Mindfulness
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Mindfulness for Global Public Health: Critical Analysis and Agenda

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Abstract

Objective The modern mindfulness movement and the public health field are aligned in many approaches, including recognizing psychosocial stress impacts and physical-mental health linkages, valuing "upstream" preventive approaches, and seeking to integrate health promotion activities across multiple social sectors. Yet mindfulness is conspicuously absent from most global and public health literature and practice, suggesting unfulfilled potential. This paper analyzes the mindfulness field from a public health perspective, with the aim of identifying evidential and conceptual bases, methods, potential consequences, and initial research and action agendas for greater integration of mindfulness approaches into global, national, and local public health efforts.

Methods This paper reviews scientific and scholarly literature on the currently existing and potential relationships between mindfulness and public health, with special attention to 14 dimensions of potential tension or alignment.

Results Several alignments were noted above. However, the mindfulness field is substantially lagging on multi-level interventions (e.g., both individual and collective levels), cultural and religious adaptations, and epidemiologic underpinnings. Both mindfulness and public health initiatives are in need of efforts to promote intercultural, interreligious, and intercontemplative competencies, in developing interventions to address pathogenic factors in the collective attentional environments in society, and in attending to religious and spiritual factors.

Conclusions Full public health uptake will benefit from several additional lines of research and innovation, especially greater attention to cultural and religious adaptation, with attention also much needed to multi-level interventions and epidemiologic foundations.

Keywords Mindfulness · Public health · Attention economy · Cultural competence · Epidemiology · Intercontemplative · Multi-level intervention · Religion

As people worldwide cope with a growing set of serious challenges ranging from pandemics to climate change to resource shortages, few would disagree that we need strengthened planetary social and health resilience (Berry et al., 2018; Wulff et al., 2015). This paper asks: Can mindfulness contribute to building the needed planetary, societal, and individual resilience?

Mindfulness researchers have long advocated the potential of mindfulness for enhancing public health (e.g., Kabat-Zinn, 2019a). And indeed, public health as pursued in many countries overlaps in promising ways with modernized "mindfulness" approaches, commonly traced to Kabat-Zinn's (1982) pioneering work in the early 1980s (Crane et al., 2017; Creswell, 2017). Perhaps most prominently, modern mindfulness approaches resonate with the public health field's emphasis on causally "upstream" approaches to foster salutary health behaviors and other protective factors that build resilience and prevent disease before it arises, helping engender communities that "can withstand known and novel threats and that thrive every day" (Wulff et al., 2015, p. 362). Moreover, reviews and meta-analyses suggest that in the USA and Europe, interventions oriented to mindfulness can foster well-being in general populations, and favorably affect conditions that include depression, anxiety, stress, insomnia, addiction, psychosis, pain, hypertension, weight control, and cancer-related symptoms (Galante et al., 2021; Khoury et al., 2015; Zhang et al., 2021). Reviews suggest that mindfulness approaches may be cost-effective and

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foster individual resilience (Duarte et al., 2019; Joyce et al., 2018). Emerging evidence suggests that mindfulness might also plausibly play a key role in building resilience at the level of populations and systems (e.g., Aizik-Reebs et al., 2021; Meiklejohn et al., 2012; Waelde et al., 2018).

Yet contrary to such promise, attention to mindfulness remains rare in major parts of the world—for example, in Africa (Ajari, 2020)—and is notably scarce in literature on public health, where attention to mindfulness is almost entirely absent from top-tier public health journals. In response, this paper analyzes contemporary mindfulness literature and practice from the perspective of the public health field in the USA, and also globally, where public health is now often referred to as global health (Fried et al., 2010). Aiming to encourage better integration, this paper identifies alignments and potential synergies as well as tensions between public/global health and the extant mindfulness literature—operationally understood as the literature evolved in response and with reference to Kabat-Zinn's (1982) early work—and suggests how such tensions might be addressed. This paper is intended as a resource for both mindfulness researchers and public health professionals. In what follows, therefore, the next two sections provide introductory overviews of the public health field and mindfulness field, aiming to encourage collaboration and possible integration. The third major section then systematically compares mindfulness and public health on 14 integration-relevant axes or dimensions. The final section describes implications for the two fields, suggesting future directions.

What is Public Health?

The constitution of the World Health Organization (WHO), a specialized agency of the United Nations, since 1948 has defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2014). The WHO has offered the following definition of public health (see Table 1 for similar definitions of public health from the USA):

> Public health refers to all organized efforts of society to prevent disease, promote health, and prolong life among the population as a whole. Its activities aim to provide conditions in which people can be healthy and focus on entire populations, not on individual patients or diseases. (World Health Organization, 2015b, p. 249)

Several core concerns of public health could potentially motivate the public health field to pursue a systematic uptake of mindfulness. To understand how these concerns might or might not translate into action, it is helpful to view them in historical and institutional context, with special attention not only to relevant health sectors, such as public mental health, but also to how public health operates on both individual and collective levels, and with attention to how public health is deeply concerned with multicultural inclusion.

Importantly, public health has many impressive achievements to its credit. In the past century, lengthened lifespans and reduced rates of disease in many countries are partly attributable to improved clinical care, but are often attributable in larger measure to public health initiatives for better sanitation, vaccination, safety, nutrition, and other lifestyle and societal improvements (CDC, 1999; Cutler & Miller, 2005; Ford & Capewell, 2011; Schneider, 2020). Globally, public health leadership in such efforts since 1948 has been spearheaded by the WHO, whose governing body includes representatives from more than 190 member states. The WHO has played a leading role in achievements that include eradicating smallpox and coordinating a host of other international efforts. Priorities of the WHO and many nations for the past 30 years have included the pursuit of health equity across groups, seeking to eliminate health differences that are "avoidable" and also "unjust" and "unfair" (Whitehead, 1991, p. 219; see also Braveman, 2006).

Historically, public health agencies both in the USA and globally have placed primary emphasis on initiatives to improve *physical* health. Efforts to promote physical health may involve promoting "host resistance" (e.g., through vaccination) as well as interventions to reduce risk factors

Table 1 Definitions of public health, selected

Year	Definition and source
1920	"Public health is the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health." (Winslow, 1920, p. 30)
1998	"Public health [is] the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society." (World Health Organization's glossary, prepared by Nutbeam, 1998, p. 352)
2016	"[Public health is] the science and art of preventing disease, prolonging life and promoting health through organized efforts and informed choices of society, organizations, public and private, communities and individuals" (ASPPH, 2016, p. 3)

present in a population's physical environment, biological environment, or social environment (Schneider, 2020; Yen & Syme, 1999). In addition, since the late twentieth century, public health agencies have increasingly acknowledged the importance of mental health and its interconnections with physical health. These recognitions are reflected in a landmark report on mental health prepared by US Surgeon General David Satcher (2000), in statements of priorities by other US public health leaders (e.g., ASPPH, 2016, see p. 7), and globally in the World Health Organization's (2013a) Mental Health Action Plan, in which the WHO's 194 member states "agreed to commit, in their own ability," to improve mental health in their own country, and to contribute to attaining six global targets by 2020 (Saxena & Setoya, 2014, p. 585). Importantly, proposed actions were not limited to expanding treatments: The public health field increasingly recognizes population-based approaches to improving mental health, approaches definable as "nonclinical interventions and activities intended to improve mental health outcomes, and the determinants of these outcomes" (Purtle et al., 2020, p. 202).

