Yoga Therapy and Pain

How Yoga Therapy Serves in Comprehensive Integrative Pain Management, and How It Can Do More

An IAYT White Paper

Yoga Therapy and Pain—How Yoga Therapy Serves in Comprehensive Integrative Pain Management, and How It Can Do More

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This paper originally appeared in the *International Journal of Yoga Therapy* (doi: 10.17761/2020-D-19-00074), a publication of the International Association of Yoga Therapists (IAYT).

IAYT would like to acknowledge the support and collaboration of both the **Integrative Health Policy Consortium** and the **Alliance to Advance Comprehensive Integrative Pain Management**, which provided the impetus for this project. We look forward to continuing to work together to realize the vision of comprehensive integrative pain management.

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Executive Summary

This paper examines the role of yoga therapy in comprehensive integrative pain management (CIPM). The pain crisis is described, and how yoga therapists can contribute to its solution is explained. Yoga therapy can be an essential component of the multidisciplinary undertaking that will be required to improve patient outcomes and alter the trajectory of the global public health crisis constituted by an epidemic of poorly understood and inadequately addressed pain. Additional context and evidence are presented to document the effectiveness of yoga therapy interventions to support people living with pain. The white paper concludes by listing recommendations to providers, consumers, payers, and legislators, who together can address systemic and structural barriers to CIPM, as well as suggestions for enabling the yoga therapy profession to more fully participate in these solutions.

Introduction

This paper examines the role of yoga therapy in comprehensive integrative pain management (CIPM). The pain crisis[1] is described, and how yoga therapists (YTs) can contribute to its solution is explained. This work also affirms that yoga therapy is an essential component of the multidisciplinary undertaking that will be required to improve patient outcomes and alter the trajectory of the public health crisis of poorly addressed pain. Additional context and evidence document the effectiveness of yoga therapy interventions to support those with pain. The report concludes by listing recommendations to providers, consumers, payers, and legislators, who together can address systemic and structural barriers to CIPM.

Identifying the Problems

It is widely understood and accepted that integrative solutions to the current public health pain crisis are lacking. Yoga therapy can be part of the solution to the following problems.

1. The primary problem is misunderstood. Opioid misuse, addiction, overdose, and death are currently the main drivers of interventions, and these issues must be addressed; however, they are symptoms of larger systemic dysfunctions rather than the primary problem. Clarifying the primary problem as an issue of pain and suffering rather than one of opioids demands that we explore why the pain crisis occurred in the first place. This includes recognizing the important distinction between pain and suffering and outcomes such as quality of life, flourishing, and well-being. An integrative, comprehensive biopsychosocial-spiritual (BPSS) framework is needed for reexamining, preventing, and addressing the root causes of chronic/ persistent pain and suffering.

2. Effective pain care needs to start in primary care. Not all people in pain require a CIPM team, nor do they all have access to such a team. Regardless of whether a CIPM team is available, yoga therapists must work and communicate well with primary care professionals, providing BPSS care within their scope of practice and competencies and offering education on the benefits of yoga therapy in patient care.

3. Effective pain-care/comprehensive management approaches are needed for people in pain. The pain care provided through current systems tends to have high costs, limited efficacy, and relatively high risk. This care generally fails to address social, behavioral, and spiritual determinants of pain, as well as the structural/cultural barriers to care. Much of the care is not patient-centered and does not provide simple, effective strategies for long-term management and self-management. This care is often provided within models that are pathology-driven rather than salutogenic, or focused on the facilitation of overall well-being, flourishing, and quality of life. The bias for single-intervention, "silver bullet" solutions does not address the complexity of the experience of pain or common comorbidities.

4. Pain-care programs, services, and interventions are not accessible or inclusive. The needs of diverse and vulnerable populations living in chronic pain in a variety of settings are overlooked and cannot be addressed with a singular approach. Given that the burden of chronic pain may be highest in vulnerable populations (the poor, the uninsured, and those belonging to ethnic minorities), many are left without adequate care and support.[2] Accessibility and inclusivity of CIPM programs, services, and interventions must be addressed. Creative, versatile BPSS approaches, which are absent or not yet identified, are essential to provide care for underserved populations.

5. Pain literacy is weak or nonexistent. Rapid advancements in pain science have left most major stakeholders—consumers, providers, legislators, insurers, and government agencies—behind in pain literacy. This lack of understanding makes planning and coordinating care more difficult and slows the adoption of treatments supported by contemporary pain science. As a profession, yoga therapy needs to continually address these shortfalls to avoid perpetuating the current problems and to take a leading role in interprofessional collaborations.

6. Public awareness of yoga therapy is limited. There is a general lack of understanding of what differentiates yoga therapy from the practices most people associate with contemporary yoga (i.e., general group posture-focused yoga classes). Likewise, yoga therapy's benefits to health and well-being, including pain care, are poorly understood. Yoga therapy is an evolving profession with a growing evidence base; a scope of practice and code of ethics; a PubMed-indexed research journal; and a professional association that accredits training programs, certifies individual therapists, and approves continuing education providers. Raising awareness for stakeholders and consumers is critical for yoga therapy to assume its role in CIPM as a collaborative partner that offers safe and effective options for people in pain.

Yoga therapy has important contributions to make in CIPM to enhance approaches to caring for people in pain. The purpose of this paper is to help address the above problems by outlining how they relate to yoga therapy and offering actionable steps for their resolution. We hope to offer new insight into how yoga therapy can support making CIPM a reality, ultimately improving care for people living with pain.

The Pain Problem and Comprehensive Integrative Pain Management

To be clear, this paper is not about how yoga therapy will solve the current pain crisis. Rather, accurately discerning the causes of suffering in this complex problem is the yogic approach; yoga interventions are intended to alleviate suffering by promoting overall well-being, quality of life, and flourishing in one's particular life circumstance. Such discernment requires a deeper understanding of the problem, followed by proposals that describe how yoga therapy can make a meaningful contribution to solving the overlapping public health crises of chronic pain, opioid misuse and overdose, and mental health disorders.

Approaching this problem requires humility. We first provide a broader context of the problem's source, then share how CIPM, as the current collective approach, invites the participation of yoga therapy in the solutions.

The Pain Problem's Roots

The problem in the pain crisis is the root cause of the pain and suffering; the problem is not the headline-grabbing symptoms of opioids, overdoses, drug "wars," and suicides. This problem is not new—it reflects perennial existential questions around the nature of pain and suffering, felt worldwide but now acutely in the United States. Recently, the U.S. public health failure of pain management has been made visible by those symptom-related headlines, resulting in demands for a deeper inquiry into causation. New insights from such investigations are leading to new corrective actions.

The experience of pain and related suffering has profound physical, emotional, and societal costs. Today, chronic pain affects an estimated 50 million adults in the United States alone, and as many as 19.6 million of those adults experience "high-impact" chronic pain that interferes with daily life or work activities.[3]

Pain-management stakeholders now better appreciate the complexity and relationships that both fuel and sustain the growing pain crisis. The experience of people in chronic pain is now acknowledged to extend far beyond the individuals in pain to include systemic social and structural issues that lead to societies devoid of meaning, purpose, and connection for individuals. The simplistic (and often inaccurate) explanations of the causes and treatment of pain given in the past are no longer acceptable. Anyone offering a simple or singular cause of or solution to the conundrum is either woefully ignorant or pushing an agenda other than caring for those in pain.

