

Making Connections to Improve Health Outcomes

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Abstract

This issue of *Global Advances in Health and Medicine* sends a vital message about the importance of whole person health. Whole person health rests on the idea that our health involves multiple interconnected factors across physiological systems, as well as biological, behavioral, social, and environmental domains. The urgency of better understanding whole person health is highlighted by the current global health crisis. Yet, biomedical research often favors a reductionist approach. The current emphasis on diseases or single organ systems can fall short when it comes to addressing the interconnected factors that contribute to worse health outcomes. This, coupled with a fragmented health care delivery system, contributes to the challenges that patients face every day in becoming healthier. As part of the U.S. National Institutes of Health, our role at the National Center for Complementary and Integrative Health (NCCIH) is to foster research in this field. NCCIH's twenty years of research has built a body of knowledge that has established a clear path forward for exploring whole person health in the coming years. Within the framework of our strategic plan, NCCIH is working to build research methods for studying whole person health and explore how this understanding of health can transform the way complementary and integrative health is perceived and implemented within the wider health care delivery system. The collection of papers highlighted in this month's issue of *Global Advances in Health and Medicine* sends an important and encouraging signal about the efforts being made to deliver health care in a way that recognizes the importance of whole person health. Each of these studies provides new insights on how stakeholders might approach transforming the delivery of health care, integrating approaches that can improve health outcomes for people.

Keywords

complementary and alternative medicine, integrative medicine, treatment and prevention

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As part of the U.S. National Institutes of Health (NIH), our role at the National Center for Complementary and Integrative Health (NCCIH) is to foster research in this field. Our impact is amplified by our extensive collaborations with other NIH Institutes and Centers and through many interagency initiatives, including collaborations with the U.S. Department of Veterans Affairs (VA).

The National Center for Complementary and Integrative Health supports the full continuum of the research pipeline. As such, our scope spans basic and mechanistic research, efficacy and effectiveness trials, dissemination and implementation, including systems-level research addressing access to and reimbursement for interventions. The latter types of studies support the effort to translate research into real-world settings and are essential building blocks in

reimagining how—and when—we engage people in their health.

With more than two decades of research in our portfolio, the field is at an exciting inflection point in the effort to deepen our understanding of complementary and integrative health practices. This accumulating body of knowledge has

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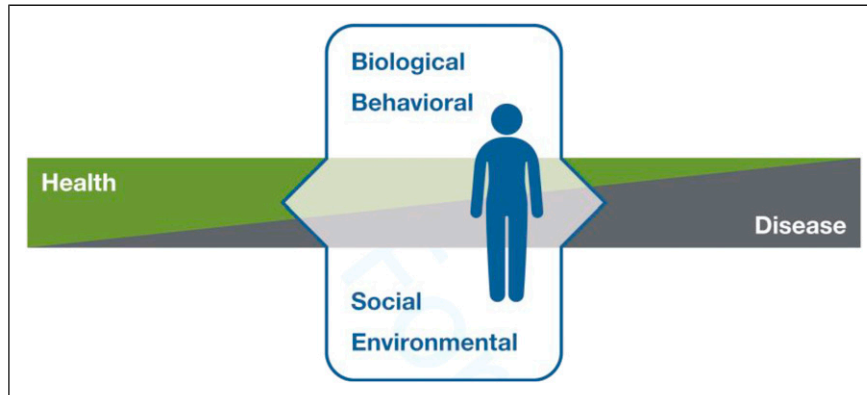


Figure 1. Graphical representation of whole person health. The vertical component represents the “whole person” biological, behavioral, social, and environmental axis, and the horizontal component represents the bi-directional axis of health and disease.

established a clear path forward for the coming years. Within the framework of our strategic plan,¹ NCCIH is working to advance how we study whole person health and explore how this understanding of health can transform the way complementary and integrative health is perceived and implemented within the wider health care delivery system.

Understanding Whole Person Health

Whole person health rests on the idea that our health is deeply interconnected across systems. The need to recognize these connections is not new, but the current global health crisis has sharpened the picture and highlighted why exploring whole person health is so vital.

Yet, we face numerous hurdles. Biomedical research emphasizes a reductionist mindset—analysis predominates over synthesis. Our health care delivery system is fragmented, and this fragmentation plays a role in the challenges patients face every day in achieving good health. Our systemically narrow focus on diseases or single organ systems, and their treatment using separate drugs for separate diseases, feeds a cycle of missed opportunities to address the underlying factors that can be mitigated and help contribute to better health outcomes.

