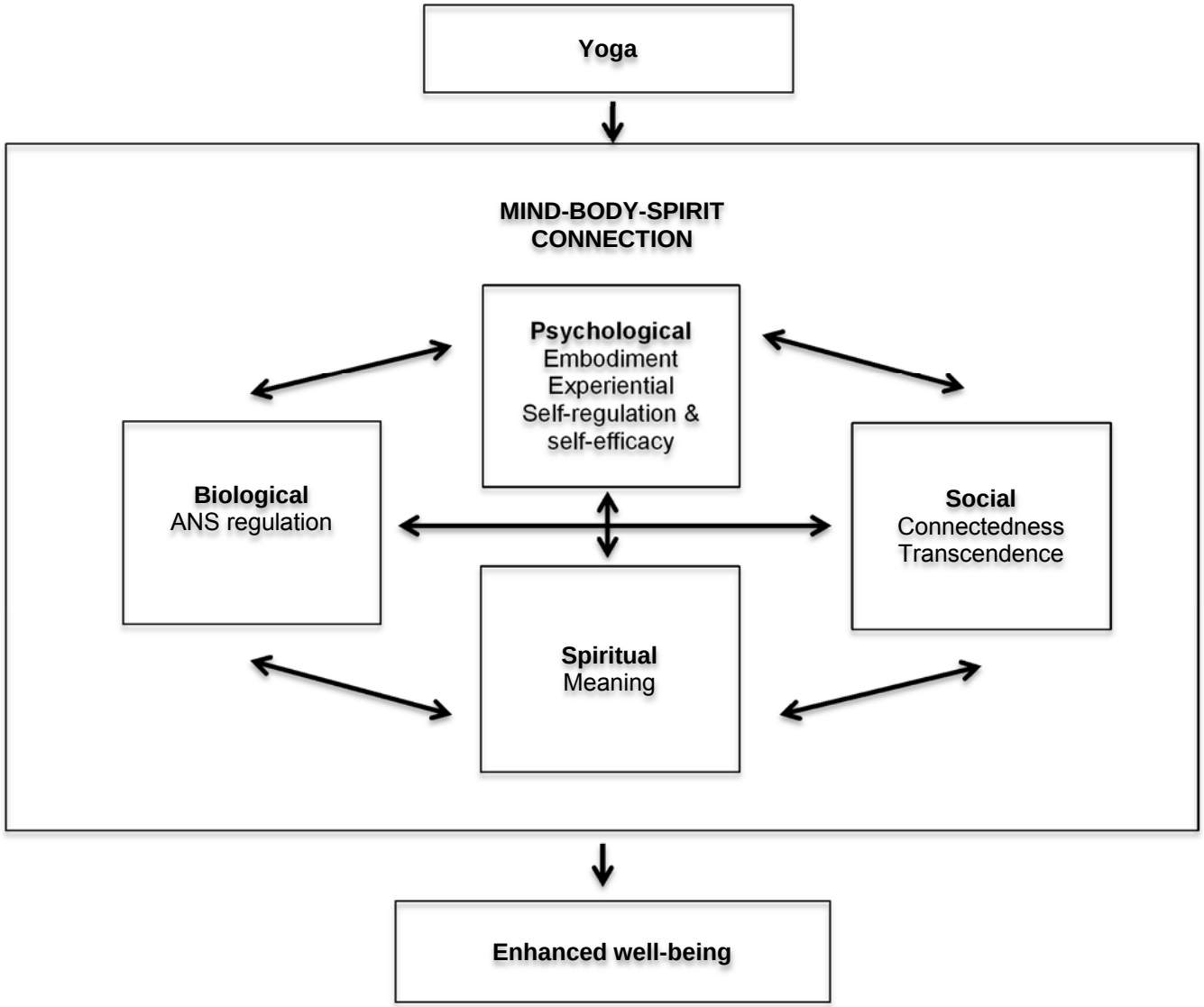


*Figure 4.* An amended conceptual model of the biopsychosocial-spiritual benefits of yoga.