This crisis has yielded an important opportunity to unite what in the past were often disparate groups into a highly motivated collaboration that crosses both physical and disciplinary boundaries. The now-evolving collaboration in the United States is a useful model and mirrors many others around the world. The group behind CIPM is advocating for a coordinated, integrated approach to pain management that is known to reduce pain severity and suffering and to improve mood and overall quality of life.

What Is CIPM?

Comprehensive integrative pain management emerged from a collective effort in the United States: The Integrative Pain Care Policy Congress, hosted by the Academy of Integrative Pain Management in partnership with the Integrative Health Policy Consortium and PAINS Project, is so far the only collective of its kind to have united representatives from more than 75 organizations and agencies. The group, whose intention was to improve access to CIPM for all, included licensed and certified healthcare professionals, public and private healthcare payers, people living with pain, federal governmental agencies, purchasers of healthcare, researchers, policymakers, and policy experts.

At its inaugural meeting in 2017, this pain-care policy congress supported the first consensus definition of CIPM.[1] The definition takes into consideration the many international definitions of pain (from the World Health Organization, International Association for the Study of Pain, etc.) to arrive at an understanding of CIPM as follows:

Comprehensive, integrative pain management includes biomedical, psychosocial, complementary health, and spiritual care. It is person-centered and focuses on maximizing function and wellness. Care plans are developed through a shared decision-making model that reflects the available evidence regarding optimal clinical practice and the person's goals and values.

This multi-stakeholder collaborative, of which the International Association of Yoga Therapists (IAYT) is a part, agreed that CIPM is the best approach to caring for people living with pain. The congress further asserted that no one group can properly advance this kind of care alone. "Comprehensive, integrative" is also a level of consciousness, one that requires change from the simplistic, linear thinking that brought on and sustains the pain crisis to one that adopts complex thought and systems-based awareness. This definition illustrates an important shift within the healthcare community away from a focus on symptoms to a conceptualization of care that includes the promotion of function, wellness, and values.

This new consciousness highlights the fact that the growing number of pain management guidelines and policies—from national and local governments, other public sources, and private agencies—are affecting the healthcare available to those in need of acute and chronic pain management. These policies have good intentions, but the confusion created by conflicting stakeholder recommendations and the prior absence of what constitutes CIPM have contributed to prolonging pain and exacerbating substance-use disorders. Rather than point fingers of blame, a good way to begin to grasp the new, more complex approach is to review the problems listed above in the Introduction and to consider how the CIPM definition now invites corrective action.

The Challenges We (All) Need to Address

Describing the challenges to be addressed points us toward their relationship with CIPM as well as toward a definition of yoga therapy, and ultimately to how CIPM and yoga therapy can, and do, interface.

The challenges to and advantages of realizing CIPM include lack of coverage by public and private insurers. In addition, few effective, low-cost, low-risk interventions exist. A 2011 report on the U.S. government's pain research strategy notes that "health systems and financial arrangements do not consistently support effective, low cost, low risk interventions over those interventions that are higher cost and higher risk."[4] Without approaches that are simple, easily translatable to providers and consumers, and easy to implement in training, scaling up interventions is difficult in terms of both time and costs. The inclusion of complementary health in CIPM acknowledges the generally lower-tech and lower-cost interventions to be tested and employed. Yoga therapy is both low cost and low risk as reported in the literature.

There are differences in belief about what causes pain, and few pain-care approaches address social, behavioral, and spiritual determinants of health. CIPM directly calls for all three determinants to be included, moving beyond a limited biochemical, tissue-based, psychological, or genetic focus.

Additionally, few pain-care approaches offer sustainable, safe, effective long-term management options, especially after discharge from formal care. Approaches that include self-management strategies are also lacking, yet according to the report cited above, "self-management is included as a recommendation of many meta-analytic studies, government documents (e.g., National Pain Strategy), and guidelines addressing optimal pain care."[4] Both long-term management and self-management are inherent in the CIPM definition as a person-centered approach that addresses the individual's values and goals. The profession of yoga therapy has within its scope of practice effective methods for addressing social, behavioral, and spiritual determinants of health, as well as long-term management and self-management.

The high prevalence of common comorbidities in the context of chronic pain must be addressed: "Novel theories and conceptual models . . . should inform development and evaluation of more innovative, integrated approaches to clinical assessment and treatment, taking into account relevant comorbidities in patients

across the lifespan."[4] People value independence, function, and the freedom afforded by being well; they do not value only reduced discomfort.[3] Interestingly, some complementary health publications demonstrate that when models such as yoga and tai chi are integrated into care, they affect multiple comorbidities. This is in contrast to complaint-specific allopathic modalities.

There is a dearth of patient-centered, patient-valued, compassionate care in which partnership, shared decision-making, and therapeutic alliance are actively cultivated. The CIPM model is aspirational, acknowledging that much remains to be done, but it is built on a foundation of wellness that expands on tenets of evidence-based medicine. The goal goes beyond relieving pain to embrace *salutogenesis.* As opposed to a disease-focused (pathogenic) approach to care, a salutogenic approach focuses on function and wellness aligned with purpose and meaning (spiritual elements of health).

CIPM is not yet understood by the public, policymakers, or healthcare professionals (to include yoga therapists). This pain-literacy problem cuts across all sectors. CIPM offers a framework aligned with the complexity of the pain experience as a BPSS phenomenon. CIPM also offers a language that recognizes the importance of both *comprehensive* and *integrative* care to address pain and suffering. This paper is one small step to filling these knowledge gaps.

Pain-care management programs, services, and interventions may not be accessible or inclusive for people with pain:

> *In particular, disparate groups such as socioeconomically disadvantaged [and marginalized] individuals may not have access to many care services, interventions or preventative health care programs. A void exists in understanding models of care outside the hospital such as in emergency (e.g., ambulance) and home care settings.*[4]

According to CIPM, patients' goals and values are to be cared for locally and included in the community, addressing systemic and structural determinants of health beyond the medical systems where people live.

Many readers may be surprised to learn that yoga therapists already create safe spaces for pain care through practices in prisons, schools, worksites, clinics, halfway houses, substance-use disorder centers, and other settings. Yoga therapy's ability to relieve suffering across the BPSS spectrum via small-group classes (accessible, affordable) or telehealth has not been widely studied. Many questions remain to be explored, and the natural fit between CIPM and yoga therapy can be further clarified.

What Is Yoga Therapy?

What is yoga therapy, and why is it being so widely adopted around the world?[5–9] This section answers by briefly defining yoga therapy, highlighting aspects of the profession that relate to CIPM, and setting a context for its potential contributions to CIPM.