In the United States, this cycle is evidenced in startling statistics. After decades of consistent gains, life expectancy began falling off in 2014,² with COVID-19 significantly accelerating losses in expected life years for Americans in 2020.³ The most recent analysis (2018) from the National Center for Health Statistics of the U.S. Centers for Disease Control and Prevention shows that more than a quarter of Americans have multiple chronic conditions.⁴

When we take a step back and look at this whole picture, we begin to see the connections between the conditions that people often seek to address through complementary and integrative health approaches—poor sleep, stress, chronic pain, depression—and the conditions that drive the greatest utilization of health care, like low back and neck pain, diabetes, cardiovascular disease, and mental health conditions.⁵

Whole person health reflects factors across multiple domains and the lifelong “push and pull” of the continuum between health and disease (Figure 1).

In particular, widening the aperture on health can help us go beyond disease prevention toward the creation of health. While biomedical research focuses on understanding pathogenesis, or the mechanistic path toward disease, much less attention is given to salutogenesis, or the mechanistic path toward health. The estimated 100 million COVID survivors experiencing post-acute sequelae of COVID-19 (PASC)^{6,7} are a vivid, “real-time” illustration of the imperative for a more sustained and vigorous research endeavor and a long-term public health conversation focused on health restoration. However, because health involves the whole person, this type of research poses special challenges that are not present in studies that focus on understanding diseases one organ system at a time.

Advancing Methods for Studying Whole Person Health

Prioritizing whole person health creates an imperative for developing and refining study methods that can provide meaningful insights in a field that is inherently complex and multifaceted. Developing research methods that can unravel these complexities and create rigorous, reliable, and replicable results is fraught with challenges and requires innovation. As illustrated in Figure 2, methods to support whole person health research must be built to assess:

- (1) Interactions among body systems
- (2) The impact of a single intervention on multiple systems
- (3) The impact of multiple interventions on a single system
- (4) The impact of multiple interventions on multiple systems

The National Center for Complementary and Integrative Health recently hosted a 2-day workshop,