Increased global public health recognition of mental health is also apparent in the 2008 launch, in tandem with a set of commissioned papers in *The Lancet* (Horton, 2007), of the so-called Movement for Global Mental Health (MGMH), a coalition of dozens of non-governmental organizations and thousands of professionals and other individuals (Patel et al., 2011—movement website is www.globalmentalhealth.org). Simultaneously, the twenty-first century has seen the emergence of a new field of science and practice widely called "global mental health" (Collins et al., 2011; Patel & Prince, 2010; Patel et al., 2014, 2018; Rajabzadeh et al., 2021; White et al., 2017).

Initial framings of the global mental health movement and field emphasized arguments for expanding services for people suffering mental health disorders, and doing such expansion in a manner that is respectful of human rights. Such a stance is potentially compatible with many different views of the validity and usefulness of modern biomedical versus indigenous, holistic, or other alternative approaches and conceptions of mental health and illness. Critics have expressed concerns about pharmaceutical industry involvement and that the WHO and MGMH could foster a biomedical "imperialism" that overwhelms salutary indigenous cultures of mental health (Summerfield, 2012, pp. 525, 528; Cosgrove et al., 2020; Mills & Fernando, 2014). Yet prevention-focused goals of promoting mental health are also prominent in WHO (2013a) and MGMH materials (e.g., Patel et al., 2007), which affirm a non-reductionist and multifactorial understanding of mental health that substantially aligns with, and arguably complements, predominant views in the mindfulness literature. In fact, some global mental health literature emphasizes the resilience-building contributions of local communities (e.g., Campbell & Burgess, 2012; for other GMH themes, see Rajabzadeh et al., 2021).

Mental health is now widely acknowledged by public health as important, partly because of the widespread recognition that life stress can powerfully affect physical health—also a foundational recognition in the mindfulness field (e.g., Baker, 1985; Goldgruber & Ahrens, 2010; Khoury et al., 2015; Steptoe & Kivimäki, 2013). This recognition is global: The WHO has published texts focused on promoting mental health, recognizing that mental health and physical health are closely linked and that stress pathogenesis may adversely affect physical health (e.g., Herrman et al., 2005; World Health Organization, 2001). Conversely, the value of protective psychosocial *resilience* is also affirmed in both mindfulness literature and global public health (e.g., Herrman et al., 2005; Meiklejohn et al., 2012; Patel et al., 2018; Wulff et al., 2015).

Stress and mental health affect efforts to attain many types of societal goals. Therefore, beginning in the mid-2010s, global public health and global mental health began to articulate their missions partly with reference to the Sustainable Development Goals (SDGs) officially ratified in 2015 by the United Nations, with the third ratified SDG goal committing member states to "promote mental health and wellbeing" (SDG Target 3.4, quoted in Patel et al., 2018, p. 1554; see also Votruba et al., 2014). Such statements complement affirmations by the US Surgeon General, the WHO Action Plan, and MGMH leaders that determinants of mental health include social conditions ranging from educational and employment opportunities to poverty, childhood adversity, and exposure to violence (Patel et al., 2018; Satcher, 2000; World Health Organization, 2013a). Moreover, epidemiology, a foundational scientific tool of public health, has for several decades been investigating a range of psychosocial influences on individual and population health (Berkman & Kawachi, 2000; Yen & Syme, 1999). In its recognition of social determinants, public health arguably complements and augments existing mindfulness literature, where social determinants are acknowledged, albeit only seldom a focus of research (Choudhury & Moses, 2016; Purser et al., 2016).

Importantly, from a public health perspective, attention should be given to understanding and intervening in risk and protective causal pathways on both individual and collective levels. For example, one of two overarching recommendations provided by the US Institute of Medicine (2000) is that "rather than focusing interventions on a single or limited number of health determinants, interventions on social and behavioral factors should link multiple levels of influence (i.e., individual, interpersonal, institutional, community, and policy levels)" (p. 9). This is often called a social ecological approach, and Glanz and Bishop's (2010) review article reported that "[p]ublic health and health-promotion interventions are most likely to be effective if they embrace an

ecological perspective…[and] should not only be targeted at individuals but should also affect interpersonal, organizational, and environmental factors influencing health behavior" (p. 400). A key principle of the ecological model is that causal influences may interact across levels—for example, "education to be physically active may work better when policies support active living through physician counseling, insurance discounts for engaging in regular activity, and sidewalks on all streets" (Sallis & Owen, 2015, p. 48; see also De Angelis et al., 2020). In such an ecological approach, "rather than attempting to control for other levels of influence, multilevel intervention leads us to introduce changes at strategically selected levels all of which are designed to move the designated system toward the same or related desired ends and are likely to have synergistic effects" (Schensul, 2009, p. 246).

Thus, to work for improved mental health in society, public health has embraced a multi-sectoral approach that involves "partnership with multiple public sectors such as health, education, employment, judicial, housing, social and other relevant sectors as well as the private sector, as appropriate to the country situation" (World Health Organization, 2013a, p. 10). Public health's multi-sectoral approach represents a partial convergence with the mindfulness field, which—although it has seldom theorized interactions between factors at multiple levels—has supported efforts to introduce mindfulness interventions in schools and workplaces (Rempel, 2012; Renshaw & Cook, 2017; Vonderlin et al., 2020), and has even sought to understand collective-level mindfulness in organizations (Sutcliffe et al., 2016).

Cultural context, and the importance of tailoring health promotion efforts to national and local culture, have also long been affirmed in public health efforts, and quite often in practice. For example, in the USA, the Council on Education for Public Health (2016) has enunciated cultural competency expectations for public health graduates. Internationally, multicultural and multilingual cooperation has pervaded the WHO's operations since its inception, and the WHO's (2013a) Mental Health Action Plan affirms that "mental health strategies…need to be…taking cultural considerations into account" (p. 10). In recent years, multiculturalism's deeper implications have increasingly been explicitly integrated into the WHO's operations (e.g., Napier et al., 2017; World Health Organization, 2015a). In pursuit of such cultural competence, public health has long recognized the value of considering cultural insiders' as well as externally generated perspectives on the cultural context of health programs (Hudelson & World Health Organization Division of Mental Health, 1994; Israel et al., 1998).

