

---

# Relationships between Religious and Scientific Worldviews in the Narratives of Western Buddhists Reporting Meditation-Related Challenges

Roman Palitsky, Emory University  
David J. Cooper, Brown University  
Jared R. Lindahl, Brown University  
Willoughby B. Britton, Brown University

---

Keywords: *Meditation-related challenges, Science, Religion, Culture, Meaning making*

*Abstract: Contemporary Buddhist meditators in the West are likely to find themselves engaged in practices with rich associations with both religious and scientific worldviews. Meditation-related challenges can provoke existential concerns that make unexplored relationships between religious and scientific worldviews more important and explicit for Western Buddhist meditators, who may turn to both religion and science for making sense of these challenges. Interviews with 68 meditators and 33 meditation experts were analyzed to examine how meditators and meditation teachers understand the roles of, and relationships between, scientific and religious worldviews in the context of meditation-related challenges. Observed themes included: conflict between science and religion, compatibility between science and religion, nested relationships between science and religion, science and religion as discrete domains, and complementarity between science and religion. These themes suggest an expansion of existing understandings of the relationships between religion and science as they apply to Buddhist meditators, especially in the context of meditation-related challenges. The variety of relationships between religion and science, their existential relevance for meditators, and their interaction with responses to meditation-related challenges suggest that varied relationships between religious and scientific worldviews are important considerations in the scientific study of contemplative practices. Nuanced understandings of how religion and science relate may also benefit practitioners, experts, and their communities when addressing meditation-related challenges.*

## INTRODUCTION

Meditation practices have expanded from their historical provenance in religious traditions, toward inclusion among methods of health promotion in the domains of medicine and science.<sup>1</sup> Although some practitioners come to meditation because it is a Buddhist practice, many others engage in meditation as a means for emotional, mental, and even physical health,<sup>2</sup> supported by an increasingly established scientific literature.<sup>3</sup> Proponents of meditation in the West<sup>4</sup> have extensively drawn on both religious and scientific discourses in its dissemination. Accordingly, contemporary Buddhist meditators in the West are likely to find themselves engaged in practices with rich associations with both religious and scientific worldviews.



These dual associations may coexist without significance or tension under ordinary circumstances. However, meditation-related challenges can provoke existential concerns that make unexplored relationships between worldviews more important and therefore explicit. Meditation-related challenges are experiences that are (1) reported as difficult, distressing, functionally impairing, and/or requiring additional support and that (2) are attributed as having occurred either during meditation or as a result of meditation.<sup>5</sup> Investigating the ways in which religious and scientific perspectives are engaged when practitioners experience meditation-related challenges may lend some insight into practitioners' views of religion and science in general and, more importantly, into their engagement with these worldviews as they cope with difficult experiences.

Although numerous benefits have been attributed to long-term Buddhist meditation,<sup>6</sup> an examination of the both the historical and textual traditions of Buddhism,<sup>7</sup> as well as contemporary studies of meditation, reveals that such practices can lead to unexpected, challenging, and even distressing experiences.<sup>8</sup> These effects can sometimes be severe enough to disrupt an individual's daily functioning.<sup>9</sup> Meditation-related challenges are not monolithic, varying in type, duration, and level of impairment. A full account of the phenomenology and consequences of meditation-related challenges is beyond the scope of this manuscript, which focuses on the relationships between religious and scientific worldviews for meditators who experience challenges. However, a growing literature has begun to document and describe these challenges.<sup>10</sup> Meditation-related challenges appear to make worldviews particularly salient for practitioners as they grapple with the existential implications of facing challenges in the course of Buddhist meditation practice.<sup>11</sup>

As meditators face these challenges and attempt to move forward with their lives, an important part of their response is to understand how and why their meditation-related challenges came to pass, what to do about them, and what they mean. As Peter Berger observed, "To be sure, the individual suffering from a tormenting illness, say, or from oppression and exploitation at the hands of fellowmen, desires relief from these misfortunes. But he equally desires to know *why* these misfortunes have come to him in the first place."<sup>12</sup> Worldview and narrative are particularly relevant to this process, enabling the adoption, contestation, and negotiation of meanings that are personally and socially significant.<sup>13</sup> As Esmé Weijun Wang reflects while considering the meanings of psychiatric diagnoses, "*How did this come to be?* is another way of asking, *Why did this happen?*, which is another way of asking, *What do I do now?*"<sup>14</sup> Thus, in the context of challenging experiences, worldviews do not simply provide epistemic or metaphysical postulates; they also often entail prescriptive, pragmatic, and teleological beliefs that inform behavior.

For practitioners of Buddhist meditation in the West, a number of explanatory frameworks are afforded for making sense of meditation-related challenges. Insofar as their meditation practice is part of a tradition of Buddhist practices, religious and spiritual explanations are commonplace. Insofar as they are Westerners suddenly undergoing distress or impairment in functioning, psychological and biomedical explanations are also close at hand. The increasing tendency for meditation practices to be reframed in scientific language, and their impacts to be described through scientific research, provides additional affordances for meditators to make scientific interpretations of meditation-related challenges. Practitioners undergoing meditation-related challenges thus often negotiate both religious and/or scientific discourses as well as ideas about how religion and science do or do not interact. This paper aims to investigate the various ways in

which the relationship between religion and science is articulated by Western Buddhists in the context of meditation-related challenges.

### *Scholarship on the Relationships between Religion and Science*

The academic study of relations between religious and scientific discourses has largely developed against the backdrop of Abrahamic religions. In this context, encounters of religion and science have repeatedly been characterized by conflict, often predicated on epistemological incompatibility.<sup>15</sup> The presumption of incompatibility between theology and science is thus sometimes expressed in terms of theological *claims* vs. scientific *progress*, and is notably articulated in the “secularization hypothesis,” which contends that as technology and industry extend their reach, religion will become less relevant.<sup>16</sup> However, this hypothesis has only partly borne out, and religion continues to have remarkable relevance.<sup>17</sup> Because the secularization hypothesis has tended to imply a natural conflict between religion and science, critiques of this view often put forth a “compatibility” thesis in which religious and scientific views do not necessarily negate one another. For example, in a latent class analysis of responses to the US General Social Survey, Timothy L. O’Brien and Shiri Noy observed that 43% of respondents favored religion over science, 36% preferred science over religion, and another 21% were characterized as “post-secular,” with positive views of religion and science, but often treating religion as primary.<sup>18</sup> Scholarship on religion and science has increasingly recognized, however, that religious and scientific worldviews may coexist in a range of relationships beyond the dichotomy of compatibility and conflict, and which are reflected but not exhausted by the “post-secular” category.

Ian G. Barbour’s philosophical work is particularly notable in this respect,<sup>19</sup> articulating four ideal-typical ways in which religion and science may relate to one another. Briefly stated, these include: (1) *Conflict*, which entails rival, mutually exclusive claims by religion and science that pertain to the same domain, and which must be resolved in favor of either religion or science; (2) *Independence*, which entails views that specific methods, questions, or domains are relevant to either religion or science, and that religion and science can be selectively applied to the domains for which they are suited; (3) *Dialogue*, which entails attempts at engagement and even reinterpretation of religious and scientific claims on one another’s terms, often in areas where parallels can be drawn; and (4) *Integration*, which entails perspectives that religious and scientific views are to be reconciled and function in common with one another.

Although these categories have been variously critiqued,<sup>20</sup> reimagined, and nuanced,<sup>21</sup> the revisions remain largely in conversation with Barbour’s seminal work despite several of its limitations. Much of this discourse is indebted to Christian theological issues in religion (e.g., debates over evolution). It also remains concerned with foundational, philosophical positions (e.g., debates about first causes) rather than the concerns of everyday life. In this scholarship the relationships between religion and science can appear as ideal types rather than as aspects of enacted daily life. The degree to which these categories may extend, or have relevance, to the lived experiences of contemporary individuals without Christian theological commitments remains unclear. Cristine H. Legare and Aku Visala<sup>22</sup> observe that individuals appear to readily turn to both science and religion as they go about their lives, although the extent to which they do so may vary depending on their views, commitments, and—importantly—what circumstances afford and

what is at stake at any given point. They call for research that can apply to the daily lives of individuals outside of Christian theological contexts, and which speaks to the ways that scientific and religious worldviews are enlisted in the face of challenges. Rather than seeking to develop a new typology of relationships between religion and science, this paper contributes important data that can answer these calls by examining the narratives of Western Buddhists reporting meditation-related challenges.

***Buddhist Meditation, Religious and Scientific Discourses, and the Influence of Buddhist Modernism***

Numerous social and historical factors have led to the unique dynamics of science and religion encountered by Western practitioners of Buddhism. Arguably, and in contrast to Christianity, the most dominant narratives have entailed forms of compatibility between Buddhism and science. Donald S. Lopez Jr.<sup>23</sup> demonstrated that claims for compatibility have been articulated for at least 150 years and that such claims have persisted in largely similar forms despite changes in what is meant both by “Buddhism” and by “science.” Many agents have participated in the advancement of these claims, including Buddhist monks responding to Christian missionaries in Asian countries under colonial rule, theosophists bringing a perennialist amalgamation of Asian mystical traditions to the West, and scholars of Buddhism and scientists at European and North American universities. Noticing the surprising consistency of compatibility claims over this period, Lopez asks, “How can the same timeless truths be constantly reflected in discoveries that have changed, and continue to change, so drastically over time?”<sup>24</sup>

David L. McMahan<sup>25</sup> has helped to delineate the features of “Buddhist modernism”—a term that describes forms of Buddhism that emerged due to the unique conditions of modernity. McMahan illustrated how specific discursive processes of modernity have been instantiated in the creation of a modern Buddhism, including a shift from institutional to personal, privatized religion and a reinterpretation of traditional Buddhist views, practices, and goals into psychological and scientific language.<sup>26</sup> One motivation for these shifts was the legitimation of Buddhism by establishing associations with the authority of science.<sup>27</sup> He also illustrated a tension in Buddhist modernism between a scientific rationalist discourse, on the one hand, and romantic tendencies that emphasize a transrational and mystical epistemology on the other.