Yoga and Yoga Therapy

The contemporary practice of yoga often focuses on the postures as exercise or a workout. However, yoga has a rich history as a comprehensive system intended to alleviate suffering.[10] Yogic practices include breathing exercises, ethical practices, and meditation. Yoga therapy is based on the wisdom tradition of yoga, as it combines philosophy, teachings, and evolving practices with current BPSS understanding, applying these principles to client populations with specific health conditions and concerns.

Yoga therapy differs from yoga focused primarily on postures in several ways.[11] It has a clearly defined scope of practice based on educational standards, accreditation of training programs, and certification of therapists. It includes a focus on all of the yogic practices, as well as appropriate modifications adapted to

individual needs. IAYT-certified yoga therapists acquire specific skill sets and practical experiences to enable them to work with individuals using a BPSS approach. The profession also has a PubMed-indexed scholarly journal of yoga therapy *(International Journal of Yoga Therapy [IJYT]),* a clinical practice publication *(Yoga Therapy Today [YTT]),* and annual research conferences.

Yoga Therapy and CIPM

Yoga therapy can be understood as a salutogenic intervention that seeks to identify the contributors to health and assist individuals in progressing toward optimal well-being. Yoga teaches that in adverse life situations, including chronic pain, we can connect to states of calm, equanimity, and contentment; suffering arises from forgetting this connection to such states as one misidentifies with the fluctuating stimuli of the body, mind, and environment.[12] The teachings and practices of yoga can support equanimity and contentment within the specific circumstances of the individual. Improved well-being along the BPSS continuum is fostered as the person is supported in identifying the causes of suffering and experiences the potential for greater well-being along the BPSS continuum.

A foundational philosophy that informs yoga therapy is the *panchamaya kosha,* or five sheaths, model. The kosha model is said to be more than 2,500 years old.[13] Similar to the BPSS model, the kosha model recognizes that many layers of experience (physical, energetic, psychoemotional, social, spiritual) influence well-being. Yoga therapists evaluate and work with clients on each of these layers of well-being.

The yoga therapeutic practice teaches that connection to one's authentic personal self, values, and needs provides empowerment and self-efficacy for behavior change. Yoga therapy clients learn practices that promote inner attention to habits of the body-mind that influence the perception of pain, as well as practices of inquiry and self-study that can help to develop more adaptive relationships to sensation. Yoga therapy is a patient-centered partnership between therapist and client; compassionate care, shared decision-making, and the development of a therapeutic alliance are intrinsic to its processes. This experience of connectedness can expand from the patient personally to a greater connection with others for healthy, meaningful relationships, as well as existentially for the restoration or development of a meaningful and purpose-filled life.

Yoga therapy is context-sensitive and adaptable to any patient-care setting from prenatal to the end of life. Although the practices are wide and deep philosophically, they also paradoxically provide many approaches that are simple, easily translatable to multiple populations and settings, and trainable to care deliverers. Yoga therapy therefore offers cost-effective, long-term management and self-management strategies for chronic conditions. Yoga, and therefore yoga therapy, is not a religious practice, and it is compatible with all major faith traditions.

The International Association of Yoga Therapists defines yoga therapy as "the process of empowering individuals to progress toward improved health and wellbeing through the application of the teachings and practices of yoga."[14] This definition points to several significant features that demonstrate the distinct roles for yoga therapy in patient care in alignment with CIPM.

Specific Cross-Over Between Yoga Therapy and CIPM

Figure 1 demonstrates how CIPM and yoga therapy mirror each other. Most noteworthy, yoga therapy reflects CIPM principles for the following reasons.

First, yoga therapy is person-centered, focused on wellness, and uses shared decision-making. Yoga therapy also uses a BPSS model that both emphasizes and influences each domain of health. The wisdom tradition of yoga reflects commonly held features of spiritual well-being, including connectedness (personal, interpersonal, existential); purpose (through concepts such as *dharma,* which encourages harmony with life); and ethical inquiry (through the yamas and niyamas). Ethical inquiries support healthy and adaptive relationships

Figure 1. Definitions of Comprehensive, Integrative Pain Management (CIPM) and Yoga Therapy[11,12] that Highlight Commonalities Between the Approaches

Comprehensive, integrative pain management includes biomedical, psychosocial, complementary health, and spiritual care. It is person-centered and focuses on maximizing function and wellness. Care plans are developed through a shared decision-making model that reflects the available evidence regarding optimal clinical practice and the person's goals and values.	**Yoga therapy** [an adjunctive complementary health practice] is the [person-centered] process of empowering individuals to progress [not by means of a singular silver-bullet solution, but with a care plan] toward improved health and wellbeing [focused on maximizing function and wellness rather than on pathologies] through the application of the teachings and [biopsychosocial-spiritual] practices of yoga.

to oneself (body, emotions, thoughts, beliefs), to others (cultivating better-quality relationships), and to life (fostering meaning-making and purpose).[15] Such work nurtures positive feedback cycles from the individual's practice to the broader community and society, which in turn support the individual, further strengthening the cycle. The importance of recognizing the spiritual focus of yoga is reflected in the literature demonstrating that practitioners shift to spiritual intentions with prolonged practice; this spiritual focus is related to higher levels of well-being compared to practitioners who hold solely physical intentions.[16,17]

Social well-being is a natural outgrowth of these spiritual practices through the cultivation of ethical qualities such as patience, acceptance, and compassion (toward self and others), as well as through the recognition of connection between all people as part of yoga philosophy. In addition, group classes can facilitate more meaningful relationships with the community to enhance social integration and well-being.

Mental and physical health are cultivated through the synchronistic application of yoga practices. Top-down and bottom-up processes are employed through the practice of ethical inquiry, meditation, awareness practices, breath techniques, and movement to promote systemic body-mind regulation and resilience.[18–21]

Finally, as a practice that integrates the BPSS model of well-being, yoga therapy promotes autonomic nervous system regulation, strengthens interoceptive skills, fosters positive psychological states, increases physical health and resilience, and enhances prosocial behavioral attributes such as compassion, as described below.[19] In service areas that lack conventional providers to address each facet of BPSS well-being, yoga therapy can augment the domains that aren't accessible.

Ongoing Professional Development

Yoga therapists have an individual and collective responsibility to continue to grow and develop as a new profession that seeks recognition and collegial respect as a partner in CIPM. Many in the profession understand the need to improve or to begin addressing a number of key areas.

Yoga therapy training programs and organizations can take the following steps.

- Expand risk-management training and policies and include them in training programs. This includes data collection and participation in reporting adverse responses to interventions.
- Expand the accessibility to and inclusivity of yoga therapy pain-care programs, services, and interventions.
- Increase societal awareness of yoga therapy, educate allopathic medical and allied health providers about yoga therapy, and offer consumer education to inform choices and promote therapeutic alliances between patients and providers.

Individual yoga therapy providers can take the following steps.