The implications of global cultural diversity have been especially prominently discussed in the Movement for Global Mental Health, often in tandem with community involvement (e.g., Campbell & Burgess, 2012). MGMH leaders, including many authors of the *Lancet* papers that helped launch the movement, have acknowledged the importance of both "universal" and "contextual" features of mental health and illness (Patel et al., 2018, pp. 1564, 1565). As others have noted, adequate cross-cultural understanding may open a wider set of options to address treatment gaps—for example, evidence suggests that collaborative referral networks between indigenous healers and Western-trained mental health professionals can "narrow the treatment gap and reduce fragmentation by encouraging more integrated care" (Shields et al., 2016, p. 368). Moreover, public mental health efforts may benefit from "counterflows"—approaches to mental health that originate in low-income countries but are adopted in higher income countries, as noted by the *Lancet* authors, who have advocated a "complementary role of western biomedical and local traditional approaches to treatment" (Patel et al., 2018, p. 1565; White et al., 2014). Indeed, one of the influential movement leaders has urged the "identification of novel psychosocial strategies which have been used in diverse cultures to address mental health problems," acknowledging that "the example of mindfulness-based psychological treatments is an obvious one," for "mindfulness, which owes its distant origins to meditative traditions in Buddhism and Hinduism, has now achieved status as an 'empirically supported treatment'" (Patel, 2016, p. 501). Encouraging helpful counterflows is consistent with another high-profile priority of the WHO: building on indigenous healing systems (World Health Organization, 2013b).

What is Mindfulness? Emic and Etic Views

What, then, is contemporary mindfulness—and how might its usefulness be maximized for both public and global health? Importantly, developers of interventions do not always fully understand the dynamics of their own creations (Blase & Fixsen, 2013). And for mindfulness in particular, one must cut through the "hype" (Van Dam et al., 2018). This section therefore presents a partially non-standard view of mindfulness that combines views from the "mindfulness establishment" with views of knowledgeable and constructive critics. In what follows, the paper briefly introduces mindfulness for public health professionals, describes key components relevant to its potential integration into public health, and notes some surprisingly divergent perspectives about what may be the core active components of mindfulness interventions.

As is well known by many readers of this journal, the concept of mindfulness (*sati* in Pali) has a long, evolving, and polysemous history of multiple meanings. It emerged in ancient Buddhism, was much later a topic for nineteenth-century Western orientalist scholarship, and is now drawing attention across many different societal sectors in the

twenty-first century, including health and human services, education, business, sports, popular culture, and religion (Bretherton et al., 2016; Kuan, 2008; Wilson, 2014). Importantly, contemporary interest in mindfulness across many social sectors was preceded and partly prepared by interest in a wider range of contemplative practices, most notably Transcendental Meditation (TM). For example, a critical history of TM research by Farias and Wikholm (2015) concluded that "without TM paving the way with its hundreds of studies and its ability to spread the practice of meditation throughout social groups, it is highly unlikely that we'd now be experiencing a new wave of interest that focuses on other forms of meditation" (p. 74). Moreover, interest in other forms of contemplative practice has never abated (Burke et al., 2017; see also Benefiel et al., 2014; Morgan, 2015; Oman, 2021; Wilson, 2014).

Yet mindfulness has drawn attention in ways unattained to date by other contemplative practices. Especially relevant to contemporary public health are the mindfulness-based programs (MBPs), sometimes also called by the more broadly inclusive term mindfulness-based interventions (MBIs). MBPs and MBIs first emerged in the health sector, earliest and most notably as the prototypical program Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1982). MBSR has been a key reference point for efforts to integrate mindfulness into additional sectors that include business, education, and sport, where goals for engaging in mindfulness may include not only stress reduction and health, but positive goals such as enhanced learning or performance. An early version of MBSR was described by Kabat-Zinn (1982), and was followed a few years later by his popularized and much fuller book-length explication (Kabat-Zinn, 1990). More recently, Kabat-Zinn (2019b, p. xiii) has expressed hopes that the movement launched by his work might deliver "mindfulness for all" and even "ignite a global renaissance…at this critical juncture in the arc of human evolution and development."

MBSR's pedagogy and approach to defining mindfulness have been widely influential, mediated in part by Kabat-Zinn's (1994, p. 4) oft-quoted definition that "[m]indfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally." Such MBSR-inspired approaches to defining and teaching mindfulness display notable differences from most traditional Buddhist definitions and approaches, a divergence that has created ongoing controversy (Oman, 2021; Purser & Milillo, 2015; Rosch, 2015; Wallace, 2006). The self-report measures of mindfulness used in most modern MBSR-inspired mindfulness studies are also of widely disputed validity (e.g., Van Dam et al., 2018). But grasping the major features of MBSR and its offshoots is crucial because arguments for the public-health relevance of mindfulness rely heavily on mindfulness' modern reception through these programs. Recently, Kabat-Zinn and several collaborators offered their own insider (emic) view of major components and what should be counted as "essential characteristics" of mindfulness-based programs (Crane et al., 2017, p. 990). Others have sought to systematize similar approaches (Kenny et al., 2020). However, as noted by Blase and Fixsen (2013, p. 6), little evidence indicates that "the components named by an evidence-based program developer" should be regarded a priori as the program's actual functional core components. For example, it is conceivable that program features deemed essential for some purposes such as appeal to classes of corporate, professional or community stakeholders, may be at best tangential for generating other outcomes of interest, such as recipient outcomes. Such trade-offs between effects, if they exist, may vary by sociocultural context.

It is therefore relevant that other observers have offered partly contrasting characterizations of the dynamics of MBSR and/or its offshoots in various settings (e.g., Hoffman, 2019; Islam et al., 2022; Rosch, 2007, 2015). Moreover, Crane et al. (2015) lamented "a significant imbalance between the large and rapidly expanding outcome evidence base for MB [mindfulness-based] approaches and the surprisingly small empirical literature on the pedagogy by which these effects are arguably created" (p. 1113). Accordingly, in what follows, this paper presents a stereoscopic view, juxtaposing perspectives from what might be called the "mindfulness establishment" (Stearns, 2022, p. 71)—expressed in an article by Crane et al. (2017) that contains a notable 173-word declaration of financial interests—with iconoclastic yet constructive critiques from Eleanor Rosch, who previously co-authored a groundbreaking classic study on relations between Buddhism and science (Varela et al., 1991). Here, the paper draws on her recent work, which includes a pioneering participant observation study of MBSR (Rosch, 2015). Such a stereoscopic framing informs the paper's later discussion of potential functional substitutes and cultural adaptations.

Table 2 summarizes a stereoscopic view of some key components of MBSR and its closer MBP offshoots. First, MBPs teach participants to engage in various *practices*. As reported by Crane et al. (2017), an MBP "engages the participant in a sustained intensive training in mindfulness meditation practice…and in exercises to develop insight and understanding" (p. 993). Such exercises will "typically include mindfulness training via three formal mindfulness meditation practices – the body scan, mindful movement and sitting meditation" (p. 994).