Various claims of compatibility have been elaborated in the context of Buddhist modernism. One compatibility narrative contends that science is confirming truths about the nature of reality that the Buddha already discovered.<sup>28</sup> This view was put forth in part by Asian Buddhists in an attempt to defend their religion against charges of superstition made by Christian missionaries in the colonial period, and, in the process, they aimed to legitimate Buddhism as a contributor to the discourses of modernity.<sup>29</sup> Promoters of the compatibility of Buddhism and science have also presented Buddhist meditation as a method akin to scientific experimentation.<sup>30</sup> Alan Wallace and Brian Hodel, for example, have proposed that Buddhism not only is a science of the mind but also that it has “a rigorous, peer-reviewed educational method teaching contemplative insight.”<sup>31</sup> In addition to informing the presentation of Buddhism in the West, compatibility narratives have strongly influenced the explication of mindfulness, which has also been presented as scientific and, often, nonreligious.<sup>32</sup> In a notable example, Jon Kabat-Zinn, founder of mindfulness-based stress reduction (MBSR), expressed a vision of mindfulness as a “universal dharma that is co-extensive,

if not identical, with the teachings of the Buddha.”<sup>33</sup> But insofar as his goal was to “recontextualize it within the frameworks of science, medicine . . . and healthcare,” he thought it was both possible and preferable to transmit this teaching “without ever mentioning the word ‘dharma.’”<sup>34</sup> The mindfulness movement has largely expanded its scope not through appeals to ancient tradition, but through the presentation of meditation as a secular, or post-secular, method for self-realization,<sup>35</sup> as well as an evidence-based treatment for various physical and mental maladies. The aims of medical intervention and pragmatic self-improvement have not historically been in the scope of Buddhist meditation, and in some instances could even be said to run counter to those goals.<sup>36</sup> The widespread popularity of mindfulness as a secularized health and self-improvement strategy is a testament to how far the compatibility argument has progressed and how successful it has been.

On the other hand, comparatively few scientists engaged in meditation research seem to acknowledge potential incompatibilities between Buddhism and science even though, as Lopez has observed,<sup>37</sup> the presentation of a scientific Buddhism often has to distort or ignore teachings, practices, and worldviews found across Buddhist traditions that would be obvious to historians of Buddhism and traditional Buddhist practitioners alike (e.g., karma, reincarnation). Evan Thompson also demonstrates the pervasiveness of the assumed compatibility between Buddhism and science.<sup>38</sup> He is particularly critical of “the myth of Buddhist exceptionalism,” which he defines as “the belief that Buddhism is superior to other religions in being inherently rational and empirical, or that Buddhism isn’t really a religion but rather is a kind of ‘mind science,’ therapy, philosophy, or way of life based on meditation”—ideas that he describes as “mistaken,” and which “rest on misconceptions about religion and science.”<sup>39</sup> Other scholars have worried that an overemphasis on the allegiance between Buddhism and science could result in a form of cultural imperialism in which more traditional forms of Buddhism (often prominently featuring myths, rituals, and supernatural beings) are delegitimized.<sup>40</sup> They have also pointed out that the emphasis on scientific Buddhism and secular mindfulness creates a commodity for the consumption of White converts that erases the voices of Asian American Buddhists.<sup>41</sup>

Despite these contributions to our understanding of how and why Buddhism has come to occupy a unique position in the debates between science and religion, little is known about how these dynamics are presently playing out in contemporary Buddhist communities and among individual meditators and meditation teachers. This paper draws upon qualitative data from the Varieties of Contemplative Experiences (VCE) project, a mixed-method study on meditation-related challenges reported by Western Buddhist meditators and meditation teachers.<sup>42</sup> The context of meditation-related challenges is important, as distress presents a powerful motivation for understanding the causes and purpose of suffering, a process that recruits the religious and existential worldviews of the practitioner.<sup>43</sup> Within these narratives are accounts of multiple agents—meditators, their teachers, fellow practitioners, and others (medical providers, family, and friends)—navigating meditation challenges in a cultural context in which scientific, psychological, and biomedical frameworks for well-being and illness exist alongside appraisals and responses offered from within Buddhist communities. As a result, these data offer an opportunity to investigate how views about the compatibility or incompatibility of Buddhism and science are instantiated within the context of navigating challenging meditation experiences.

This paper seeks to contribute a better understanding of the experiences of Buddhist meditators experiencing challenges, and of the relationships between science and religion for these

practitioners, in three ways. First, it contributes data from individuals’ lived experiences. Second, it examines the relationships between religion and science in a non-Abrahamic context, among Western Buddhist practitioners. Third, it focuses on the context of meditation-related challenges, which represent unique stakes and difficulties that require practitioners to engage their explanatory frameworks. Our aim is to examine the various ways in which relationships between religion and science were described in this context.

**METHODS**

This paper provides a reanalysis of data from the VCE project, a mixed-methods study of Buddhist meditation practitioners and meditation experts in the West who have experienced meditation-related challenges (see Lindahl et al. for details<sup>44</sup>). Previous analyses from the VCE project identified a broad range of meditation-related challenges, individual and social factors that influence their nature and trajectory,<sup>45</sup> and heuristics used in establishing a differential diagnosis or need for intervention.<sup>46</sup> The present project draws upon and extends those initial findings through further analyzing qualitative data within and beyond these themes in order to identify instantiations of religious and scientific frameworks employed within practitioners’ and experts’ narratives.

*Participants*

Participants in the original VCE study were 60 practitioners of Buddhist meditation who reported that they had experienced meditation-related challenges, as well as 32 meditation experts (comprising mental health practitioners and meditation teachers who have helped others to address meditation-related challenges). Meditation practitioners were sampled equally across Theravāda, Zen, and Tibetan Buddhist traditions. The current analysis also includes data from a replication study of an additional eight practitioners and one expert from the tradition of *vipassanā* meditation as taught by S. N. Goenka. See table 1 for participant demographics including age and gender, as well as religion of origin.

Table 1. Participant Characteristics

<b>Characteristic</b>	<b>Number of Participants</b>
<i>Practitioners</i>	
<i>Sex (M, F)</i>	37, 31
<i>Age (M (SD))</i>	46.34 (13.97)
<i>Education (Completed Degree)</i>	
High School	3
Bachelor’s	25
Master’s	25
Doctorate (PhD, PsyD, or MD)	15
<i>Religious Upbringing</i>	
Buddhist	2
Catholic	13
Protestant	18
Orthodox Christian	1

## RELIGIOUS AND SCIENTIFIC WORLDVIEWS IN MEDITATION-RELATED CHALLENGES

Jewish	12
None	14
Other	2
Not known/missing	4
<i>Practice Tradition</i>	
Theravāda (including Goenka practitioners)	28
Zen	20
Tibetan Buddhism	20
<hr/>	
<i>Experts</i>	
<i>Sex (M, F)</i>	25, 8
<i>Type of Expertise</i>	
Theravāda (including Goenka experts)	14
Zen	8
Tibetan Buddhism	6
Clinical	5
<hr/>	

Note. This table represents demographic and background characteristics of study participants. Practitioners = participants who reported their own meditation-related challenges. Experts = participants, either Buddhist meditation teachers or clinicians or both, who described how they guide and advise meditation practitioners undergoing challenges.

## ANALYSES

### *Analytic Process*

Coded themes from the original VCE analysis were initially reviewed for relevance to narratives about religion and science. From the initial analysis of phenomenology or, in other words, the various types of meditation-related challenges documented in the study, the “change in worldview” thematic category was particularly informative for the present analyses. Additionally, from the analysis of influencing factors—that is, the factors that were identified as either risks or remedies (or both) for the onset and trajectory of meditation-related challenges—data from the “worldviews and explanatory frameworks” and “intentions, motivations, and goals” thematic categories were also informative. (For further information on the original categories and analyses readers are referred to the original publication of those findings.<sup>47</sup>) Because “worldviews and explanatory frameworks” was one of the largest influencing factor categories in the entire study, comprising more than 800 discrete references across all participants, we began by “coding-on” this category for further subthemes. This allowed us to identify the range of types of worldviews and relationships with worldviews in their role as influencing factors.

However, because discourses of science and religion often emerged in segments of the interview that were not directly related to the prior research questions (e.g., determining phenomenology, influencing factors, and criteria for differential diagnosis), a second review of all interviews was conducted to extract material pertaining to science and religion that was not originally included in any prior thematic analyses. This document was reviewed by three of the coauthors (RP, DC, JL), and new themes relevant to religion and science were identified through a combination of theory-driven and data-driven approaches through which thematic categories were allowed to emerge inductively. The extracted data document was then read and coded as

appropriate with one or more themes by the same three coauthors. For the purpose of generating the present manuscript and a manuscript on the impact of worldviews on the trajectory of meditation-related challenges,<sup>48</sup> additional subthemes that reflected patterns in the description of science and belief were compiled based on these analyses. Discrepancies in the application of themes and subthemes were discussed until consensus was reached.

Thematic categories were applied to sections of interview texts, rather than to entire interviews. This enabled a richer, more nuanced analysis wherein multiple themes were often observed within any given narrative, showcasing how individuals entertain and navigate a range of explanatory frameworks when considering their meditation-related challenges. In the service of providing a more descriptive and useful account of relationships between religion and science, these themes were not developed to be mutually exclusive and are in many cases conceptually overlapping with one another.

### *Identifying Science and Religion*

Integral to the analytic process was our determination of what would be interpreted as “science” and “religion” in the interview transcripts. Participants rarely invoked “science” or “religion” directly; instead, they typically discussed subsidiary topics broadly recognizable as within the domains of science or religion. Thus, we were particularly interested in the language participants used to refer to religious and scientific concepts and their interaction by invoking frameworks that draw on either science or religiosity, even if they did not mention science or religion by name.

**References to Science.** Although there were several direct mentions of “science,” references to science were more typically indirect, and occurred through discussion of topics typically within the purview of science, such as empiricist rationalism, Western medicine, or scientific research. Thus, our subsequent analyses were also indirect and simultaneously more specialized, intentionally sensitive to the specific topics that participants chose to speak about. We identified the following topics to be relevant to, and representative of, scientific discourse for the purpose of our analyses: discussions of rationality,<sup>49</sup> empiricism, technology, physics, medicine, psychology, and psychiatry.