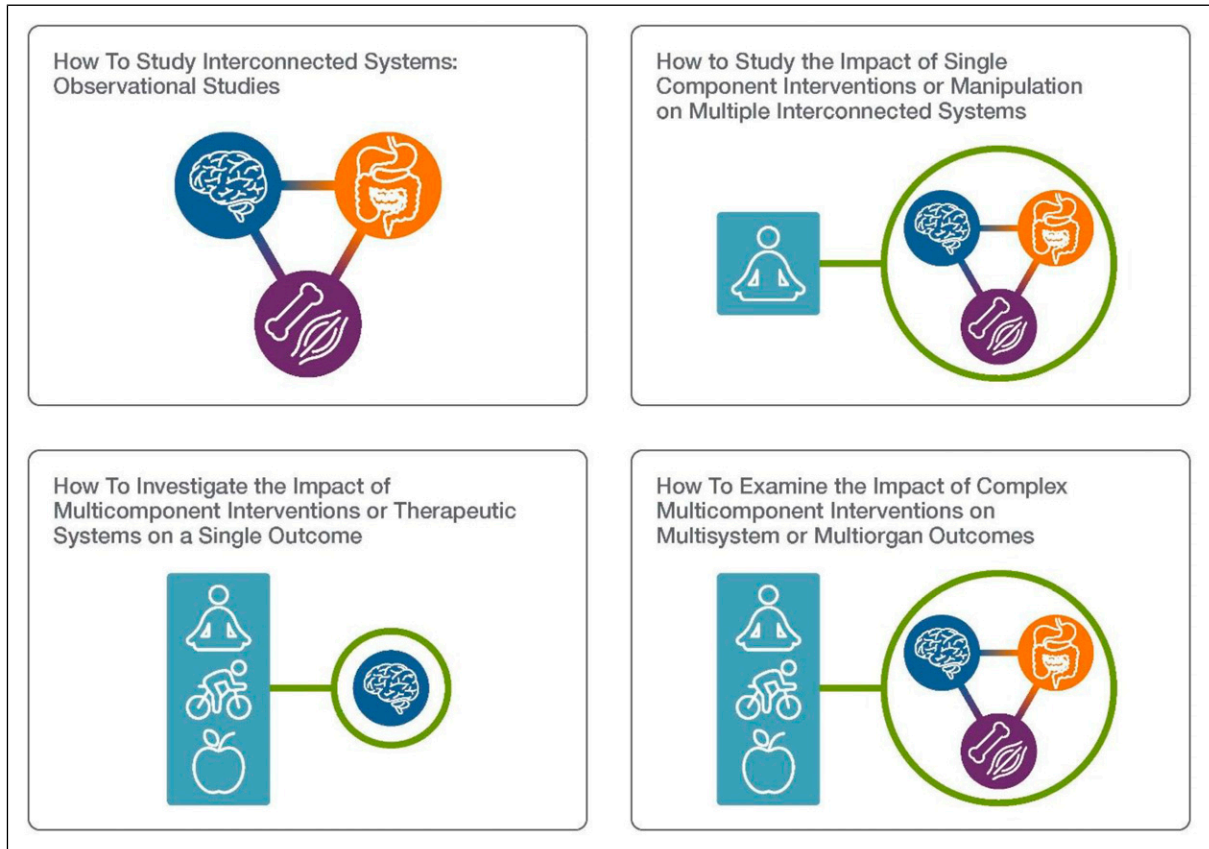


Figure 2. Research on whole person health may involve studying multicomponent interventions, multisystem or multiorgan outcomes, or both.

convening an array of experts, including those from 10 other Institutes, Centers, and Offices at NIH, to discuss methods for examining the role of complementary health interventions in whole person health, building on NCCIH's current research portfolio on nutritional, psychological, and physical treatment approaches.⁸

We aimed to identify research methods from other fields that can be applied to whole person research, as well as gaps, opportunities, and needs that could be met through new research. Insights garnered during the workshop will provide useful direction for the field and identify opportunities to develop and cement widely accepted approaches to study design in whole person health.

As methods are developed, it is essential that we as a research community recognize the need to support peer reviewers in effectively evaluating studies that take a whole person approach and promote enhanced cross-disciplinary collaboration, as exemplified in the studies featured in this issue.

Within the broader discussion of methods, it is vital to determine what outcome measurements best capture the two interrelated components of whole person health: the whole person component (measurements that integrate across physiological systems, behavior, social, and environmental

domains) and the health component (outcomes related to health restoration, resilience, and/or disease prevention).

Integrating Whole Person Health Into Care

Defining the outcomes that matter most is not just an academic question for well-designed studies. Driving research that assesses the most relevant measures can be essential in overcoming one of our greatest challenges in realizing the vision of whole person health: bringing the learnings from research into health care delivery.

In complementary and integrative health, as in a variety of other fields, there is a persistent lag between the publication of efficacy and effectiveness studies and integration into patient care. One reason for this is that scientific inquiry often ends before a clear understanding of implementation pathways has been established. The challenge is heightened when adoption of new approaches must be mapped to health care delivery practices that are deeply fragmented in how we structure, cover, and reimburse for patient care.

As we consider research that can inform the adoption of whole person health care, there is another way to think about our approach to scientific questions. Typically, when we examine the merits of a modality, we ask, "Does it work?"

This question is a byproduct of a biomedical framework geared to operate in terms of episodes of care and dominated by pharmacologic or surgical treatments.

We might ask different questions if we shift our frame of thinking. In pharmacology, the drug is the active agent, and its effects are measured over relatively short periods of time. For example, drugs like acetaminophen or codeine can be used to treat low back pain. They reduce pain temporarily, and the effects wear off after the drug is metabolized.

What happens when the active agent is the patient? For example, when acupuncture is used to mitigate pain, its effects can often last weeks or months after the end of treatment. This suggests that something other than temporary analgesia—possibly behavior change or physiological plasticity—occurs as a result of using the modality. When we consider this possibility, we go well beyond the mindset of any single active agent and can better understand the potential compounded effects of being a patient who is engaged, informed, supported, and equipped to do the work of healing. With that view, the question “Does it work?” might be best reframed as “Does the treatment assist the patient in the work of healing?” This question can serve as a catalyst for a more patient-centered discussion.

Realizing the Vision

Integrative health is not simply putting complementary and conventional medicine together. Fully realized, it is a transformative approach that centers on the whole person—all that is within and all that is around each individual and has the potential to impact that individual’s health.

With research that’s underpinned by well-defined methods, studies examining approaches to whole person health can be leveraged to change health care. In doing this, we can shift the focus from interventions to patients, empowering individuals, families, communities, and populations to improve their health in multiple interconnected domains: biological, behavioral, social, and environmental. This will be challenging, but the impact of well-grounded, holistic approaches to health will be worth the effort and collaboration needed to achieve it.

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