Rosch (2015) presents a very different, although not necessarily contradictory, view of MBSR practice components. Based on her participant observation data, gathered from attendance at three complete MBSR trainings, she reported that MBSR was not teaching "just mindfulness" (p. 283), as often assumed. Instead, it turns out that "MBSR is a

Table 2 Nonexhaustive list of potentially important characteristic elements of MBSR

Type	Element[a]
Vocabulary (branding)	"Mindfulness"[b]
Practices	Meditation (sitting) Yoga postures Informal practices Others (e.g., sense of agency)
Qualities	Present-moment focus View thoughts as events Approach orientation Self-regulation Compassion Wisdom Equanimity
Empty/flexible time	(Supports practice and contextual adaptation)
Instructor	Embodies mindful qualities Adheres to protocol, boundary
Theories	Stress/suffering Intervention impact Face theory

[a]Most elements listed here are mentioned by Crane et al. (2017); Rosch (2015) describes many of these same processes, such as a "sense of agency" (p. 282), as well as others, such as "attention directed to what is positive and what works, not to what doesn't…the basic principle of positive psychology" (p. 282)

[b]Translated/expressed in other languages in multiple and diverse ways, such as *atención plena* (full attention) or *conciencia plena* (full awareness) in Spanish, *pleine conscience* (full consciousness) in French, *Achtsamkeit* (attentiveness/heedfulness/circumspection/watchfulness) in German, "מודעות קשובה" (attentive awareness) in Hebrew, and "يقظة كامل" (full wakefulness) in Arabic

potpourri of practices" (p. 275), and Rosch (2015) reported an experience akin to

> Leeuwenhoek's first glance through a microscope into a drop of pond water. What had been assumed just water was found teeming with life. MBSR, normally treated as just mindfulness, on closer inspection is revealed as a cornucopia of potentially beneficial practices, each of which has possible applications in research and therapy. That leaves the role of mindfulness itself as a question rather than an assumption. (p. 283)

Notably and perhaps surprisingly, Rosch reported little evidence that mindfulness in its traditional Buddhist sense was being cultivated or experienced by participants—developing "present moment presence" was mentioned by "only two participants…without probing" (p. 277). But based on her data, Rosch went on to describe a "template of the factors at work" (p. 279) in MBSR, including engagement in bodily movement practices; vigilance, interruption, and correction of habitual patterns and thought distortions; enhanced relaxation and sense of agency; sleep facilitation activities; and learning to better discriminate between sensations, feelings, emotions, and thoughts.

Rosch (2015) also suggested that "there are alternative ways that each of the factors can be instantiated…even religions could use the factors by substituting methods for achieving them based on their own beliefs" (p. 279). Rosch (2015) also noted that her analysis should "bring up many research questions that are obscured if everything is called by the name *mindfulness*" (p. 280). And indeed, as described later, an emerging literature has been describing how mindfulness concepts possess a range of religious analogues, sometimes called "bridging concepts" (Thomas et al., 2017, p. 976).

Beyond teaching various practices, MBPs aim to foster various mental *qualities* (Table 2). Crane et al. (2017) stated that MBPs should support "the development of greater attentional, emotional and behavioral self-regulation, as well as positive qualities such as compassion, wisdom, equanimity" (p. 993). Participants are also supported to develop "a new relationship with experience characterized by present moment focus, decentering [viewing thoughts and feelings as mental events] and an approach orientation" (p. 993), and learning to "attend to thoughts and feelings as mental events [that] come and go in the mind…[and] are not necessarily valid representations of reality" (p. 994). And indeed, although Rosch (2015) found no evidence for development of mindfulness in its traditional Buddhist sense, she did report participants experiencing "precursors and perhaps glimpses of mindful present moment functioning" (p. 277).

The MBP curriculum is partially standardized, with certain sequences of activities deemed generally desirable or necessary, although the demands of different settings have not prevented the gradual development of "multiple curriculums" that differ in method and duration of teaching (Crane et al., 2017, p. 992). One key feature in most or perhaps all MBP curricula is refraining from conveying too much information, and thereby allowing reasonable time for practice. In the words of Kabat-Zinn (2010, p. xv), "the emptiness, the 'sparseness' of the curriculum is that way for a reason… spaciousness [enables] speaking to or cultivating the heart of mindfulness, which is practice" (see also McCown et al., 2010, Part III, on "empty curriculum").

Another partially standardized facet of MBPs is the mode of *instructional leadership* (Table 2). An MBP instructor is expected to have six explicit and "visible" competencies, as well as "the capacity to embody the qualities and attitudes of mindfulness within the process of the teaching" based on "a sustained commitment to cultivating mindfulness through regular daily formal and informal mindfulness practices in everyday life" (Crane et al., 2017, p. 995). Moreover—although not a formalized expectation—Kabat-Zinn (2010) has stated that he "personally consider[s] sitting long teacher-led retreats periodically to be an absolute necessity

in the developing of one's own meditation practice, understanding, and effectiveness as a teacher," citing Buddhism and "other traditions that value the wisdom of mindfulness, such as Sufism, the yogas, and Taoism" (p. xii). In addition, according to Crane et al. (2017)—although perhaps rarely noted in publications—a mindfulness teacher should possess "knowledge, experience and professional training related to the specialist populations that the mindfulness-based course will be delivered to" (p. 993).

Theories as Components

Last but not least, a final facet of MBPs of special relevance to cultural adaptations and public health is that at least three classes of *theories* are intimately connected with these programs, either as part of the intervention or as background (Table 2). These three partly overlapping classes of theory, now to be described, perform different scientific and cultural functions and have been developed for somewhat different constituencies, but are interconnected and mutually inform each other.

Two categories of theory are generally *not* shared directly with MBP intervention recipients, "except in essence"; instead, they function as "underpinning," as background justification and guidance for the instructor (Griffith & Karunavira, 2021, pp. 201, 202). *Stress theory* is one category of background theory. In relation to MBPs, stress theories seek to explain the nature of stress and suffering, and why some suffering can be alleviated. As expressed by Crane et al. (2017), MBPs are "underpinned by a model of human experience which addresses the causes of human distress and the pathways to relieving it" (p. 993). Similarly, in Rosch's (2015) account, "MBSR uses stress and its evolutionary explanation as an origin story for the reversible aspects of much human distress…an origin story satisfies people's need for explanation, and the belief systems in which these stories are embedded set the stage for how the other factors will be used" (p. 280).

The direct audiences for the details of this *background stress theory* are MBP/MBI instructors and researchers. The heterogeneous collection of stress theories that have been articulated in relation to MBPs/MBIs draws on research in epidemiology, evolutionary psychology, and even philosophy, especially Buddhist philosophy—for example, the theory of the "two darts," which distinguishes direct physical or emotional pain from "how we add to our suffering by the way we react" (Griffith & Karunavira, 2021, p. 203; Thera, 2010, June 13). These background stress theories articulate broad understandings of human nature, the function of stress/suffering, and factors that catalyze or maintain stress, but do not focus on explanations of how any *specific* intervention may operate (Fig. 1, "A. Stress/suffering theory").