**References to Religion.** Religious and spiritual content was also often referenced without the explicit use of the word “religion.” For our analyses we included terms and concepts associated with historical and contemporary Buddhist traditions. These included Buddhist and “Buddhist-adjacent” teleologies, such as expected states, stages, and insights, as well as discussions of ultimate purpose and goals associated with religious practice. Distinctive terminology associated with Buddhist traditions of Asia (e.g., *dukkha*), terms associated with distinctive phenomenology (e.g., *nyams*), and key philosophical (e.g., “emptiness”) or soteriological (e.g., *kenshō*) concepts were also treated as references to religion and spirituality. We also included terms and concepts associated with traditions commonly understood as religious, such as Hinduism or Christianity, as well as terms and concepts with roots in these traditions that have taken on new meanings and interpretations outside of traditional contexts (e.g., “kundalini” and “dark night”).



## RESULTS

The aim of our analyses was to identify the various relationships between religion and science that were explicitly or implicitly present in the way Buddhist meditation practitioners and meditation experts in the West described working with meditation-related challenges. A total of six themes emerged, each of which is suggestive of a way of conceptualizing the relationship between religion and science: compatibility, conflict, nested relationships, discrete domains, and modes of complementarity (see table 2 for a list of themes and definitions).

Table 2. Types of Relationships between Religion and Science

<b>Theme</b>	<b>Description</b>
Conflict between Science and Religion	Religious and scientific frameworks are either entirely, or in part, so incompatible as to require a choice between scientific or religious claims.
Compatibility between Science and Religion	The integration of religion and science into a coherent worldview is seen as unproblematic.
Nested Relationships between Science and Religion	Relationships between religion and science that accommodate both religious and scientific narratives, but prioritize one perspective over the other.
Science and Religion as Discrete Domains	The supposition that there are some domains (e.g., soteriology) where religious perspectives are most appropriate, and other domains (e.g., medicine) where scientific perspectives should hold authority, which supports a “division of labor” between religious and scientific frameworks.
Complementarity between Science and Religion	Scientific and religious approaches enhance one another.

Note. This table represents identified themes that emerged from this study’s analysis. Descriptions are presented to the right of each respective theme.

### *Conflict between Science and Religion*

Conflict views entail relationships between religion and science where religious and scientific frameworks are either entirely, or in part, so incompatible as to require a choice between scientific or religious claims. Thus, any arrangement where scientific and religious claims are described as antithetical and irreconcilable would be considered conflict views. In some cases, conflict was expressed directly, particularly through the rejection of one perspective in favor of the other. In one notable example, a practitioner rejected previously held religious interpretations of his experience of meditation-related challenges. While on his first Zen retreat, he had an “incredible experience” akin to discovering a “door” to “another world.” He interpreted this monthlong sense of the world having “opened up” to be consistent with descriptions of Buddhist experiences of insight. He then spent years trying to “find the door” again, seeking out teachers who framed practice in that way. On a subsequent retreat, he found what he initially appraised as access to this higher insight and wisdom, but it quickly escalated into “fantasies about being a world-savior,”

with “hallucinations” and “anti-social behavior” that led to his removal from the retreat and psychiatric treatment. Later, after becoming acquainted with “well-documented . . . academic research” demonstrating ways in which brains “construct” experience to fit existing beliefs, he rejected his previous worldview as “basically an illusion” that caused him to construct “these experiences out of normal sense data to confirm what I was believing.”

Conflicts may also arise due to perceived implications of adopting religious vs. scientific frameworks. In the following example, a practitioner faced a decision whether to follow her psychiatrist’s advice, aligned with best practices from a biomedical framework rooted in science, or to follow an approach to meditation that was guided by her spirituality. This practitioner first came to meditation at the suggestion of her psychiatrist, but then while on a meditation retreat in a Theravāda tradition, she experienced highly debilitating and enduring changes to her perception and her sense of self. This led to severe functional impairment in spatial orientation, such as trouble walking down the street. As her challenges persisted, her psychiatrist told her to stop meditating, saying that “it’s not good for you.”

However, from an early age, she had “wanted to find my way spiritually.” She thought “it [meditation] did cause this to happen, but I also knew if that’s what happened, I would have a way out through it also.” With respect to her psychiatrist again, she said, “I just didn’t care what he said—I knew I had to continue doing it. And I did it; I didn’t overdo it. And I just kept it up and kept it up.” Although her symptoms persisted to various degrees for nearly a decade, during which point resuming meditation could lead to her feeling “absolutely terrified,” eventual improvements through meditation and positive changes in her sense of self confirmed, for her, that she had been correct to reject the psychiatrist’s advice to stop meditating, and that it had indeed been a religious problem with a religious solution. “My sense of self came back knowing that I got through the rabbit hole or something. I know that I’m just part of the universe at this point. Everybody is part of me, and I’m part of everybody else.”

### *Compatibility between Science and Religion*

Compatibility views entail relationships between religion and science in which their integration into a coherent worldview is seen as unproblematic. Thus, any arrangement in which one does not have to give up religious claims by endorsing scientific claims (or vice versa), or religious concepts are treated as equivalent or identical to scientific concepts, would be included in compatibility. For example, one teacher reflected on the challenges that practitioners report to him in the context of formal interviews: “Most of them are deep psychological issues or matters of trauma. You know, or you could see them as ancient twisted karma. I don’t make that much of a distinction about it.”

Insights from meditation were also occasionally framed as correspondent with scientific concepts. For example, one practitioner stated:

As I began to move more deeply into that sense of emptiness and impermanence and no-self, that, kind of through osmosis, seemed to then drift into my body sense—that if there is no solid self and if things are empty and impermanent and without a solid sense of self, that is also true for my whole molecular being. . . . As I began to be interested in what physicists were looking at on the most elemental particle level, and I began to see our bodies are nothing but cells in a constant state of motion, I began to see that there really is,

on every single level, no distinction between much of anything except for how molecules are rearranged. So, as that relates to my body sense, I began to get that sense of, “If there is no solid psychological self and things are empty and impermanent, what does that mean about my body’s presence in the universe?”

Similarly, one Theravāda Buddhist meditation teacher equated two key concepts in his tradition associated with developing prowess in concentration, *pīti* (rapture or joy) and *sukha* (pleasure or bliss), with two neurotransmitters, stating that some practitioners “get the *pīti*. In other words, they’re generating the norepinephrine. They’re generating that neurotransmitter, or whatever the transmitter is for *pīti*, but they’re not generating the opioids for the *sukha*.”

### *Purification Narratives*

A subset of narratives that were consistent with compatibility frameworks, but were distinctive and consistent enough to prompt further scrutiny, were purification narratives. In general, purification narratives involve an interpretation of meditation-related challenges as an often-necessary component of the transition from an inferior state to a better one. This often involved having elements that were less desirable eliminated or transformed, often with difficulty or suffering as part of the purification process. Practitioners and experts alike used the language of “purification” in ways that illustrate how religious concepts can be blended not only with psychology but also with folk depictions of physiology, neuroscience, chemistry, and physics.

The specific substances, processes, and mechanisms of purification varied, and often mingled scientific and religious referents. In some instances, Buddhist concepts described what was being purified: “karmic patterns,” *saṅkhāras*, or “obstacles to body, speech, and mind.” In other cases, purification was described in psychological language as transforming “impulses,” “past habit patterns,” “neurotic patterns,” “mental complexes,” “past traumas,” and “personal material,” as well as more general language such as purifying “dirt and refuse,” “impurities,” “unpleasant stuff,” or “stuff from the past.”

In an example of how religious and scientific referents might be blended in a purification narrative, one practitioner in a Tibetan Buddhist tradition stated that “working with meditation is really bringing up and rooting out and kind of leaching out old habitual mind patterns, habitual karmic patterns.” A teacher in a Tibetan Buddhist tradition explained how he thought Buddhist notions of karmic purification were congruous with neuroscientific findings:

In Tibetan Buddhism, the whole purpose of meditation is really purifying your mind or breaking down all the habitual tendencies, like the karmic patterns. Perhaps in modern science, especially neuroscience maybe, the way of dissolving or undoing those grooves in your brain. . . . You don’t want to use the word “karmic pattern” in mainstream language because people think, “Oh that’s just another belief, another Eastern belief.” But this is more than a belief. To me, it’s really scientific because now, as you know, the neuroscientists are discovering the idea that the brain is very much central to our personality, to our being, but that also personality is no longer really a permanent trait—it can be changed by means of meditation or self-reflection. So that’s the purpose of the

practice of meditation in Tibetan Buddhism is really to purify our consciousness of karmic patterns, which is another way of saying undoing those grooves in your brain.

### *Nested Relationships between Science and Religion*

Nested views entail relationships between religion and science that accommodate both religious and scientific narratives, but prioritize one perspective over the other. In this arrangement, one set of values, epistemic assumptions, or commitments is described in terms that subordinate it to the other. Conversely, the prioritized view may be recognized as a broader framework within which the de-prioritized view operates. On some occasions, practitioners' use of words like "actually," "really," or even explanations that one phenomenon *is* another, signaled the broader, more encompassing framework. For example, one teacher stated: "So all disorienting experiences in meditation have to do with a *prāṇa* imbalance, or *rlung* imbalance. So some people come at it from the point of fixing the meditation or fixing other things, but fundamentally it's an issue having to do with *prāṇa* at the end of the day. Enlightenment has to do with *prāṇa*; neurosis is *prāṇa*."

We identified instances of views that prioritize religion, as well as views that prioritize scientific frameworks in this way. Those prioritizing religious views sometimes described Buddhist perspectives as operating on a "deeper" or more "profound" or "fundamental" level than scientific ones, which were described as superficial or limited in some way. Some teachers explained that the psychological benefits of Buddhist meditation were useful as far as they go but clarified that these were not the goal of practice. A Zen teacher noted that psychological well-being can "arise as a fruit of the practice" but is not the "purpose of the practice," which is about "something deeper": the "Buddha Way," "spiritual realization," and "realizing for [oneself] what is fundamentally true." A Tibetan Buddhist teacher said that "psychological healing" can happen with meditation, but is only a matter of "enjoying the surface" of what is possible. Rather, the "full benefit" and "profundity" of Buddhist meditation is to be found in its "essential part," which "goes beyond the rational, the conditioned thinking mind," and involves "going beyond ego," "feeling a boundless love," and "seeing the true nature of everything."