- Be well-versed in the difference between yoga therapy and *yogopathy,* yoga primarily directed to a medical condition or diagnosis and symptom resolution.[11] Yoga therapy is not competing for customers already being served, but rather is a valuable adjunctive contribution to CIPM.
- Practice with an understanding that the individual's condition informs the yoga therapy techniques but that interventions are geared toward addressing the sources of suffering, salutogenesis, BPSS well-being, systemic body-mind regulation, and resilience.[11]
- Actively learn how to practice collaboratively and make appropriate referrals, in alignment with IAYT educational standards 5.1.4, 5.1.5, and 5.3.1–5.3.3.[22]
- Be well-versed in current understandings of pain, pain management, and their own role in pain care. This is an enormous challenge of awareness, as many have grown up and studied the culturally dominant, outdated models of pain care. Professional development in pain literacy requires that yoga therapists demonstrate an understanding of the complexity of the pain experience in the following ways.

    - Reflect on their personal experience with pain, their beliefs about pain, and how these influence their interactions in providing care.
    - Understand current models and theories of pain and pain physiology, including that of pain as an output influenced by a combination of mediators or inputs (e.g., physiological, emotional, memory, environmental, social, spiritual).
    - Be able to speak to, educate about, and develop interventions that are informed by this complex, multifactorial understanding of pain.
    - Be informed on current methods of meaningful data collection and assessment for this client population.
    - Avoid perpetuating misunderstandings and misinformation on pain, such as the relationships among tissue health, nociception, and pain. Avoid inaccurate terminology such as *pain signals, misaligned,* or *pain nerves,* and do not conflate *causation* with *correlation* when reading, interpreting, or sharing pain research.
    - As evidence-informed practitioners, take into account current research, the client's experience and needs, as well as their own clinical expertise. Interventions and patient education should not be based on outdated, mechanistic models and teaching as if pain is solely related to one input such as the tissues or the mind. Yoga therapists should acknowledge, respect, and learn from the patient's lived experience of pain, including associated stigma.
    - Describe how pain and suffering are related and interdependent, how they differ in various contexts, and how yogic tradition has dealt with both.
    - Appreciate how individual yoga therapy techniques can introduce the profession despite not being the complete practice. At the same time, advocate for the integrity of the practice, depending on the circumstances and long-term strategy for integrating yoga therapy into care.
    - Actively participate in addressing individual and collective illiteracy around pain, to include studying this white paper, publications in *IJYT* and *YTT,* and continuing education courses. Undertake the actions listed in the Recommendations below.

Health professionals, consumers, and policymakers need more than a description of what a yoga therapist is to effectively collaborate and legislate with yoga therapists. It is yoga therapy's professional responsibility to offer specific, substantiated ways the profession is partnering in CIPM and can increase this participation.

A literature review article would typically present the research next. Because this is a white paper and has a different function, we will first offer recommendations for stakeholders, followed by an Appendix listing and extensive summary of the evidence to support the recommendations.

Recommendations for Various Stakeholders

The following action-based next steps for facilitating yoga therapy's role in CIPM are drawn from the preceding material. The steps are outlined after the problem(s) described in the Introduction that they will most affect. The reader can also return to earlier sections for citations and rationale, as those will not be repeated here. The organization of a white paper suggests moving directly from reading the earlier sections into action. This course might be possible for a few of the steps. However, we invite the reader to reflect, as yogic practice of clinical mastery, on how you/we as a community might have to grow before the yoga therapy profession can successfully participate in many of the action steps and contribute meaningfully to future fulfillment of CIPM.

The primary problem is misunderstood, and public awareness of yoga therapy is limited. This can be addressed by developing, implementing, and supporting ongoing campaigns to clarify that there is a pain crisis rather than an opioid crisis while improving knowledge translation within the IAYT membership and for other stakeholders.

These efforts could include, but are not limited to

- open-access dissemination of this white paper.
- translation of knowledge from this white paper throughout various IAYT platforms, including but not limited to *YTT*, blog on www.yogatherapy.health, plenary conference sessions, sponsored webinars, popular-media campaigns, etc.
- translation of knowledge from this white paper to the public, healthcare providers, insurers, government stakeholders, and specific advocacy organizations via high-impact media such as multimedia campaigns targeted to each group, as well as distribute others' quality resources to IAYT membership.
- assembly of a professional marketing team, special-interest group, or task force to identify and implement effective strategies.
- integration of this knowledge translation into pain literacy recommendations and promotion of interprofessional/stakeholder collaborations.

Pain literacy is weak or nonexistent. Knowledge and skill need to be built within the yoga therapy community.

- IAYT and the profession as a whole will develop and collaborate in the development of quality resources to increase pain literacy for yoga therapists. Some of these resources will assist yoga therapists in their interdisciplinary relationships. Wherever possible and appropriate, IAYT will make high-quality resources created by others available to its members.
- IAYT will create standards of assessment and treatment planning for yoga therapists working with individuals with chronic pain as part of an interdisciplinary team or in one-to-one care. These will be integrated into core yoga therapy program curricula as well as accreditation and certification standards and practices.
- IAYT will continue to prioritize pain and suffering topics for presentations and publications. Individuals will prioritize these topics as part of their professional development.
- IAYT will create a presenter's checklist on pain, provide it to all presenters prior to conferences, and provide feedback to each presenter.
- The profession will continue to promote pain-management research and pain literacy for yoga therapists.

Pain-care programs, services, and interventions are not accessible or inclusive. CIPM stakeholders need to address access, affordability, and other barriers to service.

These efforts could include, but are not limited to

- finding, promoting, and supporting innovative pilot programs that deliver CIPM. Examples are stakeholders incentivizing programs in areas of underserved populations (via IAYT, Yoga Service Council, Accessible Yoga, Yoga Alliance Foundation, Global Wellness Institute's Yoga Therapy Initiative, Give Back Yoga Foundation, etc.) and supporting programs to be continued or developed in community settings for underserved populations.
- collaborating with workers compensation providers and other groups/insurance plans that are motivated by cost savings and return-to-work times. These organizations maybe seeking innovative ideas that are values-based and low cost but not as encumbered by bureaucracy as Western healthcare modalities.

Effective pain-care/comprehensive management approaches are needed for people in pain, and pain care needs to start in primary care. Collaboration with allopathic, allied, integrative health professionals and stakeholders can be promoted by increasing the recognition of the benefits of yoga therapy to support current pain-care strategies.

These efforts could include

- listing yoga therapy in best-practice guidelines such as those from the U.S. Department of Health and Human Services (www.hhs.gov/sites/default/files/pain-mgmt-best-practices-draft-final-report-05062019.pdf), Alliance to Advance Comprehensive Integrative Pain Management (http://painmanagement alliance.org/about-us/history/), and Integrative Health Policy Consortium (www.ihpc.org).
- dissemination of clear evidence-informed statements of yoga therapy benefits, including cost of care, access, and content.
- providing clarity about yoga therapy as a distinct profession with its own explanatory framework and foundation in spiritual well-being.
- disseminating the scope of practice and BPSS framework of yoga therapy in an evidence-informed manner in a variety of ways, including for medical and integrative health professionals, insurers, stakeholders, and the public.
- promoting research, including encouraging case reports and prototyping models of collaborative care for pain populations.

This is a truncated list of opportunities for action that may emerge in the future. Readers are encouraged to communicate with IAYT to share current efforts and find support for their local activity.