Next, *intervention impact theory* is a second class of background theory. Such theory explains the impact of the mindfulness intervention itself—that is, "how mindfulness training deals with these [stress-]maintaining factors, and thus alleviates distress and supports mental health" (Crane et al., 2017, p. 993). Proposed mechanisms sometimes utilize previously scientifically unstudied constructs inspired by Buddhist philosophy, but are equally or more commonly drawn from applied fields such as behavioral medicine and educational, organizational, and pastoral psychology (Fig. 1, "B. Impact theory"), and to a lesser extent from other fields and subfields (e.g., Chiesa et al., 2013; Shaver et al., 2007), with many previously studied processes suggested in the analysis by Rosch (2015). For example, some have used stress appraisal and coping theory to theorize and investigate how MBPs may foster positive reappraisal coping that protects participants from the metaphorical second dart (e.g., from maladaptive coping responses such as rumination) (Garland, 2007; Garland et al., 2011). Empirical investigation of these theories has relied on a variety of research designs, with a substantial portion measuring participant mindfulness with self-report scales of widely questioned validity (Bergomi et al., 2013; Chiesa, 2013; Van Dam et al., 2018). A counterview is again offered by Rosch (2007, 2015), whose "potpourri" view of MBSR, quoted earlier, implies that benefits may arise from a heterogeneous mix of salutary processes, some or perhaps many unconnected to mindfulness itself.

A somewhat smaller stream of theorizing seeks to identify and differentiate which MBP elements and features are "core" or essential, and which are optional and flexible (Fig. 1, Category B2, "Which elements are essential?"). These are respectively called the "warp" and "weft" by Crane et al. (2017, p. 992), who stated that "each adapted MBP… introduces a unique 'weft' that seeks to target the training to a particular population and/or context." In contrast, Rosch's (2007, 2015) analyses raise the possibility that the centrality of any single practice or teaching may be more a matter of degree than of kind, with MBSR's "potpourri" more akin to a diffuse family resemblance that in part has prioritized "aspects of wisdom that may be beyond our present cultural assumptions" (Rosch, 2007, p. 262; Rosch & Mervis, 1975).

Finally, *face theory* (Fig. 1, Category C) comprises the explanations conveyed to intervention recipients. Such explanations encompass concepts or ideas that may be new to participants (e.g., "mindfulness," "observing thoughts," "informal practice") as well as concepts or scientific findings drawn (or paraphrased) from the two background theories. The primary audience for these face theories is intervention recipients, but face theories must also be comprehensible (and found adequate) by the mindfulness instructors. Deeply intertwined with face theory is the MBP vocabulary, especially its language for "mindfulness." The earlier-quoted definition of mindfulness by Kabat-Zinn (1994) is widely quoted in the MBP literature, and McCown et al. (2010,

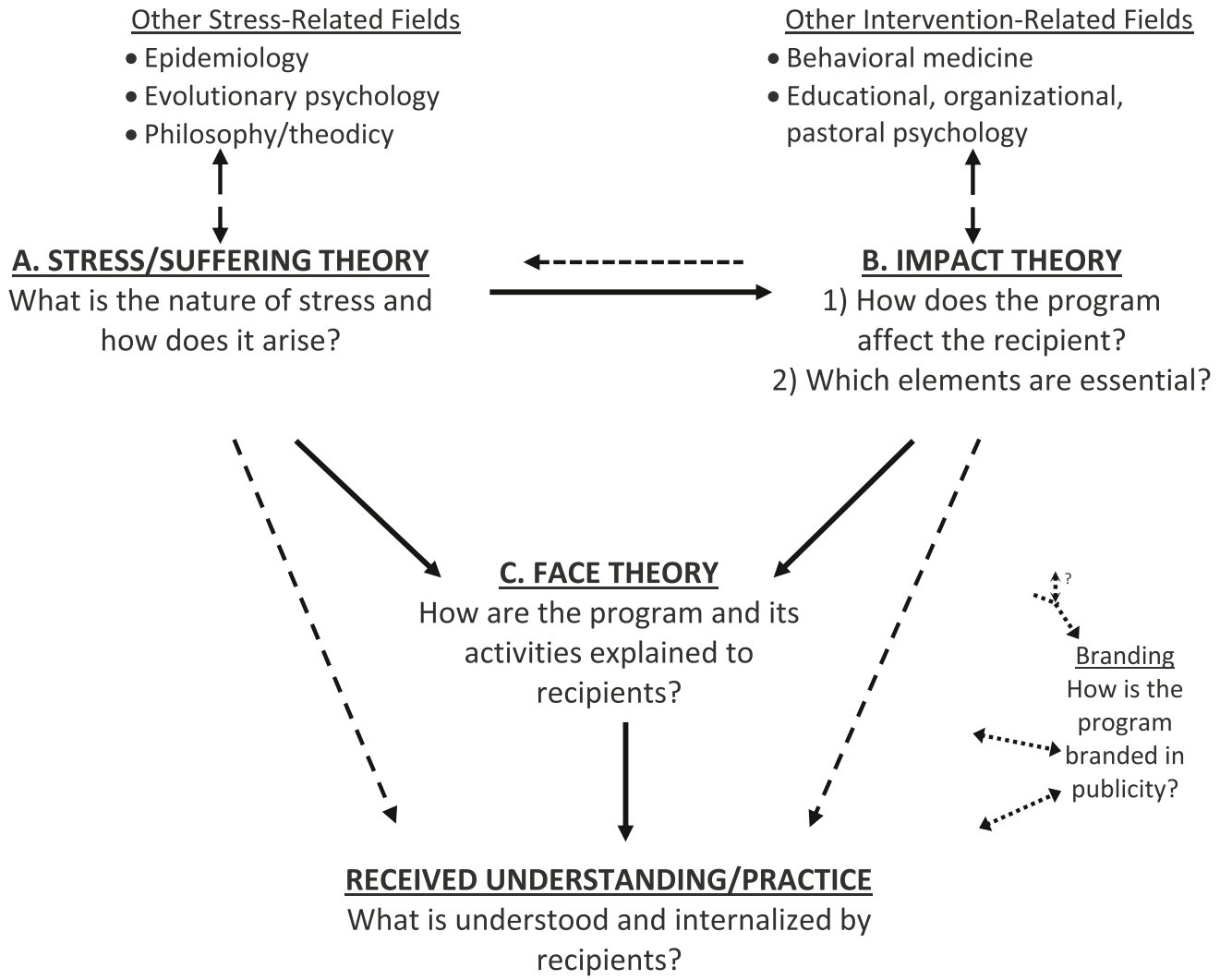

Fig. 1 Categories of theory relevant to mindfulness interventions

p. 64) reported that "three key elements of the definition – intentionality, present-centeredness, absence of judgment – are repeated and reinforced…through MBSR teachers" as well as in much scientific discussion. Similarly, Rau and Williams (2016, p. 34) reported that "presence and acceptance" represent the strongest conceptual similarity across different meanings ascribed to mindfulness in the modern psychology literature (for non-English translations/expressions, see Table 2, footnote b). To some degree, each of these theory classes may influence, or sometimes be influenced by, how the program is publicized (Fig. 1, "Branding").