For those who prioritized scientific views, values such as scientific rigor, objectivity, and openness superseded traditional Buddhist positions or claims. They viewed Buddhism as more usefully and safely engaged if and when it could be subject to a kind of scientific scrutiny, which would allow them to confidently embrace aspects that stand up to such scrutiny and discard those that do not. A Zen practitioner working in a technology field suggested that in the West it would be more effective for Buddhist meditation to be approached in a "practical, no-nonsense, cause-and-effect, almost scientific way" because "that's the kind of mindset that we have to begin with." He suggested that it would be valuable for meditators to "submit themselves to testing" in ways that are "repeatable," enabling Buddhist instruction to be more "standardized."

A Tibetan Buddhist practitioner working in a scientific field similarly found herself unsatisfied by the responses of her Buddhist teachers when trying to make sense of her meditation-related challenges. Finding many traditional and contemporary spiritual resources unsatisfying, she said, "I would like to see things from scientists. . . . If I had seen an article that was more believable than some of the stuff that is out there, I would have come to be more comfortable much more quickly instead of seeing these things that were describing similar stuff to what I had experienced, but part of the writing making it seem like it was really bogus." Describing herself "as a Westerner"

with a “data-driven . . . personality,” she preferred a Buddhist tradition that employs “non-traditional” language and has an “openness about [meditation difficulties] that doesn’t make it mystical.” At the same time, she found elements of traditional Buddhist views that encouraged a “softer” and “more allowing” approach to meditation challenges to be a helpful corrective to her “natural” scientific orientation that can become too “hardcore” and “hard-edged,” leading to more agitation as she “tries to control the process.”

### *Discrete Domains*

These views articulate a “division of labor” between scientific and religious perspectives. They presuppose that there are some domains (e.g., soteriology) where religious perspectives are most appropriate, and other domains (e.g., medicine) where scientific perspectives should hold authority. This enables the coexistence of religious and scientific worldviews, and a pragmatic deployment of either as the situation calls for it. When practitioners critique religious or scientific interpretations for overstepping their bounds, this may also be consistent with discrete domains narratives, especially when the problem is characterized as religion or science operating in the wrong domain of life.

Some teachers made practical use of medicine, psychiatry, or psychology, readily referring students to these biomedical fields for help when needed while also emphasizing the distinctions between those approaches and Buddhist ones. One Zen teacher said, “when we’re doing zazen on the cushion, that’s the time to deal with the *kōan*. . . . If you deal with the emotional stuff on the *kōan* and then you go to the therapist and talk about Zen practice, that’s just not going to cut it!” This teacher said that it is common for emotional issues to arise in Zen practice and welcomes continued practice if “they find the practice helpful,” but instructs students that “Zen won’t cure their emotional issues and that I’d recommend they see a therapist.” He establishes the distinction by telling students, “This isn’t going to take care of that. You need to take care of that and find a good person to work with you on that. We don’t really work with that here.” Further, one expert, who was both a Zen teacher and a mental health professional, described how applying Buddhist approaches to address psychological problems could even lead to harms for practitioners. “I’ve had people call me up and refer—you know, doctors . . . call me up and say, ‘Do you think meditation would help this individual who is struggling from . . . schizophrenia?’ And I just simply say, ‘No! Please, don’t!’ ‘Well, I think it would just really calm them down.’ And I said, ‘It would probably do the opposite.’”

Related concerns were expressed about the inappropriateness of treating Buddhist practices as psychological tools from the standpoint of Buddhist priorities. One Tibetan Buddhist teacher noted that some approach Buddhist practice “as an aspirin” and lose “the big view . . . that makes this whole thing meaningful.” He stated, “It is actually possible to develop some sort of sustained experience of deep, deep, deep wellbeing that manifests itself as internal peace and externally extraordinary compassion, connection and, in our tradition, appreciation and devotion for those who have gone before.” But, instead, some

want something that’s time-limited. It’s kind of like . . . evidence-based psychotherapy or time-limited . . . you know, you contract for four sessions and you’re supposed to get this. . . . I would love it if people understood that this is a lifelong journey.

Some practitioners and experts noted that the application of Buddhist frameworks to areas of psychological health might cause inadvertent misidentification of legitimate psychiatric or medical conditions as normative Buddhist experiences. One Zen teacher, after receiving training in a psychotherapeutic modality (Somatic Experiencing), described her reevaluation of what she had previously identified as normative meditative states: “What I’ve now begun to see is that in many meditation practitioners what we see as a state of *samadhi* or bliss is actually dissociation. It’s the freeze, the freeze from the somatic languaging. And it doesn’t feel bad. There’s some parts of freeze that feel really good.”

Conversely, some also cautioned that an application of psychological frameworks in the domain of Buddhist practices could lead to authentic Buddhist experiences being incorrectly “pathologized.” A Tibetan Buddhist practitioner who, at the time of their meditation-related difficulties resided in a setting where others were making their medical decisions, stated, “I remember some of the most intense moments . . . there would be all kinds of homosexual imagery and bestiality and demons and just crazy shit. . . . I knew that if I talked to anybody about what was going on with me, I was going to be back there pumped full of Thorazine. So I couldn’t talk to anybody about it.”

### *Modes of Complementarity of Religion and Science*

Complementarity narratives hold that scientific and religious approaches *enhance* one another. Thus, expressions of complementarity go beyond compatibility (i.e., the view that it is possible to reconcile religious and scientific positions) and are consistent with the stronger stance that scientific and religious positions not only can, but also should, inform one another. When practitioners and teachers discussed the value added to religious endeavors by incorporating the fruits of science—or vice versa—without implying a hierarchical view where one supersedes the other, these were considered complementary views. For instance, one meditation teacher said, “Don’t be afraid of therapy.” He explained that “if I can’t figure something out, or if I feel there is something incomplete from a spiritual perspective, I’m not afraid to search out a therapist.” Drawing upon Buddhist distinctions between “relative truth” and “absolute truth,” he stated his belief that “on an absolute level, meditation can solve everything in theory. But in practice it doesn’t seem to do it. . . . We think we can hopscotch over all these worldly, relative, psychological issues and take refuge in the absolute, and it just doesn’t work for most of us.”

When practitioners discussed the benefits of scientific study for Buddhist meditation, these notably extended to the importance of mental health training or trained support staff for meditation instructors. One practitioner expressed a wish

that there would be some kind of teacher or some kind of people that were experienced enough at retreats to help people. That there might be some kind of a list in your area of psychiatrists or psychologists who have worked with meditation and that there would be some sort of phone contact you could make with somebody who had been through that.

This practitioner also thought “there’s nothing wrong with taking medication or whatever else if you need to do that.” One meditation teacher observed the increasing relevance of mental health issues—and various psychiatric medications—for meditation instruction. She explained how “a

surprising number of people—a lot of people—are taking psychoactive medications. I think it’s actually all the better.” Some practitioners she worked with “meditate better on the SSRIs [selective serotonin reuptake inhibitors] . . . because they are not busy fighting with their perseverating thoughts so much.”

Some practitioners who experienced challenges described the added difficulty they faced when presented with only religious interpretations and remedies, or when instructors seemed uninformed about the psychological aspects of meditation experiences. One practitioner commented on how she “would have handled [her meditation-related challenges] better” had she been provided with a depth-psychological approach or framework in addition to traditional meditation instruction: “I felt: ‘Shouldn’t I have been taught in a different way that this is a very psychological process?’ And maybe in a more Jungian kind of way of: ‘Hey, look, your archetypes are going to come up and you’re going to have to deal with them.’ But, no—none of that.”

In contrast, one practitioner who attributed many of her meditation-related challenges to her trauma history appreciated that her teachers were “encouraging a broad approach” that engaged psychotherapy and bodywork as a support for her meditation practice.

## DISCUSSION

This analysis yielded a set of themes describing the rich and varied associations of religion and science among contemporary Western Buddhists reporting meditation-related challenges. Our analysis demonstrates a broad range of expressions of the relationship between religious and scientific worldviews beyond the dichotomy of *compatibility* or *conflict*, including *nested* relationships, religion and science as *discrete domains*, and narratives of *complementarity*.

We will first briefly discuss how the additional themes we observed might relate to assumptions about compatibility and conflict as modes of relationship between religion and science. Then we will relate the full set of themes we observed to prior literature on science and religion. Finally, we will examine the relevance of these relationships for practitioners, and their potential role in dealing with meditation-related challenges.

### *Compatibility, Conflict, and Beyond*

The occurrence of conflict and compatibility narratives in our data, as well as the need for additional framings, may be understood in light of the importance of the secularization hypothesis in the public imagination since the mid-20th century. Proponents of the secularization hypothesis have been regarded as exemplary of conflict narratives.<sup>50</sup> Correspondingly, critics of secularization theory<sup>51</sup> are readily interpreted as advancing some version of compatibility between science and religion. Popular media portrayals offer ample material that implies an either-or between conflict and compatibility alternatives. Consider the following journalistic article titles: “‘Faith vs. Fact’: Why Religion and Science Are Mutually Incompatible” in the *Washington Post*<sup>52</sup> and “Can Science and Religion Get Along?” in *Science Magazine*,<sup>53</sup> or a Pew panel: “Religion and Science: Conflict or Harmony?”<sup>54</sup> The propensity to dichotomize—to reduce complex information to two opposites—is a common cognitive trait,<sup>55</sup> which may make compatibility-conflict views intuitively appealing.

Nevertheless, our analyses yielded additional relationships that should not be reduced to either compatibility or conflict because they convey unique, valuable information characterizing how people think about science and religion. Consider *nested* relationships, for example, which might otherwise have been assimilated into dichotomizing conflict/compatibility narratives. If religion and science are imagined as vying for primacy, these might be viewed reductively as conflict; if the issue of coexistence between religion and science is most salient, then they might be reductively glossed as compatibility. Although both interpretations may be justified in their own ways, neither captures the specific arrangement in nested relationships, whereby religious and scientific positions are both accommodated, yet one takes explanatory or teleological precedence over the other. These may be especially relevant for individuals who have firm commitments to a scientific (or religious) epistemology, but are able to integrate religious (or scientific) information in a way that leaves their epistemic commitments intact. O'Brien and Noy observed a type of nested narrative, termed "post-secular," in their research, but these primarily comprised individuals whose appreciation of science was nested within religious commitments.<sup>56</sup> "Directional" relationships between religion and science, as described by John H. Evans and Michael S. Evans,<sup>57</sup> also eschew conflict narratives but presume that religious views influence the development of science—again, nesting science within religion. It is important to note, therefore, that in some of the nested relationships we observed that science, rather than religion, played the primary role. *Discrete domains* relationships similarly might be interpreted to have elements of both compatibility and conflict: they tend to separate religion and science, and yet support meditators' applying either in a practical fashion, as needed and when needed.