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APPENDIX

Yoga Therapy's Evidence Base: Contributions to Addressing Barriers to CIPM

This section explores existing and potential relationships between CIPM and yoga therapy. Although yoga therapy does not directly address pain literacy, yoga employs self-study that promotes awareness, exploration, and discernment. These practices build new relationships to the body, mind, and environment to provide an additional language through which we can discuss and understand the multifaceted nature of pain, suffering, well-being, and life. As with any relationship, the evidence and conclusions supporting this section are nuanced.

Although yoga practices are potentially beneficial for people in pain, there are many gaps in our scientific knowledge. We cannot say that

- yoga helps everyone;
- yoga is effective for all pain conditions;
- all yoga paths, styles, and techniques are effective (yoga is not one thing); or
- all yoga therapists can attain the same results as the experts employed by researchers.

The positive effects of yoga for people living in pain reported in research do not provide direct evidence to support theories related to the causes of persistent pain or how yoga therapy works.

Studies are typically completed by individuals with a strong bias toward yoga, often without a methodology that adequately controls for this bias through fully randomized allocation and blinding of assessors to experimental versus control groups.

The studies are rarely replicated, which affects the conclusions of most systematic reviews and meta-analyses. Yoga research often does not use data from outcome measurements that can easily be compared between studies, such as measuring immediate and lasting changes after individuals have practiced yoga for varying lengths of time and with varied doses. The lack of consistency between trials then makes it impossible to consider interactions of dose and duration of effects. These and other issues significantly limit the claims that can be made about the positive effects of yoga on people living in persistent pain.

As with all complex, integrative health considerations, several points make the relationship between yoga therapy and CIPM unique:

- The essence of the yoga therapy paradigm does not match a disease model in which a treatment is curative (that would be yogopathy).
- Integrative care also requires that we discover relationships beyond the scientific method and standardized protocols; robust methodologies sensitive to the individual adaptations of yoga therapy are required.
- Important aspects of relationship may be missed by current research as a result of the lack of qualitative and mixed-methods approaches and longitudinal studies to capture long-term effects.
- The old adage that yoga is strong but slow medicine highlights a missing key ingredient in this relationship; time constraints related to funding and completing studies that would capture such data mean that yoga therapy's long-term effects have not been adequately explored.

Please keep all of this in mind as you review the following summary of yoga therapy's evidence-informed contributions to CIPM. We have included research addressing the effects of yoga on people with pain attributed to specific locations and pathophysiology, plus effects of yoga on common experiences of that group.

Evidence is listed under subheadings drawn from the CIPM definition: biomedical, psychosocial, complementary health, patient-centered, and spiritual. This division is somewhat arbitrary, but we select these components because they illustrate how yoga therapy and CIPM are related and may in the future be further related.

Biomedical CIPM Component

Yoga Therapy's Biomedical Contributions from Research

- Yoga has been shown to positively affect function, pain, and quality of life for people with numerous musculoskeletal pain conditions.
- Psychosocial factors often improve concurrently, and yoga therapy appears to result in few adverse events.
- Effect sizes appear similar to physical therapies and guided movement therapies.
- Many research gaps remain.

Because yoga therapy is an intervention available outside of the more costly medical system, future research and the identification of promising grassroots innovations will promote integration of yoga into medical pain management to decrease healthcare costs and improve outcomes. Such efforts will also enable the provision of yoga therapy as a continuation of best practices within, outside, or after medical care plans.

Musculoskeletal Pain and Disability

Research demonstrates improvements in function, psychoemotional comorbidities, and pain.[23]

- Yoga interventions resulted in a clinically significant improvement in functional outcomes in mild to moderate low-back pain and fibromyalgia.
- Yoga interventions showed a trend to improvement in kyphosis.
- Yoga interventions significantly improved pain in osteoarthritis (OA), rheumatoid arthritis (RA), and mild to severe low-back pain.
- Psychosocial outcomes were significantly improved in mild to moderate low-back pain and OA.

In a meta-analysis of the effects of yoga interventions on pain and associated disability,[24]

- yoga was used to treat patients with back pain in six studies;
- yoga was used to treat patients with RA in two studies;
- yoga was used to treat patients with headache/migraine in two studies; and
- six studies enrolled individuals for other indications.

All of the included studies reported positive effects in favor of the yoga interventions.

Back pain. Following a research review, the American College of Physicians recommended yoga as a treatment for people with chronic low-back pain.[25] Outcomes were similar to physical therapy programs. There is low- to moderate-certainty evidence that yoga compared to nonexercise controls results in small to moderate improvements in back-related function at 3 and 6 months.

A yoga program for nonspecific chronic low-back pain was noninferior to physical therapy for function and pain.[26]

With few exceptions, previous studies and the recent randomized controlled trials (RCT) indicate that yoga can reduce pain and disability, can be practiced safely, and is well-received by participants. Some studies also indicate that yoga may improve psychological symptoms, but these effects are currently not as well established.[27]

Overall, six studies with 570 patients showed that Iyengar Yoga is an effective means of addressing both back and neck pain in comparison to control groups.[28] This systematic review found strong evidence for short-term effectiveness but little evidence for long-term effectiveness of yoga for chronic spine pain in the patient-centered outcomes.

Another systematic review found strong evidence for short-term effectiveness and moderate evidence for long-term effectiveness of yoga for chronic low-back pain in the most important patient-centered outcomes.[29] Yoga can be recommended as an additional therapy to chronic low-back pain patients.

Neck pain. Yoga has been shown to be effective for decreasing disability and pain in people with chronic neck pain. Considerably more research has been completed for people with chronic low-back pain than neck pain.

Yoga has short-term effects on chronic neck pain, its related disability, quality of life, and mood.[30]

Yoga was more effective in relieving chronic nonspecific neck pain than a home-based exercise program.[31] Yoga reduced neck pain intensity and disability and improved health-related quality of life. Yoga seems to influence the functional status of neck muscles, as indicated by improvement of physiological measures of neck pain.

Evidence from three RCTs shows that yoga may be beneficial for chronic neck pain.[32] Neck pain intensity and functional disability were significantly lower in the yoga groups than in the control groups.

Overall, six studies with 570 patients showed that Iyengar Yoga is an effective means for addressing both back and neck pain in comparison to control groups.[28] This systematic review found strong evidence for short-term effectiveness but little evidence for long-term effectiveness of yoga for chronic spine pain in the patient-centered outcomes.

Knee pain. Research studies have focused on strengthening, balance, and flexibility more than on biopsychosocial application of yoga practices. No adverse effects were noted from yoga interventions investigating knee pain, and yoga was superior to passive approaches focusing only on pain relief.

Yoga might have positive effects on pain and mobility in patients with knee OA.[33] The effect of yoga on pain relief and function improvement could be seen after a 12-week intervention.