Spread Across Sectors

As explicated in the previous subsection, at least three classes of theory are therefore deeply relevant to mindfulness interventions, although only one class of theory is shared directly with participants. The other two theory classes, however, have also contributed much to the spread of interest in mindfulness. Once available in the health sector, scientific documentation of MBSR's stress-reducing effects was cited in support of introducing mindfulness-like practices in other sectors, such as education, the workplace, and even religious traditions. As a caution going forward, it should be noted that even today, little meta-analytic evidence indicates that mindfulness-based programs enduringly outperform other *active* psychological interventions (e.g., Goldberg et al., 2022, p. 119, Fig. 3). However, lack of unique benefit does not mean lack of actual benefit. Thus, MBSR-generated evidence for health benefits, along with its accompanying theoretical interpretations, has been cited to reassure ambivalent stakeholders (e.g., administrators), supplementing arguments for enhanced learning in education, enhanced productivity in business, spiritual growth in religious congregations, and other sector-salient benefits. Then, when available, favorable anecdotal reports or research from

each non-health sector have further enhanced the prestige of mindfulness across each other sector. The foundational influence of MBSR and its research base is attested in the widespread notice given to MBSR in histories of mindfulness in other sectors such as education, the workplace, and substance abuse treatment (Good et al., 2016; Johnson, 2019; Morgan, 2015).

Of special note is interest in mindfulness in the *religious* sector, a sector relevant to public health as a dimension of cultural adaptation, a key partner in practical health promotion, and a health factor itself. Many religious adherents and scholars have viewed mindfulness as relevant to spiritual growth within their own tradition, and are also uncovering ways that something similar or identical to mindfulness has been fostered *within* their own traditions by practices and concepts, sometimes pervasive, but sometimes needing recovery and renewal. Thus, for example, Bretherton et al. (2016, p. 225) recently elucidated "where mindful awareness can be helpful in living the Christian life," so that Christian readers will recognize that they "belong to a mindful movement with its roots in Jesus himself." Similarly, a range of recent books is concerned "that the Christian church has, for centuries, neglected and repressed key components of mindfulness [that] include…spiritual practice," and find mindfulness an aid or catalyst for needed renewal (Chase, 2019, p. 356). And writers or scholars in other traditions, such as Judaism and Islam, have also used mindfulness as an aid for selective revival or renewal (Seeman & Karlin, 2019, p. 50; Isgandarova, 2019, p. 1146; Parrott, 2017). Across all these traditions, scholars have identified "bridging concepts" that help "better connect mindfulness to the client's theistic worldview" (Thomas et al., 2017, p. 976; Niculescu, 2020), consistent with assertions in the opening editorial of the journal *Mindfulness* that "mindfulness is ubiquitous in all wisdom traditions…and there is much to learn from these traditions" (Singh, 2010, p. 2). That is, even as public health works across diverse social sectors to foster health, mindfulness has drawn interest in most of these same sectors, including religion—additional seemingly promising alignment of mindfulness with public health, suggesting potential for collaboration.

Are Mindfulness and Public Health Aligned?

The above overviews of public health and mindfulness identify a range of orientations that are shared by mindfulness and public health. Shared axes or dimensions of alignment include an orientation toward prevention, a recognition of the importance of stress and mental health, and a concern for multi-sectoral intervention. Such alignments suggest that mindfulness could hold considerable promise for much broader utilization as a public health intervention, consistent with the hopes and aspirations of early modern mindfulness pioneers. These foundational shared axes are listed in Table 3 as the first four out of 14 total axes on which this paper will compare the public health and mindfulness fields, with a view to their potential integration. In what follows,

Table 3 Summary comparison along 14 axes of whether the public health and mindfulness fields encompass specific orientations or activities

	Axis of comparison	Public health	Mindfulness	Relationship
A1	Prevention orientation	Yes	Yes	Aligned
A2	Mental health important	Yes	Yes	Aligned
A3	Stress influence recognized	Yes	Yes	Aligned
A4	Multi-sectoral intervention	Yes	Yes, with caveats[a]	Largely aligned
A5	Resilience orientation	Yes	Yes	Largely aligned
A6	Epidemiologic foundations solid	Often	No	Mindfulness lags
A7	Multi-level interventions used	Yes	No	Mindfulness lags
A8	Addresses attentional environment[b]	Lags	Lags	Both lag current need
A9	Concern for equity	Yes	Mixed	Partially aligned
A10	Cultural adaptation common	Yes	Rare	Mindfulness lags
A11	Administrative adaptation and community partnership	Some	So far so good	Mindfulness has pending challenges
A12	Attends to religious factors	Lags	Lags	Both lag current need
A13	Supports professional/societal intercultural and inter-religious competence[c]	Lags	Lags more	Both lag current need
A14	Employs branding	Yes	Yes	Both utilize, refinement needed

[a]Although mindfulness has been adopted in diverse sectors, caveats remain because critics express concern that in some sectors (e.g., workplace; Caring-Lobel, 2016), impacts from adopting current forms of mindfulness have had significant adverse effects

[b]Attentional environment refers to features of the sociocultural environment that affect attention and attentional habits, especially systemically

[c]Mindfulness materials encourage adaptation for culturally and demographically diverse audiences (e.g., Crane et al., 2017), but formal materials and other supports are largely lacking

"axis" refers to a *concept or activity* whose utilization this article compares in the two fields of public health and mindfulness, whereas "section" and "subsection" refer simply to parts of the present article's text.

Importantly, as presented in Table 3, despite much alignment between public health and mindfulness, there are also several areas of tension, as will be explicated in the following sections. Perhaps most notable are deficiencies in epidemiologic foundations and paucity of cultural adaptation of mindfulness (axes A6 and A10). Additional axes of strong alignment have also been identified and explicated, such as resilience orientation and employment of branding (axes A5 and A14). The following subsections generally begin by explaining the relevance of each axis to contemporary public health theory and/or practice, and then explain analogous orientations or relevant gaps in the mindfulness literature. Many literatures we cite have rarely or never previously been cited in mindfulness scholarship.

At this project's outset, the author anticipated probing only a small number of axes or dimensions (e.g., epidemiologic foundations and cultural/religious adaptation). However, during the writing process, new important and intertwined axes repeatedly came into view. The final interconnected picture that emerged feels a bit like Veronese's 22 by 32 foot *Wedding Feast at Cana*, the Louvre's largest painting: each part pregnant with many implications, but hard to absorb both fully and quickly. Perhaps it should be no surprise that a large canvass is needed to seriously explore marrying together two highly interdisciplinary fields. For readers who wish to treat the following section in modular fashion—akin to a sequence or mosaic of Mogul miniatures—perhaps the most pivotal sections for reframing the promise of mindfulness are those on attending to cultural and religious factors (axes A10, A11, A12, A13). Throughout the following subsections, highly cited and relevant foundational publications have been generously cited to encourage follow-up action and research to fill consequential gaps and build on alignments.