*Complementary* relationships, on the other hand, may be reduced to examples of compatibility. However, this would lose an important feature of these narratives: when practitioners invoked complementary views, they made cases for why religious and scientific approaches *should both* be applied in the context of meditation. For practitioners who articulated a need for meditation instructors or mental health providers to be informed with both religious and scientific approaches, this suggests more than tolerance or reconcilability, but an affirmative wish for integration. Finally, a subset of compatibility narratives we observed involved *purification* narratives. Although traditional purification narratives, which do not include scientific frameworks, can be found among many religious traditions, the narratives we observed among Western Buddhists are notable for their flexible capacity to accommodate both religious and scientific—especially psychological—views, while offering departures from the more orthodox interpretations of either. This may be due to the particular affordances provided by purification narratives for addressing meditation-related challenges, such as the construal of distress as a necessary part of one's meditative path.

Rather than proposing a new model for how relations between science and religion should be categorized, this article offers data that describe these relations among a group of Western Buddhists who have experienced meditation-related challenges. Nevertheless, our findings may be relevant to the ongoing development of theories on the relationship between religion and science. As noted earlier, prior theorizing on the relationships between religious and scientific worldviews has tended to reference Abrahamic traditions. Although these are likely to inform Westerners' worldviews, they may not readily translate to practitioners of Buddhism. As discussed earlier, Buddhism has often been portrayed in the West as largely compatible with science, and may therefore not be as marked by a polarization between religion and science. It is also



noteworthy that our themes do not map readily onto Barbour's structure. Legare and Visala<sup>58</sup> join Barbour's critics<sup>59</sup> in observing that his (and others', such as Mikael Stenmark's<sup>60</sup>) typologies primarily speak to Christian theology and its concerns, are abstract and may not be relevant to applied science, and—if applied stringently—are so rigid and etic that they do not reflect the thinking of ordinary individuals. Barbour has acknowledged these limitations.<sup>61</sup> Legare and Visala call for empirical evidence of how individuals actually relate science and religion, particularly in situations where there are pressing needs for explanation—such as illness—and highlight the importance of dynamism, change, and variety within individuals' views.<sup>62</sup> Our data helps to answer this call.

### *Existential Relevance of Explanatory Frameworks*

A growing literature on individuals' responses to severe stressors and life disruptions highlights the importance of “meaning making”—the integration of experiences with existing meaning systems, or adoption of new meanings to accommodate the experiences.<sup>63</sup> Worldviews and interpretive narratives serve to elucidate the causes, as well as the purpose, of suffering—a shared human need.<sup>64</sup> One of the functions of this process may be to repair the uncertainty that such events can expose, which—in addition to the unique distress of a given disruption—constitutes a broader existential threat that is shared among different kinds of life stressors. Practitioners in this study often described crisis situations that defied easy explanation, and which were likewise marked by a search for cause, purpose, and narrative.

The Meaning Maintenance Model holds that people are fundamentally motivated by a need to resolve uncertainty, and that worldviews address this need by providing comprehensive explanatory frameworks.<sup>65</sup> Religious and scientific worldviews are both exceptional at fulfilling these needs, although different cultural circumstances, personal motivations, and stressor characteristics can lead individuals to fluidly employ different worldviews to make sense of disturbing events.<sup>66</sup> In other words, as Legare and Visala reason, especially when existential stressors require explanation, worldviews are actively enrolled to mitigate their psychological threat.<sup>67</sup>

Meditation-related challenges can constitute a double disruption that makes worldviews particularly important for adjustment. Under ordinary circumstances, Buddhist meditation can help buffer the impact of existential threats.<sup>68</sup> However, meditation-related challenges can undermine the effectiveness of this buffer (since it may be the cause of one's troubles), raise uncertainty about the extent and meaning of one's predicament, and sow uncertainty about what one should do in response.<sup>69</sup> Thus, there is a double disruption: that of the meditation-related challenges themselves, paired with the dissolution of a valued coping strategy. The narratives presented here can be interpreted, in part, as describing attempts to navigate the meaning of meditation-related challenges, and to fit worldviews with experience in a meaningful and satisfying way. At the same time, the sheer variety of explanations offered, and relationships between religious and scientific frameworks that are available, may also be disorienting and present a source of distress.<sup>70</sup>

Finally, in addition to providing meaning, religious and scientific worldviews informed practitioners' decisions about their practice, the remedies they sought, and their lives more broadly.<sup>71</sup> Worldviews can influence individuals' actions either explicitly through injunctions and recommendations (e.g., when meditators are recommended to continue meditating to address

meditation-related challenges), or tacitly by shaping presumptive possibilities. The relations between religion and science that we identified not only describe how meditators enroll science and religion to explain their experiences, but also point toward the priorities entailed by these frameworks as they do so. For example, a nested worldview that privileges religious commitments might prescribe biomedical remedies (e.g., medication) for meditation-related challenges, while proscribing remedies that run contrary to the ultimate religious goals of the practice (e.g., stopping meditation).

It is also important to clarify that meditation-related challenges are not monolithic, and that individuals report a range of types and trajectories of challenges that have various impacts on worldviews. The distinct attributes of meditation-related challenges in different religious and secular meditation traditions are not well understood, and quantitative data that can establish associations between aspects of worldviews and type or severity of the challenges are not yet available. Thus, these data help to articulate religious and scientific frameworks within the narratives of Buddhist meditators experiencing challenges, but should not be regarded as comprehensive or exhaustive.

## CONCLUSION

This research examined the relations between religion and science as they were expressed by meditators who experienced meditation-related challenges and by meditation experts who assist practitioners with such challenges. We observed that relationships between religion and science can feature examples of both conflict and compatibility, but that a broader repertoire of themes had greater utility for describing these relationships. These themes included: *nested* relationships, where either religion or science were privileged as explanatory frameworks; *discrete domains*, where application of religious or scientific frameworks depended on the phenomena being explained; and *complementarity*, where religion and science were viewed as both necessary and as enhancing one another. These themes demonstrate that contemporary Western Buddhist practitioners make use of religious and scientific frameworks in a variety of ways as they navigate meditation-related challenges. Because unique relations between religion and science may inform how meditators respond to their circumstances, understanding the variety of possible relationships between religious and scientific frameworks may be useful for meditators, meditation instructors, and clinicians in navigating context-specific meditation-related challenges.

APPENDIX

SUPPLEMENTARY DOCUMENT A: Themes that Emerged in Reanalyses

<b>Code</b>	<b>Definition</b>
Compatibility of science and religion	Study participant describes the relationship between science (or science-adjacent) concepts and religious (or religion-adjacent) concepts as congruent or compatible.
Conflict between science and religion	Study participant describes the relationship between science (or science-adjacent) concepts and religious (or religion-adjacent) concepts as being in conflict, irreconcilable, or antagonistic.
Influence of prior worldviews, intentions, goals, and expectations	Study participant describes how worldviews, intentions, goals, and expectations held prior to meditating (e.g., from a practitioner's religious upbringing) have an influence on meditation practice or meditation-related challenges.
Worldviews as risk factors	Study participant describes how meditation practitioners holding specific worldviews, whether scientific or religious, has a deleterious impact on the onset or trajectory of meditation-related challenges.
Absence of framework leads to secondary distress	Study participant states that meditation practitioners not having an explanatory framework for meditation-related challenges leads to additional distress or difficulty.
Having framework helped	Study participant states that meditation practitioners having or being given a worldview or explanatory framework helped with the navigation of meditation-related challenges.
Pragmatic scientific approach amid religious belief or practice	Study participant describes how a meditation practitioner engages with an overall religious appraisal of their challenges while also drawing upon pragmatic scientific frameworks (such as psychiatric medication, psychotherapy, or medical treatment) as a method for impacting the nature and trajectory of meditation-related challenges (e.g., for symptom reduction or for managing secondary fear and distress).
Worldviews related to differential diagnosis	Study participant describes the worldviews informing how meditation teachers,

	meditation practitioners, or other authorities make decisions about when to intervene in meditation-related challenges or how to appraise them.
Agreement with worldview of teacher or tradition	Study participant describes how a meditation practitioner agrees with the worldview provided by their teacher or their tradition, especially their appraisal of a meditation-related challenge.
Conflict with worldview of teacher or tradition	Study participant describes how a meditation practitioner disagrees with the worldview provided by their teacher or their tradition, especially their appraisal of a meditation-related challenge.
Consideration of other second-person worldview	Study participant describes how a meditation practitioner considers a worldview provided by someone outside of their meditation community, such as a friend, family member, or medical expert.
Disaffiliation or deconversion	Study participant describes how a meditation practitioner exhibits a loss of or diminishment in Buddhist commitments, whether to doctrines or to communities, associated with their meditation-related challenges and/or the interpersonal dynamics that played out in the context of navigating them.
Change in worldview congruent with teachings of tradition	Study participant describes a change in worldview that fits with the framework of their meditation practice lineage associated with a meditation-related challenge.
Other changes in worldview	Study participant describes a change in worldview that is not related to the worldviews of their meditation practice lineage associated with a meditation-related challenge.

Note. Code = coding categories that were identified in the present reanalyses of the VCE data. Definition = operational definition of each code, used to apply the codes to applicable sections of interview transcripts in analyses.