An integrated approach of Hatha Yoga therapy was better than therapeutic exercises as an adjunct to transcutaneous electrical stimulation and ultrasound treatment in improving walking pain, range of knee flexion, walking time, tenderness, swelling, crepitus, and knee disability in patients with OA knees.[34]

Carpal tunnel syndrome. We are unable to make any evidence-based comments about yoga for people with carpal tunnel syndrome, as no studies of yoga met systematic review criteria.[35] No evidence for effects on pain was found in one RCT on carpal tunnel syndrome.[35]

Additional Biomedical Research

Rheumatic diseases. In a systematic review, three RCTs on OA showed very low evidence for effects on pain and disability based on two RCTs, very low evidence was found for effects on pain in RA.[36]

An adjunct study was undertaken to evaluate adapting the Yoga as Self Care for Arthritis in Minority Communities study for a bilingual population living with systemic lupus erythematosus in the Washington, D.C., area.[37] The study shared perspectives from various informants and affirmed the feasibility of progressing to a larger study; it summarized recommendations for creating an RCT, as there are currently none in the literature.

In adults with RA, yoga participation was associated with higher rates of full-time work status and better physical function than nonparticipation.[38]

In another trial, both Hatha Yoga and aerobic strengthening exercise improved symptoms and function, but Hatha Yoga may have superior benefits for older adults with knee OA.[39]

Yoga therapy practice showed an improvement in outcomes (timed up and go, sit to stand, handgrip strength, and goniometer tests), suggesting improved muscular strength, flexibility, and functional mobility compared to a control group that received no intervention.[40]

Migraines. Some evidence exists for positive effects of yoga for people with migraines; modest efficacy and benefit of yoga were shown for the other disorders included in this review (chronic headache, neck pain, back pain, fibromyalgia, pelvic pain, irritable bowel syndrome [IBS], chronic fatigue syndrome, and somatoform pain disorders).[41]

Fibromyalgia. Encouraging results have been shown in a small number of studies.[42] In two RCTs on fibromyalgia syndrome, there was very low evidence for effects on pain and low evidence for effects on disability.[31]

There is no definitive cure for fibromyalgia, and treatment primarily focuses on symptom management and improving patient quality of life. This treatment strategy involves a comprehensive multidisciplinary approach consisting of lifestyle modifications, pharmacologic measures, and other complementary approaches including but not limited to acupuncture, yoga, tai chi, and meditation.

In a Mindful Yoga intervention, fibromyalgia symptoms and functional deficits improved significantly, including physical tests of strength and balance and pain-coping strategies.[43] These findings indicate that further investigation is warranted into the effect of Mindful Yoga on neurobiological pain processing.

Consistently positive results were found for tai chi, yoga, meditation and mindfulness-based interventions, hypnosis, and guided imagery.[44]

Immune functioning. A systematic review of RCTs "hypothesized that longer time spans of yoga practice are required to achieve consistent effects especially on circulating inflammatory markers. Overall, this field of investigation is still young, hence the current body of evidence is small and for most immune parameters, more research is required to draw distinct conclusions."[45] Fifteen RCTs were eligible for the review. Even though the existing evidence is not entirely consistent, a general pattern emerged suggesting that yoga can downregulate proinflammatory markers. In particular, the qualitative evaluation of RCTs revealed decreases in IL-1beta, as well as indications of reductions in IL-6 and TNF-alpha. These results imply that yoga may be implemented as a complementary intervention for populations at risk or already suffering from diseases with an inflammatory component. Yoga practice may exert further beneficial effects by enhancing cell-mediated and mucosal immunity.

Regular practice of yoga lowered basal TNF-alpha and IL-6 levels. It also reduced the extent of increase of TNF-alpha and IL-6 to a physical challenge of moderate exercise and strenuous exercise.[46] That study concluded that regular yoga practice may protect against inflammatory diseases by favorably altering proinflammatory cytokine levels.

Another review suggested that yoga can be a viable intervention to reduce inflammation across a multitude of chronic conditions.[47] Future studies with detailed descriptions of yoga interventions, measurement of new and well-established inflammatory biomarkers, and larger sample sizes are warranted to advance the science and corroborate results.

IBS/pelvic pain. One study showed positive effects of yoga on multifaceted outcome parameters, and another in adolescents showed promise in decreasing the symptoms of IBS.[48]

One study of 60 women showed increased quality of life and decreased pain intensity for women with pelvic pain after an 8-week yoga intervention.[49]

Pain changes with yogic breathing. "[P]aced slow breathing [was] associated with pain reduction in some of the studies" in a systematic review.[50]

There is a narrative review on studies regarding effects of yogic breathing on neurocognitive and psychophysiological changes.[51]

Brain function. One study showed that yoga practitioners have more gray matter in multiple brain areas and increased pain tolerance compared to controls.[52] The insular cortex has been shown to be involved in pain processing and modulation, and this study showed increased gray matter in the insular cortex correlated with increased pain tolerance. This study also showed that yoga practitioners had increased left intrainsular white matter connectivity, "consistent with a strengthened insular integration of nociceptive input and parasympathetic autonomic regulation." Yoga practitioners used different strategies for pain management than the controls. Most commonly, yoga practitioners used focused body-mind relaxation, focused breathing, focus on accepting pain sensation, and mindful nonjudgmental focus on pain without reacting. The controls tried distracting themselves or ignoring the pain. These gray and white matter insular brain changes in yoga practitioners and the association with pain tolerance suggest that yoga practice may improve pain tolerance by using various techniques that influence processing of noxious stimuli, including emotional regulation and interoception.

Research suggests that regular yoga practice is associated with greater brain volume in areas involved in bodily representation, attention, self-relevant processing, autonomic integration, emotional regulation, and stress regulation.[53]

Another study showed that fluid intelligence (variety of cognitive skills, including ability to adapt to new environments) declined more slowly in yoga practitioners and meditators than in controls.[54]

Also, the cerebral blood flow of long-term meditators was significantly higher compared to non-meditators in brain regions involved in attention, emotion, and autonomic function.[55]

Potential Contributions to Resolving Biomedical CIPM Problems

Yoga therapy may in the future be used to augment care where movement and other biomedical modalities are not available. Furthermore, it may complement care in the other components of health when only a biomedical service is available, as outlined below.

In group settings, yoga therapy can offer post-rehab support and further development of self-management as well as socialization support. Group services also enhance accessibility and affordability because of their lower cost compared to one-to-one therapies.

Psychosocial CIPM Component

Yoga Therapy's Psychosocial Contributions from Research

There is limited yet promising research on the effects of yoga on psychosocial outcomes specific to people in pain. We have provided an overview of the research that includes the chronic pain population in addition to other clinical populations and healthy individuals. Therefore, some of the outcomes may not necessarily directly translate to people in pain, but it is important to include this literature because the psychosocial effects of yoga may be of significant value to people in pain. Many of the psychosocial symptoms and comorbidities that accompany chronic pain are addressed in yoga research.

Several RCTs indicate beneficial effects of yoga for pain associated with disability and mental health. In some cases, the effectiveness of yoga is comparable to usual care in people with certain mental health conditions.

Research with varying levels of evidence, as outlined below, shows the following benefits of yoga on psychosocial components of health:

- improved mood associated with mental illness;
- facilitated self-regulation, stress reduction, stress management, and resilience, resulting in positive changes in physiological (psychological, emotional, behavioral, and physical) outcomes;
- potential positive effects for populations at risk for social isolation; and
- improved behavioral functioning in underserved populations.