Oriented to Prevention, Stress, Mental Health, and Multi-sectoral Intervention (A1–A4)

The positive alignments of the public health and mindfulness fields in their orientations to prevention, stress, mental health, and multi-sectoral intervention were discussed in the previous field overview sections. These alignments reflect not merely a convergence of vision on the value of prevention and the importance of addressing stress and mental health, but also reflect corresponding commitments of substantial time, energy, and resources. The two fields' common concern for "upstream" prevention is surely a major source of their mutual interest in multi-sectoral intervention, bringing them jointly into contact with diverse sector-oriented disciplines such as education, management, and religion. In Table 3 (rows A1–A4), the final column notes that the two fields are largely or entirely aligned on each of these four axes of comparison.

Resilience Orientation (A5)

For a decade or longer, the concept of resilience has been regularly appearing in public health discourse—for example, in journal special sections, and in the titles and conceptual frameworks of publications by the World Health Organization (e.g., Friedli & World Health Organization, 2009; Morton & Lurie, 2013; World Health Organization, 2022). Deriving from the Latin prefix *re-* (back) and the verb *salire* (to jump, leap), the term has been used in varying but often convergent ways across many disciplines. It commonly implies the capacity to bounce back after stressors, and has "versatility and far-reaching resonance that offer…exciting potential…as a shared, multisector framework," perhaps making it "uniquely suited to the challenges of our times" (Raghavan et al., 2019, pp. 299–300; Wulff et al., 2015, p. 363; Biddle et al., 2020).

In the *Annual Review of Public Health*, Wulff et al. (2015) identified five dimensions of societal resilience meriting special attention in public health: Health systems, organizational resilience, social connectedness, psychological resilience, and meeting the needs of at-risk individuals. Other researchers have pointed out that, for indigenous or marginalized communities, an important additional dimension is *cultural resilience*, perhaps definable as "the capacity of a distinct community or cultural system to absorb disturbance and reorganize while undergoing change so as to retain key elements of structure and identity that preserve its distinctness" (Fleming & Ledogar, 2008, p. 10).

Of the actionable dimensions of community resilience identified by Wulff (2015), mindfulness interventions appear best documented in their relevance to fostering psychological resilience, as documented in theoretical discussions and reviews (Joyce et al., 2018; Thompson et al., 2011). The additional relevance of mindfulness to other facets of community resilience is suggested by scattered evidence that training in mindfulness and/or meditation may foster effective and resilient managers and leaders (Donaldson-Feilder et al., 2019). Importantly, however, recent expert appraisals have cautioned that "there is less work that considers resilience at the population level [which] is critical for understanding how to build resilience in public health interventions…viewing resilience as only an individual-level factor neglects the important role of social determinants on resilience, introducing ethnocentric bias" (Denckla et al., 2020, p. 14). As noted in our analysis of other axes (A7, A10), in addressing social and cultural factors, mindfulness has lagged in comparison to public health. We thus conclude that

mindfulness and public health are largely aligned in their attunement to resilience, but with potential caveats concerning social and cultural issues.

Epidemiologic Foundations (A6)

Epidemiology, often called the "basic science of public health," investigates the distribution, patterns and determinants of health and disease in "populations rather than individuals" (Detels, 2022, p. 39). Epidemiologic inquiry can be applied to mindfulness, which is often proposed as a health determinant that is analogous to well-established health-protective factors such as nutrition, physical activity, and the availability of social support. For each of these other factors, well-established lines of epidemiologic research use summative measures of these factors to characterize individuals at higher versus lower risk. But in contrast to these other protective factors, there have been very few attempts to understand the *patterning* of mindfulness in the general population. For example, in contrast to perceived stress (Cohen & Williamson, 1988), searches by the present author failed to locate any reports of population norms—that is, means and distributions of any measure of trait mindfulness in a population or a demographic subgroup, computed from a statistically representative sample. Moreover, vanishingly little research has examined mindfulness in probability samples representative of a general population (for exceptions, see Simonsson et al., 2021; Strowger et al., 2018, and a near exception, López et al., 2016). Yet understanding the population patterning of mindfulness would inform efforts to understand whether the protective associations of mindfulness are moderated by demographic or other factors, and to identify which groups might benefit the most from interventions, tools, or policies to enhance mindfulness in populations. It could also inform uses of epidemiology for disaster response and building community resilience (Malilay et al., 2014; Waelde et al., 2018). However, an epidemiologic base for mindfulness appears almost entirely missing.

This lacuna is part of a broader pattern noted by Dimidjian and Segal (2015): Almost all mindfulness studies have focused on development or tests of intervention efficacy in a research clinic. Still comparatively few studies have examined mindfulness efficacy or effectiveness in a community clinic, or broader issues of implementation or dissemination, although some increases in attention have been apparent in recent years (e.g., Emerson et al., 2020; Tickell et al., 2020). Furthermore, the construct validity and proper interpretation of well-known measures of mindfulness is also widely debated (Rosch, 2015; Van Dam et al., 2018). Characterizing population patterning may also be impeded by other psychometric weaknesses, such as lack of scalar invariance (Karl et al., 2022). Together, such weaknesses and gaps in needed information leave mindfulness lacking a balanced research base in epidemiology.

Moreover, the theoretical base for mindfulness (impact theory in Fig. 1), described by Crane et al. (2017, p. 993) as "young and emergent, and…the subject of debate," has largely overlooked the task of *theorizing* what patterning of mindfulness might be anticipated in a general population. Partial exceptions include attempts to theorize the limits and generalizability of health effects from mindfulness (Dane, 2015; Karl et al., 2022). Regarding generalizability, Karl et al. (2022) offered evolutionary arguments and preliminary evidence that cultural practices with functional features overlapping with mindfulness may have "emerged independently," "in a wide range of cultures," and that by examining "a wider range of cultural and philosophical practices across the world…we can identify practices that strongly resemble mindfulness in spirit and practice" (p. 180). Regarding limits, Dane (2015) sketched factors that might moderate effects from mindfulness, arguing that three major definitional characteristics of mindfulness—present-moment focus, non-judgment, and attending to external and internal phenomena—all point "toward boundary conditions surrounding the link between mindfulness and performance in work settings" (pp. 647–648).

Another under-addressed theoretical task is to better characterize the functional domain or strand of health that is directly addressed by mindfulness interventions. The World Health Organization (2001) affirms that "for all individuals, mental, physical and social health are vital strands of life that are closely woven and deeply interdependent" (p. 3). MBPs arguably support a substrand of mental health that has been called *attentional health* (Stark & Cimprich, 2003). Recognizing and studying such strands or domains of health encourages impartial and resourceful consideration of behavioral and lifestyle alternatives. For example, as a major well-documented salutary influence on *physical health*, physical exercise can be pursued in a range of specific forms such as jogging, swimming, and bicycling. Theories of the nature of attentional health would provide context for intensified and impartial consideration of practice components of unadapted MBPs as specific instances of a broader class of beneficial modalities for supporting attentional health such as wisdom practices (Rosch, 2007; Walsh, 2015), contemplative practices, or perhaps a variety of mundane activities (Xia et al., 2019).