# CHAPTER V

## Discussion

Yoga's ability to dynamically act upon multiple aspects of a person makes it a particularly promising mental health intervention in congruence with social work's biopsychosocial-spiritual perspective. Specifically, yoga as a complementary or alternative treatment enables social workers to offer an expanded continuum of care beyond psychotherapeutic and pharmacological interventions, in consideration of new and client-centered ways of understanding mental health, illness, and healing (Forfylow, 2011). This chapter offers recommendations and considerations for the application of yoga as a social work approach and directions for future research, education, and policy.

### Recommendations

Because it is not yet clear from the research and there are no guidelines as to exactly what amount or type of yoga participation is a minimum "effective" dose, social workers who wish to integrate yoga as an intervention will want to consider several factors in order to make the most appropriate recommendation to clients.

**Understand provider responsibilities.** First, social workers who incorporate yoga with individual or group psychotherapy, whether they use yoga within psychotherapeutic sessions or collaborate with yoga practitioners to co-treat clients, should be aware that they assume a greater burden of liability, including greater legal accountability for malpractice (Cohen & Schouten, 2007). To avoid recommending a treatment that may be harmful, social workers may wish to

collect clients' medical history (Cohen & Schouten, 2007) and encourage clients to be assessed by a physician (Valente & Marotta, 2011) before beginning any yoga intervention.

**Obtain informed consent.** While avoiding forceful, competitive, or advanced postures and breathing techniques can help mitigate the risk of injury, as with any other mental or physical practice, yoga is not without risk (Cramer, Krucoff, & Dobos, 2013). It is important, therefore, that social workers inform clients about the potential risks and benefits of yoga practice and that clients give their consent before beginning a yoga intervention.

**Consider format of yoga participation.** A social worker recommending yoga will also want to help clients determine what type of yoga participation is best suited for their physical and emotional needs and limitations. First, it is important to review some of the different methods by which yoga may serve as a social work intervention. One way is for a client to be treated by a social worker who is also trained in yoga therapy. If dually trained as a yoga therapist, a social worker integrating yoga in their treatment has to establish careful and appropriate boundaries as both a yoga therapist and mental health professional in their relationship with clients. For example, while in most talk therapies, the mental health professional does not touch the client, in a yoga session, the yoga therapist may touch the client to adjust the posture or support a position (Forfylow, 2011). A dually trained social worker will want to clarify these boundaries with a client before proceeding with integrating yoga into their treatment. Another way that yoga treatment may be obtained is for a client to work with both a social worker and a yoga therapist, who could work together to co-deliver an appropriate treatment. For instance, a client might complete a session with a social worker and then engage in a private and uniquely designed yoga practice with a yoga therapist (Forfylow, 2011). A client could also participate in a community-based yoga class. In addition to lower cost, a benefit to participating in a community-based yoga

class may be the experience of social connectedness that is not experienced in the same way in a private session. Finally, using an instructional DVD at home is an inexpensive and convenient option. The table below presents a comparison of the differing features of different yoga participation formats.

Table 2

*Comparing formats of yoga participation.*

| Yoga format | Individualization | Social experience | Cost | Home administration? |
|---|---|---|---|---|
| Yoga therapy | High | Medium | High | Possibly |
| Community-based class | Medium | High | Medium | No |
| Instructional DVD | Low | Low | Low | Yes |

The most appropriate format of yoga participation will depend on client goals, preferences, and resources. To make helpful referrals if they are needed, a social worker should familiarize themselves with the reputation of local yoga studios and teachers, available classes, and the methods taught (Valente & Marotta, 2011).

**Consider yoga style.** Regardless of the format of yoga participation, understanding different styles of yoga can also help a social worker make the most appropriate recommendation for a client's needs. Valente and Marotta (2011) describe six prevalent yoga styles:

***Hatha yoga.*** A general term that encompasses many of the physical forms of yoga.

***Vinyasa yoga.*** A vigorous style that includes movements in and out of a fluid series of postures often synchronized with the breath.

***Ashtanga yoga.*** A style that tends to be physically demanding because of constant movement from one pose to the next (in a series of postures performed in the same order).