We include contributions from the mindfulness meditation–based interventions and mindfulness–based stress reduction (MBSR) literature, as mindfulness is a component and outcome of yoga:

- Mindfulness meditation-based interventions show reductions in chronic pain symptoms in many pain-related disorders. Improvements in depressive symptoms, anxiety, stress, cognition, and quality of life in clinical populations have been shown.
- MBSR has been associated with improvements in pain intensity, physical functioning, catastrophizing, and self-efficacy in people with chronic low-back pain. Other outcomes that may be relevant for people in pain are reduced stress and bothersomeness and improved general mental health.

Overall, the literature suggests that yoga is a safe and promising intervention that addresses a variety of psychosocial outcomes. Limitations and gaps in the research remain.

Mental health. Several RCTs of relatively high quality indicate beneficial effects of yoga for pain-associated disability and mental health.[56]

Depression. Systematic review findings on the effects of yoga on depression showed "moderate evidence for short-term effects of yoga compared to usual care."[57] Furthermore, "yoga could be considered an ancillary treatment option for patients with depressive disorders and individuals with elevated levels of depression."

Other reviews indicated effects of yoga comparable to those of evidence-based interventions.[58] Effects of yoga on depressive disorders may be comparable to medication; a combination of medication and yoga was superior to medication alone.[59]

Reasonable evidence supports the benefit of yoga in specific depressive disorders.

Anxiety/mood. Systematic reviews examining the effectiveness of yoga on anxiety and anxiety disorders found positive results.[60]

Yoga may be superior to medication for a subgroup of people with anxiety disorders,[58] and "Yoga appears to be superior to no treatment and progressive relaxation for both depression and anxiety, and may benefit mood and anxiety symptoms associated with medical illness."

An RCT showed greater improvements in mood and anxiety during a 12-week yoga intervention when compared to a metabolically matched walking program; yoga postures were associated with increased thalamic gamma-aminobutyric acid (GABA) levels.[61]

Certain yoga poses have been shown to affect mood.[62]

Stress reduction/management and inflammation. Systematic reviews on the effects of yoga on stress reduction and management show positive changes in psychological and physiological outcomes and suggest yoga as a promising intervention.[63,64]

A meta-analysis concluded that yoga postures (with or without MBSR) "appear to be associated with improved regulation of the sympathetic nervous system and hypothalamic-pituitary-adrenal system in various populations."[65] A systematic review and meta-analysis on the effects of meditation (a component of yoga) showed an overall reduction in physiological markers of stress in a variety of populations.

Systematic review of mechanisms underlying the effects of yoga on stress reduction showed changes in positive affect, self-compassion, and inhibition of the posterior hypothalamus and cortisol as mediators.[66]

A systematic review on the effects of yoga on inflammatory biomarkers in people with chronic inflammatory-related disorders concluded that "yoga can be a viable intervention to reduce inflammation across a multitude of chronic conditions."[67]

Self-regulation. Yoga facilitates self-regulation, resulting in psychological and physical well-being. Proposed underlying mechanisms include both bottom-up and top-down processes through physiological, cognitive, emotional, and behavioral domains.[54]

PTSD. As a systematic review and meta-analysis on the effects of yoga for post-traumatic stress disorder (PTSD) concluded, "Only a weak recommendation for yoga as an adjunctive intervention for PTSD can be made. More high quality research is needed to confirm or disconfirm these findings."[68]

Work. Results from an RCT showed that an 8-week workplace yoga intervention reduced back pain and perceived stress and improved psychological well-being.[69]

Another RCT showed that a 6-week yoga program improved emotional well-being and stress resilience in participants in a workplace setting.[70]

Mindfulness/meditation/MBSR. *Mindfulness-based meditation* is an umbrella term that includes a variety of meditation practices that come from and are a core component in yoga. Mindfulness-based meditation has been shown to reduce pain through numerous processes other than the endogenous opioid system.[71]

Research shows that mindfulness meditation-based interventions reduce chronic pain symptoms in many pain-related disorders such as fibromyalgia, migraine, chronic pelvic pain, and IBS.[71] Mindfulness-based interventions have also been shown to improve anxiety, depression, stress, and cognition in clinical populations, through mechanisms that appear to address cognitive and emotional regulation, mood enhancement, and acceptance.

Larger systematic reviews and meta-analyses concluded that mindfulness-based interventions "could have nonspecific effects for the reduction of pain symptoms and the improvement of depressive symptoms in patients with chronic pain."[72]

There is limited evidence showing specific effects, low-quality evidence showing an association of mindfulness-based interventions with a small decrease in pain compared to controls, and statistically significant improvements in depression symptoms and quality of life.[73]

Research surrounding the effects of MBSR on pain contributes to the overall body of research on yoga and pain, as mindfulness is a component of yoga as well as an outcome of yoga practice. MBSR includes mindfulness meditation that focuses on nonjudgmental awareness and acceptance of moment-to-moment experiences, in addition to Hatha Yoga postures and other components, often in a group setting.[74]

Similarly, yoga professionals guide people in pain to observe and be aware of thoughts, sensations, emotions, and other experiences that may arise during yogic practice, with compassionate acceptance and without judgment. These skills may translate to self-management of pain and other physical and psychological symptoms of pain conditions such as fibromyalgia, including bothersomeness as a component linked to suffering.[75]

A systematic review and meta-analysis concluded that "MBSR may be associated with short-term effects on pain intensity and physical functioning" in the management of low-back pain.[76]

Another systematic review and meta-analysis made a "weak recommendation" for MBSR for people with fibromyalgia based on the quality of evidence but showed MBSR as a promising approach for people with the condition.[77]

An RCT concluded, "MBSR could reduce stress and improve general mental health in patients with tension headache."[78]

Catastrophizing/self-efficacy. Research shows potential associations between catastrophizing and mindfulness in chronic pain populations, suggesting that mindfulness-based interventions that increase mindfulness and reduce pain catastrophizing may also reduce pain.[79]

An RCT showed similar effects of MBSR compared to cognitive behavioral therapy on catastrophizing, self-efficacy, acceptance, and mindfulness in people with chronic low-back pain.[80]

Social. The nature of yoga allows for individual practice as well as practice in group settings. Yoga practice in group settings can offer a sense of community and social connection that results in positive health effects. A systematic review and meta-analysis of the effects of yoga programs in prison showed a small improvement in psychological well-being and behavioral functioning in incarcerated individuals.[81]

Ross et al.[82] suggest that, "Yoga could be beneficial for populations at risk for social isolation."