**WORKS CITED**

- Ahn, Juhn Y. "Meditation Sickness." In *The Oxford Handbook of Meditation*, edited by Miguel Farias, David Brazier, and Mansur Lalljee, 887–906. Oxford: Oxford University Press, 2021. <https://doi.org/10.1093/oxfordhb/9780198808640.013.45>.
- Barbour, Ian G. "On Typologies for Relating Science and Religion." *Zygon* 37, no. 2 (2002): 345–60. <https://doi.org/10.1111/0591-2385.00432>.
- . *Religion and Science*. New York: HarperCollins, 2013.
- Berger, Peter L. *The Many Altars of Modernity: Toward a Paradigm for Religion in a Pluralist Age*. Berlin: De Gruyter, 2014. <https://doi.org/10.1515/9781614516477>.
- . *The Sacred Canopy: Elements of a Sociological Theory of Religion*. New York: Anchor, 1990.
- Binda, Dhanesh D., Carol M. Greco, and Natalia E. Morone. "What Are Adverse Events in Mindfulness Meditation?" *Global Advances in Health and Medicine* 11 (April 19, 2022): 2164957X221096640. <https://doi.org/10.1177/2164957X221096640>.
- Britton, Willoughby B., Jared R. Lindahl, David J. Cooper, Nicholas K. Canby, and Roman Palitsky. "Defining and Measuring Meditation-Related Adverse Effects in Mindfulness-Based Programs." *Clinical Psychological Science* 9, no. 6 (May 18, 2021): 1185–1204. <https://doi.org/10.1177/2167702621996340>.
- Bruce, Steve. *Religion and Modernization: Sociologists and Historians Debate the Secularization Thesis*. Oxford: Clarendon Press, 1992.
- Cantor, Geoffrey, and Chris Kenny. "Barbour's Fourfold Way: Problems with His Taxonomy of Science-Religion Relationships." *Zygon* 36, no. 4 (2001): 765–81. <https://doi.org/10.1111/0591-2385.00395>.
- Cebolla, Ausiàs, Marcelo Demarzo, Patricia Martins, Joaquim Soler, and Javier Garcia-Campayo. "Unwanted Effects: Is There a Negative Side of Meditation? A Multicentre Survey." *PLOS ONE* 12, no. 9 (September 5, 2017): e0183137. <https://doi.org/10.1371/journal.pone.0183137>.
- Clarke, Tainya C., Patricia M. Barnes, Lindsey I. Black, Barbara J. Stussman, and Richard L. Nahin. "Use of Yoga, Meditation, and Chiropractors among U.S. Adults Aged 18 and Over." *NCHS Data Brief*, no. 325 (November 2018): 1–8.
- Creswell, J. David. "Mindfulness Interventions." *Annual Review of Psychology* 68, no. 1 (2017): 491–516. <https://doi.org/10.1146/annurev-psych-042716-051139>.
- Evans, John H., and Michael S. Evans. "Religion and Science: Beyond the Epistemological Conflict Narrative." *Annual Review of Sociology* 34, no. 1 (August 1, 2008): 87–105. <https://doi.org/10.1146/annurev.soc.34.040507.134702>.

- Farias, M., E. Maraldi, K. C. Wallenkampf, and G. Lucchetti. “Adverse Events in Meditation Practices and Meditation-Based Therapies: A Systematic Review.” *Acta Psychiatrica Scandinavica* 142, no. 5 (2020): 374–93. <https://doi.org/10.1111/acps.13225>.
- Fisher, Matthew, and Frank C. Keil. “The Binary Bias: A Systematic Distortion in the Integration of Information.” *Psychological Science* 29, no. 11 (2018): 1846–58. <https://doi.org/10.1177/0956797618792256>.
- Goldberg, Simon B., Sin U. Lam, Willoughby B. Britton, and Richard J. Davidson. “Prevalence of Meditation-Related Adverse Effects in a Population-Based Sample in the United States.” *Psychotherapy Research: Journal of the Society for Psychotherapy Research* 32, no. 3 (2022): 291–305. <https://doi.org/10.1080/10503307.2021.1933646>.
- Goleman, Daniel, and Richard J. Davidson. *Altered Traits: Science Reveals How Meditation Changes Your Mind, Brain, and Body*. New York: Penguin, 2017.
- Greenberg, Jeff, Sheldon Solomon, and Tom Pyszczynski. “Terror Management Theory of Self-Esteem and Cultural Worldviews: Empirical Assessments and Conceptual Refinements.” In *Advances in Experimental Social Psychology*, edited by Mark P. Zanna, 29:61–139. Cambridge, MA: Academic Press, 1997. [https://doi.org/10.1016/S0065-2601\(08\)60016-7](https://doi.org/10.1016/S0065-2601(08)60016-7).
- Greene, Eric M. *The Secrets of Buddhist Meditation: Visionary Meditation Texts from Early Medieval China*. Honolulu: University of Hawaii Press, 2021. <https://doi.org/10.1515/9780824886868>.
- Haight, John F. *Science and Religion: From Conflict to Conversation*. Mahwah, NJ: Paulist Press, 1995.
- Heine, Steven J., Travis Proulx, and Kathleen D. Vohs. “The Meaning Maintenance Model: On the Coherence of Social Motivations.” *Personality and Social Psychology Review* 10, no. 2 (May 1, 2006): 88–110. [https://doi.org/10.1207/s15327957pspr1002\\_1](https://doi.org/10.1207/s15327957pspr1002_1).
- Hsu, Funie. “What Is the Sound of One Invisible Hand Clapping? Neoliberalism, the Invisibility of Asian and Asian American Buddhists, and Secular Mindfulness in Education.” In *Handbook of Mindfulness: Culture, Context, and Social Engagement*, edited by Ronald E. Purser, David Forbes, and Adam Burke, 369–81. Mindfulness in Behavioral Health. Cham: Springer International Publishing, 2016. [https://doi.org/10.1007/978-3-319-44019-4\\_24](https://doi.org/10.1007/978-3-319-44019-4_24).
- Jackson, Michael. *The Politics of Storytelling: Violence, Transgression, and Intersubjectivity*. Copenhagen: Museum Tusulanum Press, 2002.
- Kabat-Zinn, Jon. “Some Reflections on the Origins of MBSR, Skillful Means, and the Trouble with Maps.” *Contemporary Buddhism* 12, no. 1 (May 1, 2011): 281–306. <https://doi.org/10.1080/14639947.2011.564844>.

- Kleinman, Arthur, Veena Das, and Margaret Lock. *Social Suffering*. 1st ed. Berkeley: University of California Press, 1997.
- Kramer, Hannah J., Deborah Goldfarb, Sarah M. Tashjian, and Kristin Hansen Lagattuta. "Dichotomous Thinking about Social Groups: Learning about One Group Can Activate Opposite Beliefs about Another Group." *Cognitive Psychology* 129 (September 1, 2021): 101408. <https://doi.org/10.1016/j.cogpsych.2021.101408>.
- Legare, Cristine H., and Aku Visala. "Between Religion and Science: Integrating Psychological and Philosophical Accounts of Explanatory Coexistence." *Human Development* 54, no. 3 (2011): 169–84. <https://doi.org/10.1159/000329135>.
- Lindahl, Jared R., Willoughby B. Britton, David J. Cooper, and Laurence J. Kirmayer. "Challenging and Adverse Meditation Experiences: Toward a Person-Centered Approach." In *The Oxford Handbook of Meditation*, edited by Miguel Farias, David Brazier, and Mansur Lalljee, 840–64. Oxford: Oxford University Press, 2021.
- Lindahl, Jared R., David J. Cooper, Nathan E. Fisher, Laurence J. Kirmayer, and Willoughby B. Britton. "Progress or Pathology? Differential Diagnosis and Intervention Criteria for Meditation-Related Challenges: Perspectives from Buddhist Meditation Teachers and Practitioners." *Frontiers in Psychology* 11 (2020): 1905. <https://doi.org/10.3389/fpsyg.2020.01905>.
- Lindahl, Jared R., Nathan E. Fisher, David J. Cooper, Rochelle K. Rosen, and Willoughby B. Britton. "The Varieties of Contemplative Experience: A Mixed-Methods Study of Meditation-Related Challenges in Western Buddhists." *PLOS ONE* 12, no. 5 (May 24, 2017): e0176239. <https://doi.org/10.1371/journal.pone.0176239>.
- Lindahl, Jared R., Roman Palitsky, David J. Cooper, and Willoughby B. Britton. "The Roles and Impacts of Worldviews in the Context of Meditation-Related Challenges." *Transcultural Psychiatry* (December 7, 2022): 13634615221128680. <https://doi.org/10.1177/13634615221128679>.
- Lingpa, Dudjom. *The Vajra Essence*. Translated by B. Alan Wallace. Somerville, MA: Wisdom Publications, 2017.
- Lopez, Donald S., Jr. *Buddhism and Science: A Guide for the Perplexed*. Chicago: University of Chicago Press, 2009.
- . *The Scientific Buddha: His Short and Happy Life*. New Haven, CT: Yale University Press, 2012.
- McMahan, David L. *Buddhism as the "Religion of Science": From Colonial Ceylon to the Laboratories of Harvard*. Leiden: Brill, 2010.
- . "Modernity and the Early Discourse of Scientific Buddhism." *Journal of the American Academy of Religion* 72, no. 4 (2004): 897–933. <https://doi.org/10.1093/jaarel/lfh083>.

- . *The Making of Buddhist Modernism*. Oxford: Oxford University Press, 2008.  
<https://doi.org/10.1093/acprof:oso/9780195183276.001.0001>.
- Michaelson, Jay. *Evolving Dharma: Meditation, Buddhism, and the Next Generation of Enlightenment*. Berkeley, CA: North Atlantic Books, 2013.
- O'Brien, Timothy L., and Shiri Noy. "Traditional, Modern, and Post-Secular Perspectives on Science and Religion in the United States." *American Sociological Review* 80, no. 1 (February 1, 2015): 92–115. <https://doi.org/10.1177/0003122414558919>.
- Palitsky, Roman, and Deanna M. Kaplan. "The Role of Religion for Mindfulness-Based Interventions: Implications for Dissemination and Implementation." *Mindfulness* 12, no. 8 (August 1, 2021): 2076–89. <https://doi.org/10.1007/s12671-019-01253-0>.
- Palitsky, Roman, Deanna M. Kaplan, Susan A. Brener, Jennifer S. Mascaro, Matthias R. Mehl, and Daniel Sullivan. "Do Worldviews Matter for Implementation-Relevant Responses to Mindfulness-Based Interventions? An Empirical Investigation of Existential and Religious Perspectives." *Mindfulness* 13, no. 12 (December 1, 2022): 2952–67. <https://doi.org/10.1007/s12671-022-02010-6>.
- Palitsky, Roman, Daniel Sullivan, Isaac F. Young, and Sheila Dong. "Worldviews and the Construal of Suffering from Depression." *Journal of Theoretical Social Psychology* 3, no. 4 (2019): 191–208. <https://doi.org/10.1002/jts5.46>.
- Park, Crystal L. "Making Sense of the Meaning Literature: An Integrative Review of Meaning Making and Its Effects on Adjustment to Stressful Life Events." *Psychological Bulletin* 136, no. 2 (March 2010): 257–301. <https://doi.org/10.1037/a0018301>.
- Park, Young Chin, and Tom Pyszczynski. "Reducing Defensive Responses to Thoughts of Death: Meditation, Mindfulness, and Buddhism." *Journal of Personality and Social Psychology* 116, no. 1 (2019): 101–18. <https://doi.org/10.1037/pspp0000163>.
- Peacocke, Arthur Robert. *Theology for a Scientific Age: Being and Becoming—Natural, Divine, and Human*. Minneapolis: Fortress Press, 1993.
- Proulx, Travis, and Steven J. Heine. "The Frog in Kierkegaard's Beer: Finding Meaning in the Threat-Compensation Literature." *Social and Personality Psychology Compass* 4, no. 10 (October 1, 2010): 889–905. <https://doi.org/10.1111/j.1751-9004.2010.00304.x>.
- Reardon, Sara. "Can Science and Religion Get Along?" *Science | AAAS*, February 19, 2011. <https://www.sciencemag.org/news/2011/02/can-science-and-religion-get-along>.
- Reich, K. Helmut. "A Logic-Based Typology of Science and Theology." *Journal of Interdisciplinary Studies* 8, no. 1/2 (July 1, 1996): 149–67. <https://doi.org/10.5840/jis199681/29>.
- Rosentiel, Tom. "Religion and Science: Conflict or Harmony?" *Pew Research Center* (blog), May 4, 2009. <https://www.pewresearch.org/2009/05/04/can-science-and-religion-coexist-in-harmony/>.