***Kundalini yoga.*** A style that emphasizes using the breath in conjunction with physical movement and involves rapid, repetitive movements and chanted sounds or phrases.

***Bikram yoga.*** A form of "hot yoga" practiced in a heated room and centered on a series of postures performed in the same order.

***Iyengar yoga.*** The Iyengar style is unique in its prescription of time spent in various poses and selected sequences of poses to produce specific physiological and psychological effects. Iyengar instructors must complete rigorous training and evaluation before they achieve certification.

Many of the studies reviewed in Chapter III used Hatha yoga for their experimental interventions although Iyengar yoga, silver yoga, Yoga Ed, Kundalini yoga, and Viniyoga were also studied with promising results. Another way to consider yoga styles that may be helpful is suggested by Delaney and Anthis' (2010) study, which offers intriguing support for the usefulness of categorizing classes according to how much they emphasize the mental, spiritual, and physical aspects of yoga. The researchers used class descriptions as well as traditional definitions to classify yoga classes that study participants engaged in into three types (high mind-body, medium mind-body, and low mind-body). High mind-body classes strongly emphasized the "mind" aspects of yoga (e.g., meditation, breathing, mindfulness, and chanting) as well as the "body" aspects (postures, fitness). Medium mind-body classes emphasized "mind" and "body" aspects of yoga but with less intensity than high mind-body classes. Low mind-body classes tended to minimize "mind" elements of yoga. An example of how the same six styles described above was categorized in Delaney and Anthis' (2010) study follows below:

Table 3

*Yoga class classification.*

| Mind-Body Category | Yoga Class |
|---|---|
| High | Ashtanga yoga |
| High | Kundalini yoga |
| High | Iyengar yoga |
| Medium | Hatha yoga |
| Low | Bikram yoga |
| Low | Vinyasa yoga |

Although limited by the lack of randomized controls, the study found that participants who attended medium and high mind-body classes showed greater levels of body awareness and body parts satisfaction compared to participants who attended low mind-body classes, suggesting that more integrated mind-body yoga practice may offer important psychological benefits different than yoga that emphasizes physical fitness. Social workers recommending yoga may thus find it useful to consider and discuss with clients which level of mind-body engagement is best suited for clients' physical and emotional goals and limitations.

**Process yoga participation.** As a client engages in yoga practice, it can become a valuable tool with which to facilitate self-exploration, self-awareness, and self-acceptance (Valente & Marotta, 2011). Social workers may wish to support the integration of yoga into treatment by using these facilitative questions with clients:

- Did the class match your expectations? If not, how was it different?
- Which postures were the most difficult and which came more naturally?
- What did you learn about your body from the process?
- What did you notice about your breath as you attempted the different postures?
- What did you notice about the tension in your body and mind before class compared with after class? (Valente & Marotta, 2011, p. 258-259)

As clients progress in their yoga practice, additional questions that could be asked include:

- Did you notice any pattern of tightness as you attempted the different postures?
- What did you notice about your mind as you engaged in the class?
- What specific thoughts, emotions or memories came up during the practice?
- How did your mind react to the discomfort experienced during the class? (Valente & Marotta, 2011, p. 259)

**Consider yoga for professional development.** Finally, in addition to facilitating well-being in clients, yoga also shows promise in promoting health and preventing burnout in professionals. A qualitative study by Valente and Marotta (2005) exploring the impact of a regular practice of yoga in the personal and professional lives of psychotherapists, suggests that yoga's biopsychosocial-spiritual aspects can also be applied to developing the self of the therapist as well as reducing stress and burnout. Social workers may not only benefit from the integration of yoga into their treatment of clients but could also consider its application in their own professional development and practice of self-care.

## Cautions

At the same time that yoga is a promising approach to mental health, there are also cautionary considerations of which to be aware.