Potential Contributions to Resolving Psychosocial CIPM Problems

Part of the value of yoga therapy is its ability to address psychosocial aspects of health and contribute solutions to many CIPM problems. We believe that yoga does this by

- offering a safe, low-cost, and effective intervention in pain reduction/management and coping with psychosocial symptoms of pain conditions with low risk and little to no adverse side-effects.
- supporting patient self-management and long-term management by enhancing self-efficacy, self-regulation, and self-confidence, which can all be practiced as part of a self-care behavioral treatment and become life-long behavioral skills. Self-regulation contributes to patient empowerment, cost-effective long-term management, and sustainable behavioral change.
- providing a BPSS intervention (vs. a reductionistic approach) that addresses the complexities of the pain experience and people in pain.
- offering an approach that addresses social and behavioral determinants of health and psychosocial comorbidities commonly associated with chronic pain.
- offering group therapy settings to provide social support, community, and connection that can result in positive health effects such as decreased perceived social isolation, depression, and stress, which are commonly associated with chronic pain and can influence pain. Yoga therapy is an increasingly socially acceptable approach to pain care that includes social and behavioral health domains and does not carry the stigma that may be associated with "group therapy." Yoga therapy also contributes to improved accessibility and inclusivity of pain-care programs, services, and interventions by
- providing adaptable options that meet the BPSS needs of diverse and vulnerable populations in chronic pain. These options can be delivered in a variety of accessible and inclusive settings, both onsite and online, that are often overlooked.
- providing a safe, effective, and low-cost option that can help address the shortage of pain-trained psychosocial providers, particularly in underserved and rural areas.
- developing and offering safe, effective, and low-cost options for group therapy for diverse and underserved populations and settings.

Yoga therapy contributes to effective primary pain care by providing opportunities to develop programming to augment education for self-management strategies while addressing social needs in a low-cost, low-tech setting.

Complementary Health CIPM Component

Yoga Therapy's Research-Based Contributions to Complementary Health

Yoga therapy is a natural fit in CIPM, as yoga is among the most popular of all complementary health

disciplines and has the evidence base provided here. With the evidence continuing to rapidly grow, the term *complementary* becomes less appropriate as yoga is demonstrated to be efficacious and therefore *adjunctive* or an equal consideration to conventional health behaviors. Complementary and alternative medicine (CAM) stands to become truly integrative.

Potential Contributions to Resolving CIPM Problems Based in Complementary Health

In tandem with the hopeful movement of healthcare from the delivery of sick care to the promotion of health, the old terminology will fall away and each of the CAM disciplines will be left to stand on the merits of its own evidence base, including individual patient values and circumstances, provider clinical expertise, and quality and rigor of the research literature. The consensus to include and further evaluate CAM in healthcare systems is a landmark change. This shift by no means signals that "anything goes" in pain care, but rather the need of all providers to integrate, with humility, to form a broader spectrum of pain management.

Patient-Centered CIPM Component

Yoga Therapy's Patient-Centered Contributions from Research

As described above under "What Is Yoga Therapy?" the modality supports care based on person-centered inquiry and direction. This patient-centered orientation is already present in yoga therapy and consistent with CIPM, but this focus also, ironically, makes it difficult to accommodate methodological biases toward RCTs as the highest level of evidence. How do you provide for each individual's (patient-centered) needs, values, and circumstances while delivering a fixed intervention protocol to a homogenous sample? That is the multi-billion-dollar question.

Potential Contributions to Resolving Patient-Centered CIPM Problems

It is hoped that the yoga therapy profession will continue to train therapists to adhere to a person-centered relationship, resisting the tendency to fall into the dominant prescriptive medical model. Often in integrative models, the best answer to questions is "both/and." Yoga therapy may need to play such a role in CIPM, exploring the balance between more linear biomedical care and care that can easily adapt to patient preferences and circumstances. This orientation would not relieve yoga therapy of the responsibility to continue to build its evidence base. The information collected here invites further exploration and acceptance in pain care.

Spiritual CIPM Component

Yoga Therapy's Spiritual Contributions from Research

Yoga is a spiritually informed mind-body practice. Although we do not yet have good research that identifies the need for, extent of benefits of, or parameters for applying spiritual practices for the chronic pain population, people with chronic pain do use spiritual practices to cope with pain. A number of positive health outcomes have been shown to result from engaging in spiritual practices or having spiritual beliefs, including reduced pain, active coping and adjustment to chronic pain, improved quality of life, and reduced anxiety and depressive symptoms.

Research has shown that humans value spirituality to address meaning-making, which can influence the person's interpretation of pain.[83] When meaning-making included self-efficacy, this resulted in superior treatment outcomes for those with chronic pain; in contrast, negative meaning-making or using prayer as a way to give up responsibility for finding solutions resulted in reduced resiliency and perceived self-control and increased disability.[83,84]

Preliminary evidence supports an association between spirituality and positive health outcomes such as reduced pain (severity, tolerance, sensitivity), active coping and adjustment to chronic pain and illness, improved quality of life/life satisfaction, reduced anxiety and depressive symptoms, positive physical health effects (cardiovascular, endocrine, immune effects), and social support.[56,83–96]

Yoga is a spiritually informed mind-body practice. Research suggests that mind-body practices may provide a suitable intervention strategy for chronic pain populations; when spiritually based, such practices have shown greater effectiveness for pain, mood, and self-efficacy to cope.[87,95]
The inclusion of philosophical and spiritual components in yoga protocols has shown greater physical and mental health effects and is recommended by experts as important for clinical populations.[16,97–99]

Group yoga offers a sense of community that may be beneficial to an individual's social and spiritual health. Ross et al.[82] concluded that, "Yoga could be beneficial for populations at risk for social isolation." Research has identified associations between social isolation and people living with chronic low-back and pelvic pain.[100–102]

Potential Contributions to Resolving CIPM Problems

Yoga therapy, as a spiritually informed approach, contributes to the need for effective and comprehensive pain-management approaches by

- providing a safe, low-cost, effective, and accessible framework from which to integrate the spiritual component of BPSS pain care.
- providing a unique service and opportunity to integrate spiritual health while addressing key CIPM ingredients of physical movement practices, mental health practices, and social connection.
- offering practices to help explore the patient-valued role of spirituality (meaning, purpose, sense of personal/interpersonal connection) in the pain experience. This can be done in a secular way and within each individual's spiritual or religious belief system, further contributing to a patient-centered approach.
- addressing ongoing active self-care, as spiritual components of yoga are reported as motivators for adherence to ongoing practice within CIPM.

Research Review Summary

This research review highlights the need for continued research to expand our understanding of how yoga therapy can best fit into CIPM. As with most other healthcare processes within CIPM, we do not know how to best individualize yoga therapy or decide on dose and dosage. We do not know whether different aspects of yoga therapy will provide best effects within the continuum of BPSS processes associated with persisting pain.

Evidence exists for the benefits of yoga therapy, and this evidence applies across BPSS processes. At least in terms of cost and efficiency there may be benefit in providing one intervention that positively addresses body and mind and focuses on overall well-being, quality of life, and flourishing within one's life circumstances. Although the level of evidence and durability of effects demonstrated in the current research are lacking, we may expect these to be similar to effects reported in meta-analyses of physical and psychological therapies. Again, this lack of evidence is due in part to the limited number of research papers and study participants and lack of replicated studies.

Research gaps and biases exist, as noted. Yet overall, yoga therapy is positioned as an important potential contributor within CIPM because it addresses accessibility issues and can be provided for low cost, integrated into current CIPM practices, and continued after more expensive services are discontinued.

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