- Schloss, Jeffrey. "Faith vs. Fact: why religion and science are mutually incompatible." *Washington Post*, August 3, 2015, sec. Opinions. [https://www.washingtonpost.com/opinions/science-and-theology/2015/08/03/77136504-19ca-11e5-bd7f-4611a60dd8e5\\_story.html](https://www.washingtonpost.com/opinions/science-and-theology/2015/08/03/77136504-19ca-11e5-bd7f-4611a60dd8e5_story.html).
- Schlösser, Marco, Terje Sparby, Sebastjan Vörös, Rebecca Jones, and Natalie L. Marchant. "Unpleasant Meditation-Related Experiences in Regular Meditators: Prevalence, Predictors, and Conceptual Considerations." *PLOS ONE* 14, no. 5 (May 9, 2019): e0216643. <https://doi.org/10.1371/journal.pone.0216643>.
- Sedlmeier, Peter, Juliane Eberth, Marcus Schwarz, Doreen Zimmermann, Frederik Haarig, Sonia Jaeger, and Sonja Kunze. "The Psychological Effects of Meditation: A Meta-Analysis." *Psychological Bulletin* 138, no. 6 (2012): 1139–71. <https://doi.org/10.1037/a0028168>.
- Sedlmeier, Peter, and Jan Theumer. "Why Do People Begin to Meditate and Why Do They Continue?" *Mindfulness* 11, no. 6 (June 1, 2020): 1527–45. <https://doi.org/10.1007/s12671-020-01367-w>.
- Sharf, Robert H. "Is Mindfulness Buddhist? (And Why It Matters)." *Transcultural Psychiatry* 52, no. 4 (August 2015): 470–84. <https://doi.org/10.1177/1363461514557561>.
- Stark, Rodney. "Secularization, R.I.P." *Sociology of Religion* 60, no. 3 (1999): 249–73. <https://doi.org/10.2307/3711936>.
- Stenmark, Mikael. *How to Relate Science and Religion: A Multidimensional Model*. Grand Rapids, MI: Eerdmans, 2004.
- Sullivan, Daniel. *Cultural-Existential Psychology: The Role of Culture in Suffering and Threat*. New York: Cambridge University Press, 2016. <https://doi.org/10.1017/CBO9781316156605>.
- Sullivan, Daniel, Roman Palitsky, and Isaac F. Young. "The Role of Cultural Beliefs and Existential Motivation in Suffering Perceptions." In *Belief Systems and the Perception of Reality*, edited by Bastiaan Rutjens and Mark Brandt, 97–114. Abingdon: Routledge, 2018. <https://doi.org/10.4324/9781315114903-7>.
- Taylor, Charles. *A Secular Age*. 1st ed. Cambridge, MA: Belknap Press of Harvard University Press, 2007.
- Thompson, Evan. *Why I Am Not a Buddhist*. New Haven, CT: Yale University Press, 2020.
- Wallace, B. Alan, ed. *Buddhism and Science: Breaking New Ground*. New York: Columbia University Press, 2003.
- Wallace, B. Alan, and Brian Hodel. *Embracing Mind: The Common Ground of Science and Spirituality*. Boulder, CO: Shambhala, 2008.
- Wang, Esmé Weijun. *The Collected Schizophrenias: Essays*. Minneapolis: Graywolf Press, 2019.

NOTES

- <sup>1</sup> Tainya C. Clarke et al., “Use of Yoga, Meditation, and Chiropractors among U.S. Adults Aged 18 and Over,” *NCHS Data Brief* no. 325 (November 2018): 1–8.
- <sup>2</sup> Peter Sedlmeier and Jan Theumer, “Why Do People Begin to Meditate and Why Do They Continue?,” *Mindfulness* 11, no. 6 (June 1, 2020): 1527–45.
- <sup>3</sup> J. David Creswell, “Mindfulness Interventions,” *Annual Review of Psychology* 68, no. 1 (2017): 491–516.
- <sup>4</sup> Defined here as the Global North outside of Asia and Australia.
- <sup>5</sup> Jared R. Lindahl et al., “The Varieties of Contemplative Experience: A Mixed-Methods Study of Meditation-Related Challenges in Western Buddhists,” *PLOS ONE* 12, no. 5 (May 24, 2017): e0176239.
- <sup>6</sup> Daniel Goleman and Richard J. Davidson, *Altered Traits: Science Reveals How Meditation Changes Your Mind, Brain, and Body* (New York: Penguin, 2017); Peter Sedlmeier et al., “The Psychological Effects of Meditation: A Meta-Analysis,” *Psychological Bulletin* 138, no. 6 (2012): 1139–71.
- <sup>7</sup> Dudjom Lingpa, *The Vajra Essence*, trans. B. Alan Wallace (Somerville, MA: Wisdom Publications, 2017); Jared R. Lindahl et al., “Challenging and Adverse Meditation Experiences: Toward a Person-Centered Approach,” in *The Oxford Handbook of Meditation*, ed. Miguel Farias, David Brazier, and Mansur Lalljee (Oxford: Oxford University Press, 2021), 840–64; Juhn Y. Ahn, “Meditation Sickness,” in *The Oxford Handbook of Meditation*, ed. Miguel Farias, David Brazier, and Mansur Lalljee (Oxford: Oxford University Press, 2021), 887–906; and Eric M. Greene, *The Secrets of Buddhist Meditation: Visionary Meditation Texts from Early Medieval China* (Honolulu: University of Hawaii Press, 2021).
- <sup>8</sup> Lindahl et al., “Varieties of Contemplative Experience”; Simon B. Goldberg et al., “Prevalence of Meditation-Related Adverse Effects in a Population-Based Sample in the United States,” *Psychotherapy Research: Journal of the Society for Psychotherapy Research* 32, no. 3 (2022): 291–305; Marco Schlosser et al., “Unpleasant Meditation-Related Experiences in Regular Meditators: Prevalence, Predictors, and Conceptual Considerations,” *PLOS ONE* 14, no. 5 (May 9, 2019): e0216643; and Ausiàs Cebolla et al., “Unwanted Effects: Is There a Negative Side of Meditation? A Multicentre Survey,” *PLOS ONE* 12, no. 9 (September 5, 2017): e0183137.
- <sup>9</sup> Lindahl et al., “Varieties of Contemplative Experience”; Willoughby B. Britton et al., “Defining and Measuring Meditation-Related Adverse Effects in Mindfulness-Based Programs,” *Clinical Psychological Science* 9, no. 6 (May 18, 2021): 1185–1204, May 18, 2021; and Goldberg et al., “Prevalence of Meditation-Related.”
- <sup>10</sup> Britton et al., “Defining and Measuring”; Lindahl et al., “Varieties of Contemplative Experience”; Lindahl et al., “Challenging and Adverse Meditation”; Dhanesh D. Binda, Carol M. Greco, and Natalia E. Morone, “What Are Adverse Events in Mindfulness Meditation?,” *Global Advances in Health and Medicine* 11 (April 19, 2022): 2164957X221096640; and M. Farias et al., “Adverse Events in Meditation Practices and Meditation-Based Therapies: A Systematic Review,” *Acta Psychiatrica Scandinavica* 142, no. 5 (2020): 374–93.
- <sup>11</sup> Jared R. Lindahl et al., “The Roles and Impacts of Worldviews in the Context of Meditation-Related Challenges,” *Transcultural Psychiatry*, December 7, 2022, 13634615221128680.
- <sup>12</sup> Peter L. Berger, *The Sacred Canopy: Elements of a Sociological Theory of Religion* (New York: Anchor, 1990), 58.
- <sup>13</sup> Michael Jackson, *The Politics of Storytelling: Violence, Transgression, and Intersubjectivity* (Copenhagen: Museum Tusulanum Press, 2002).
- <sup>14</sup> Esmé Weijun Wang, *The Collected Schizophrenias: Essays* (Minneapolis: Graywolf Press, 2019), 25.
- <sup>15</sup> John H. Evans and Michael S. Evans, “Religion and Science: Beyond the Epistemological Conflict Narrative,” *Annual Review of Sociology* 34, no. 1 (August 1, 2008): 87–105.
- <sup>16</sup> Steve Bruce, *Religion and Modernization: Sociologists and Historians Debate the Secularization Thesis* (Oxford: Clarendon Press, 1992).
- <sup>17</sup> Peter L. Berger, *The Many Altars of Modernity: Toward a Paradigm for Religion in a Pluralist Age* (Berlin: De Gruyter, 2014); Charles Taylor, *A Secular Age*, 1st ed. (Cambridge, MA: Belknap Press of Harvard University Press, 2007).
- <sup>18</sup> Timothy L. O’Brien and Shiri Noy, “Traditional, Modern, and Post-Secular Perspectives on Science and Religion in the United States,” *American Sociological Review* 80, no. 1 (February 1, 2015): 92–115.
- <sup>19</sup> Ian G. Barbour, *Religion and Science* (New York: HarperCollins, 2013).