**Contraindications.** Certain styles or features of yoga may be contraindicated in some cases. As Emerson and Hopper (2011) point out yoga "class style has a profound effect on the experience" and there is a "need to consider which characteristics are beneficial and which are distracting, detrimental, or dangerous (p. 32)." For example, the rush of endorphins generated in an athletic class may actually help pacify anxiety better than a slow, meditative class, which could put some participants too closely in contact with their suffering (Douglass, 2009). As

another example, goals such as “refining the physical posture,” or to “be more accepting” may help the average student to focus while for individuals with eating disorders they can become one more thing they have done wrong or need to do better (Douglass, 2009). In addition, whether or not a teacher touches and assists students physically is an important variable. Some teachers ask permission in advance but some do not. Teachers of community-based yoga classes are not necessarily trained to work with sensitivity to mental health symptoms and not all clients may be comfortable with physical touch, particularly those with histories of trauma. Instead, social workers can use their knowledge of client history to determine which styles and features of yoga, or perhaps yoga as an intervention at all, may be contraindicated or require careful consideration and discussion.

**Critique of yoga as medicine.** There are some who believe that the application of yoga, particularly as it is practiced in the West, as medicine at all is troublesome. On the one hand, that yoga involves a system of beliefs, values, life meaning, and a connection with others that can be practiced either as a religious path or secularly (Evans et al., 2009) increases its accessibility. On the other hand, that yoga in the West is heavily associated with body-based practices of postures and breathing, some would argue edits “spirituality from the practice of Yoga (Douglass and Tiwari, 2006, p. 22)” and “denies the West access to what is most valuable about the healing practices of yoga: the importance that Yoga places on spiritual awakening and ethics in the healing process” (Douglass and Tiwari, 2006, p. 22). Hickey adds an interesting critique (2010) of what is denied *by* the West about the practices of yoga. She challenges the assumptions that the central practice of yoga is the physical postures and that Hindu religious ideas or practices are universal, transcending historical or cultural contexts. To Hickey (2010), the separation of yoga from its doctrinal context (its ultimate purpose to realize union with the Divine) and moral

foundation constitutes “a rhetorical erasure of the past (p. 173).”

Hickey (2010) is also concerned that yoga applied as medicine stresses individual practice and therefore, tends to avoid analysis of the systemic or institutional causes of suffering, such as racism, sexism, and poverty. We can see in the titles of studies that the application of yoga too emphasizes individual behavior over a social analysis of distress: “Yoga and emotional healing for aggressive youth” (Robold, 2002), “Transformative Life Skills: Pilot studies of a yoga model for reducing perceived stress and improving self-control in vulnerable youth” (Ramadoss & Bose, 2010), “Participation in a 10-week course of yoga improves behavioural control and decreases distress in a prison population” (Bilderbeck et al., 2013). There is not a simple answer to Hickey’s criticisms but we can appreciate the way in which her problematization of yoga as medicine reminds us of the importance of applying a socially-conscious and critical perspective to how we conceive of and apply yoga’s therapeutic promise.

**Implications for future research, education, and policy**

In the preceding section, I have reviewed some of the recommendations and considerations in yoga’s application as a social work intervention for mental health. The following discussion now suggests additional research as well as changes to social work education and policy that could further expand yoga’s therapeutic potential.

**Future research.** There are several methodological concerns that further research on yoga’s therapeutic application to mental health could address. Researchers have not determined which type of yoga, which aspect of yoga, or what amount of yoga is effective for which conditions. Studies use a range of yoga interventions from gentle practices such as Hatha yoga to more vigorous practices such as Ashtanga yoga. Furthermore, the length of time, the amount of time, and the frequency of the yoga intervention varied. Future studies designed to identify the

contributing effects of yoga's various elements, such as by comparing different forms of yoga, could shed more light on yoga's mechanisms of action and mitigate nonspecific effects, such as attention or expectation. Additionally, researchers could examine the acute versus long-term effects of yoga practice and include non self-report measures such as physiologic measures. Finally, future research could be more rigorous by having larger sample sizes, including a discussion about the adverse effects of yoga, and avoiding the effect of dropout by conducting intention-to-treat analysis.