## RELIGIOUS AND SCIENTIFIC WORLDVIEWS IN MEDITATION-RELATED CHALLENGES

- <sup>20</sup> Geoffrey Cantor and Chris Kenny, “Barbour’s Fourfold Way: Problems with His Taxonomy of Science-Religion Relationships,” *Zygon* 36, no. 4 (2001): 765–81.
- <sup>21</sup> John F. Haught, *Science and Religion: From Conflict to Conversation* (Mahwah, NJ: Paulist Press, 1995); Arthur Robert Peacocke, *Theology for a Scientific Age: Being and Becoming—Natural, Divine, and Human* (Minneapolis: Fortress Press, 1993); K. Helmut Reich, “A Logic-Based Typology of Science and Theology,” *Journal of Interdisciplinary Studies* 8, no. 1/2 (July 1, 1996): 149–67; and Mikael Stenmark, *How to Relate Science and Religion: A Multidimensional Model* (Grand Rapids, MI: Eerdmans, 2004).
- <sup>22</sup> Cristine H. Legare and Aku Visala, “Between Religion and Science: Integrating Psychological and Philosophical Accounts of Explanatory Coexistence,” *Human Development* 54, no. 3 (2011): 169–84.
- <sup>23</sup> Donald S. Lopez Jr., *Buddhism and Science: A Guide for the Perplexed* (Chicago: University of Chicago Press, 2009).
- <sup>24</sup> Donald S. Lopez Jr., *The Scientific Buddha: His Short and Happy Life* (New Haven, CT: Yale University Press, 2012), 13.
- <sup>25</sup> David L. McMahan, “Modernity and the Early Discourse of Scientific Buddhism,” *Journal of the American Academy of Religion* 72, no. 4 (2004): 897–933; David L. McMahan, *The Making of Buddhist Modernism* (Oxford: Oxford University Press, 2008); and David L. McMahan, *Buddhism as the “Religion of Science”: From Colonial Ceylon to the Laboratories of Harvard* (Leiden: Brill, 2010).
- <sup>26</sup> McMahan, *Making of Buddhist Modernism*.
- <sup>27</sup> McMahan, *Buddhism*.
- <sup>28</sup> Lopez, *Buddhism and Science*; Lopez, *Scientific Buddha*.
- <sup>29</sup> Lopez, *Scientific Buddha*, 11; Lopez, *Buddhism and Science*, 33.
- <sup>30</sup> B. Alan Wallace, ed., *Buddhism and Science: Breaking New Ground* (New York: Columbia University Press, 2003).
- <sup>31</sup> B. Alan Wallace and Brian Hodel, *Embracing Mind: The Common Ground of Science and Spirituality* (Boulder, CO: Shambhala, 2008), 184.
- <sup>32</sup> Roman Palitsky and Deanna M. Kaplan, “The Role of Religion for Mindfulness-Based Interventions: Implications for Dissemination and Implementation,” *Mindfulness* 12, no. 8 (August 1, 2021): 2076–89; Roman Palitsky et al., “Do Worldviews Matter for Implementation-Relevant Responses to Mindfulness-Based Interventions? An Empirical Investigation of Existential and Religious Perspectives,” *Mindfulness* 13, no. 12 (December 1, 2022): 2952–67.
- <sup>33</sup> Jon Kabat-Zinn, “Some Reflections on the Origins of MBSR, Skillful Means, and the Trouble with Maps,” *Contemporary Buddhism* 12, no. 1 (May 1, 2011): 290.
- <sup>34</sup> Kabat-Zinn, “Some Reflections,” 288, 290.
- <sup>35</sup> Jay Michaelson, *Evolving Dharma: Meditation, Buddhism, and the Next Generation of Enlightenment* (Berkeley, CA: North Atlantic Books, 2013); Palitsky and Kaplan, “Role of Religion.”
- <sup>36</sup> Robert H. Sharf, “Is Mindfulness Buddhist? (And Why It Matters),” *Transcultural Psychiatry* 52, no. 4 (August 2015): 470–84.
- <sup>37</sup> Lopez, *Scientific Buddha*.
- <sup>38</sup> Evan Thompson, *Why I Am Not a Buddhist* (New Haven, CT: Yale University Press, 2020).
- <sup>39</sup> Thompson, *Why I Am Not*, 2, 16.
- <sup>40</sup> McMahan, *Buddhism*.
- <sup>41</sup> Funie Hsu, “What Is the Sound of One Invisible Hand Clapping? Neoliberalism, the Invisibility of Asian and Asian American Buddhists, and Secular Mindfulness in Education,” in *Handbook of Mindfulness: Culture, Context, and Social Engagement*, ed. Ronald E. Purser, David Forbes, and Adam Burke, Mindfulness in Behavioral Health (Cham: Springer International Publishing, 2016), 369–81.
- <sup>42</sup> Lindahl et al., “Varieties of Contemplative Experience.”
- <sup>43</sup> Daniel Sullivan, *Cultural-Existential Psychology: The Role of Culture in Suffering and Threat* (New York: Cambridge University Press, 2016); Daniel Sullivan, Roman Palitsky, and Isaac F. Young, “The Role of Cultural Beliefs and Existential Motivation in Suffering Perceptions,” in *Belief Systems and the Perception of Reality*, ed. Bastiaan Rutjens and Mark Brandt, 97–114 (Abingdon: Routledge, 2018); and Jeff Greenberg, Sheldon Solomon, and Tom Pyszczynski, “Terror Management Theory of Self Esteem and Cultural Worldviews: Empirical Assessments and Conceptual Refinements,” in *Advances in Experimental Social Psychology*, ed. Mark P. Zanna (Cambridge, MA: Academic

Press, 1997), 29:61–139.

<sup>44</sup> Lindahl et al., “Varieties of Contemplative Experience.”

<sup>45</sup> Lindahl et al., “Varieties of Contemplative Experience.”

<sup>46</sup> Jared R. Lindahl, David J. Cooper, Nathan E. Fisher, Laurence J. Kirmayer, and Willoughby B. Britton, “Progress or Pathology? Differential Diagnosis and Intervention Criteria for Meditation-Related Challenges: Perspectives From Buddhist Meditation Teachers and Practitioners,” *Frontiers in Psychology* 0 (2020).

<sup>47</sup> Lindahl et al., “Varieties of Contemplative Experience.”

<sup>48</sup> Lindahl et al., “Roles and Impacts of Worldviews.”

<sup>49</sup> Rationality, and forms of rationalism, are also features of traditional Buddhism and especially Buddhist philosophy. Thus, allusions to rationality may be commensurate with Buddhist frameworks as well. To determine the extent to which scientific frameworks were referenced, the authors relied on contextual elements that made clear that the references indicated appeals to scientific rationalism.

<sup>50</sup> Legare and Visala, “Between Religion and Science”; Evans and Evans, “Religion and Science.”

<sup>51</sup> E.g., Rodney Stark, “Secularization, R.I.P.,” *Sociology of Religion* 60, no. 3 (1999): 249–73.

<sup>52</sup> Jeffrey Schloss, “Science and Theology,” *Washington Post*, August 3, 2015, sec. Opinions.

<sup>53</sup> Sara Reardon, “Can Science and Religion Get Along?,” *Science | AAAS*, February 19, 2011.

<sup>54</sup> Tom Rosentiel, “Religion and Science: Conflict or Harmony?,” *Pew Research Center* (blog), May 4, 2009.

<sup>55</sup> Matthew Fisher and Frank C. Keil, “The Binary Bias: A Systematic Distortion in the Integration of Information,” *Psychological Science* 29, no. 11 (2018): 1846–58; Hannah J. Kramer et al., “Dichotomous Thinking about Social Groups: Learning about One Group Can Activate Opposite Beliefs about Another Group,” *Cognitive Psychology* 129 (September 1, 2021): 101408.

<sup>56</sup> O’Brien and Noy, “Traditional, Modern, and Post-Secular.”

<sup>57</sup> Evans and Evans, “Religion and Science.”

<sup>58</sup> Legare and Visala, “Between Religion and Science.”

<sup>59</sup> E.g., Cantor and Kenny, “Barbour’s Fourfold Way.”

<sup>60</sup> Stenmark, *How to Relate*.

<sup>61</sup> Ian G. Barbour, “On Typologies for Relating Science and Religion,” *Zygon* 37, no. 2 (2002): 345–60.

<sup>62</sup> Legare and Visala, “Between Religion and Science.”

<sup>63</sup> Crystal L. Park, “Making Sense of the Meaning Literature: An Integrative Review of Meaning Making and Its Effects on Adjustment to Stressful Life Events,” *Psychological Bulletin* 136, no. 2 (March 2010): 257–301.

<sup>64</sup> Berger, *Sacred Canopy*; Jackson, *Politics of Storytelling*; and Arthur Kleinman, Veena Das, and Margaret Lock, *Social Suffering*, 1st ed. (Berkeley: University of California Press, 1997); Sullivan, *Cultural-Existential Psychology*.

<sup>65</sup> Steven J. Heine, Travis Proulx, and Kathleen D. Vohs, “The Meaning Maintenance Model: On the Coherence of Social Motivations,” *Personality and Social Psychology Review* 10, no. 2 (May 1, 2006): 88–110; Travis Proulx and Steven J. Heine, “The Frog in Kierkegaard’s Beer: Finding Meaning in the Threat-Compensation Literature,” *Social and Personality Psychology Compass* 4, no. 10 (October 1, 2010): 889–905.

<sup>66</sup> Roman Palitsky et al., “Worldviews and the Construal of Suffering from Depression,” *Journal of Theoretical Social Psychology* 3, no. 4 (2019): 191–208.

<sup>67</sup> Legare and Visala, “Between Religion and Science.”

<sup>68</sup> Young Chin Park and Tom Pyszczynski, “Reducing Defensive Responses to Thoughts of Death: Meditation, Mindfulness, and Buddhism,” *Journal of Personality and Social Psychology* 116, no. 1 (2019): 101–18.

<sup>69</sup> Lindahl et al., “Progress or Pathology?”

<sup>70</sup> Lindahl et al., “Roles and Impacts of Worldviews.”

<sup>71</sup> Lindahl et al., “Roles and Impacts of Worldviews.”