On the other hand, Forfylow (2011) presents an interesting possibility that applying "Western scientific scrutiny to the holistic practice of yoga may jeopardize the sacredness and holistic unity of yoga (p. 142)." That is, the individualized and multidimensional nature of yoga interventions may be difficult to measure due to a lack of congruence between quantitative research methods and yoga philosophy (Spencer, 2003). Consequently, additional qualitative studies supplementing RCTs could improve how research defines and measures the effectiveness of yoga. As Lake (2007) states, quantitative evidence "shows effects that are statistically significant according to predefined criteria [but] do not address why an intervention is effective, meaningful, or beneficial" (p. 71) whereas qualitative data assess "the impact of a treatment on quality of life" (p. 71). Further quantitative and qualitative research that provides more information on the effectiveness of yoga as a mental health intervention would not only provide evidence supporting its application but could also improve its applied efficacy.

**Education.** Given the rising popularity of yoga as a complementary and alternative therapeutic treatment and emerging evidence for its efficacy as such, it will be important for social work education to prepare its students by including curriculum on the state of current research and how social workers can work with or advocate for clients who are interested and

may benefit from the integration of yoga into their treatment. Social work could also benefit from teaching its students about and honoring the cultural and historical origins of yoga as well as information about how yoga might be applied to students' own professional development.

**Policy.** In addition to changes to social work education, several policy changes could enhance yoga's potential and effectiveness as a therapeutic mental health treatment. One important aspect of yoga to consider is its potential in having a protective or preventative role in mental health. In Chen et al.'s (2009) study, experimental yoga group participants not only showed significant improvement in most mental health measures but also *maintained* these improvements throughout the study. Similarly, while most mental health measures of control participants in Khalsa et al.'s (2012) study worsened over time, changes in the experimental yoga group were minimal or even showed slight improvements.

Yoga can be more appealing than other forms of intervention (Bonura and Pargman, 2008) as well as less stigmatizing. That yoga can be self-administered as well as community-based as well as generally low-risk (Cramer, Krucoff, & Dobos, 2013) and lower in cost than conventional care are also advantageous. Another reason yoga may offer an attractive alternative or complement to traditional treatment is that it does not require the qualities that "the culture of psychotherapy" values: "self-disclosure, discussion of personal difficulties, emotional expression, and the use of outside experts for personal problems (Langman, 1997, p. 217)," which not everyone values. By potentially helping to reach populations that traditional talk therapy does not, yoga may be a way to reach a diverse audience with social work methodology as well as increase the availability and accessibility of effective therapeutic treatment.

The use of yoga for disease prevention and health promotion has potential long-term implications for improving public health as well as reducing healthcare costs. Using 2007

National Health Interview Survey (NHIS) data to examine the predictors of complementary and alternative medicine utilization, including yoga, Bhargava, Hong, and Montalto (2012) found that lack of access to conventional health care is positively associated with the use of CAM, suggesting the possibility that consumers who cannot afford health care are instead using CAM and a need for health policies to focus on making integrative medicine available for those with limited access to conventional care. For example, policymakers could increase yoga's accessibility by funding public or institutional programs.

Currently, it is primarily young, white, and college-educated women who use yoga for health (Birdee et al, 2008; Ross, Friedmann, Bevans, & Thomas, 2013). Further analysis of the potential barriers to the use of yoga for mental health could help make yoga more widely available and utilized. One barrier may be that yoga is not generally covered as an insurable health expense. By determining what types of yoga intervention are appropriate for what kinds of condition and regulating yoga therapy, policymakers could make it possible for yoga to be more widely funded and made available.

It is yoga's remarkable multidimensional nature that makes it a simultaneously challenging yet intriguing topic of study as a therapeutic application to mental health. There is emerging evidence from randomized controlled trials for its effectiveness as a complementary or alternative treatment for depression, stress, and eating disorders as well as a health promoting intervention. Additional research as well as additions to social work education and changes to policy are needed in order for yoga to be more effectively and widely applied as a mental health treatment. As an approach with biological, psychological, social, and spiritual aspects that offer a complementary or alternative path towards healing, yoga has great potential as a social work method that deserves further exploration and consideration.

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