Even a minimally developed theorization of attentional health might also supply greatly needed clarity on the widely utilized self-report questionnaires that ostensibly measure "mindfulness," but have received persistent criticism for their lack of construct validity, especially as measures of Buddhist conceptions of mindfulness (Bergomi et al., 2013; Chiesa, 2013; Rosch, 2015; Van Dam et al., 2018). Some of these measures might be beneficially reframed as assessing facets of attentional health (e.g., Brown & Ryan, 2003). Such reframing might facilitate clearer consideration

of other proposed attentional mediators of MBPs such as concentration (Mikulas, 2007), facilitate integration with previous work on attentional health (Cimprich et al., 2011; Derryberry & Reed, 2002), provide a more neutral ground for cross-cultural inclusiveness—and, of course, expedite the population-level research needed for provisioning the mindfulness field with a well-developed epidemiologic base.

Multi-level Interventions Used (A7)

Most discussions of the functions of MBP elements (e.g., Table 2) have emphasized potential effects on individual clinical or performance outcomes (e.g., Chiesa et al., 2014; Gu et al., 2015). But, as noted earlier, a public health perspective considers possibilities for intervention on causal pathways at both individual and collective levels (Glanz & Bishop, 2010; Institute of Medicine, 2000). Multi-level interventions that explicitly incorporate mindfulness have perhaps most commonly been conducted in workplace or school settings, often with conceptual models that recognize mediation by factors such as organizational culture or classroom climate (Dierynck et al., 2017; Sheinman & Russo-Netzer, 2021; Sutcliffe et al., 2016). Interventions in these settings are often provided to a majority of workers or students in a department, classroom, organization, or school. Workplace interventions may also include minor modifications to the physical environment, such as setting aside a meditation room for workers on breaks (Hafenbrack, 2017; see also Benefiel et al., 2014). When intervention participants are indeed a majority of workers or students in a specific setting, these individuals may plausibly affect the setting's social environment, which may in turn partially mediate ongoing effects. Furthermore, workplace or school interventions have often provided training for leaders (e.g., executives, managers, principals, or teachers), whose altered approaches may also mediate ongoing changes, perhaps partly through so-called "trickle down" effects on non-leader mindfulness (Williams & Seaman, 2016, p. 815).

Consistent with such intervention approaches, research on mindfulness interventions has sometimes assessed organizational or classroom climate as an outcome. Only very rarely, however, has mindfulness research taken the next logical step by investigating how changes in the social environment may *mediate* mental health or performance outcomes of interest. A rare example of such a mediation study is the report by López-González et al. (2018) that changes in classroom climate—albeit measured as individual perceptions rather than aggregates—fully mediated the effect of a 12-week mindfulness program on academic performance.

Leaving aside speculative trickle-down effects from leadership training, systematically *intervening* at multiple socio-ecological levels has been nearly absent, however, from extant mindfulness research. For example, although a review by Sutcliffe et al. (2016) advocated that "[l]eaders and their organizations should think about individual and collective forms of mindfulness as targets for intervention" (p. 75), they did not identify any instances of such multi-level targeting. More recently, a rare exception was the work of Meischke et al. (2018), who provisioned individual workers with mindfulness training, while simultaneously provisioning managers with toolkits for "organizational stress reduction"—toolkits containing modules on issues such as "conflict management," "bullying in the workplace," and "health and wellness" (p. 5). Advocating similar approaches, Rupprecht et al. (2019) proposed "investigation of the factors causing stress in [a] specific work environment (such as workload, bullying, harassment, discrimination, role ambiguity) and an evaluation of whether mindfulness interventions are sufficient without other organizationally contextualised interventions" (p. 34).

Importantly, at the organizational level, human *relationships*—one key feature of the social environment—have seemingly been only haphazardly explored in mindfulness research. In organizations, labor unions are an obvious potential health promotion *partner* for efforts to improve attentional health. Malinowski et al. (2015) describe how labor unions have long been key partners in public health efforts on smoking, hypertension control, asthma, and other concerns. They note that unions are "uniquely situated to address inequalities in health by coordinating intervention" across interpersonal, institutional, community, and public policy levels, but sometimes remain reluctant to support health-related policies (e.g., policies on smoking) when policies were not developed in consultation with them (Malinowski et al., 2015, p. 262).

Enhanced proactive cooperation of mindfulness instructors with unions would seem to be desirable for at least two interconnected reasons: Most obviously, union backing could help address both the appearance and the substance of commonly expressed concerns that mindfulness interventions have been used by corporate leadership as a distraction from addressing structural features of workplace stress (Purser, 2019). Most fundamentally, such proactive coordination could support union efforts to improve unhealthy structural features present in some workplaces, such as intrusive work leadership (e.g., contacting workers after hours), resulting in distress, the erosion of work-life balance and the erosion of mindfulness itself (Magnavita et al., 2021). However, the present author was unable to locate any reports of collaborations of MBP or MBI instructors with unions. Publication of accounts of successful collaborations with unions could encourage and facilitate more such collaborations.

Addresses Attentional Environments (A8)

Beyond organizations, the logic of a public health approach suggests an even broader concern with what some scholars have called the "attentional environment" (Citton, 2017,

p. 170). At any collective socio-ecological level—group, organization, subculture, or society—human attention is encouraged to flow in some directions but not in other directions by multiple influences that include human relationships and expectations, the natural and built environment, group norms, and worldviews and their symbolic representations. The attentional environment can be understood as those features of the physical, biological, and social environments that influence how people deploy their attention. To date, public health interest in attentional environments has focused mainly on the explicit informational or ideological *content* of attentional environments, as reflected in research on topics such as effective health messaging, effects of media violence, or prevalence of disinformation (Kreuter & McClure, 2004; Sutton, 2018; Williams et al., 2007).

However, through social environments as well as through components of the physical environment (e.g., devices such as radios or smartphones), the structures or *forms* of our attentional environment may also exert pervasive effects, an insight popularized long ago in works such as Marshall McLuhan's (1964) *Understanding Media*, and carried on by contemporary media scholars such as Citton (2017). By shaping how we deploy attention, such media forms (structures) and the perceptual and social norms with which they become intertwined, may either support or undermine individual attentional health, including individual mindfulness, and capacity for concentration and focus. Socio-ecological approaches and public health logic therefore mandate concern for public health effects from both media content and media forms. And indeed, such effects have begun to receive notice in public health, as in Millington's (2017) acknowledgement of effects from modern media's tendency to make us "fixed in transmission"—continuously engaged with communication technologies.

Health-restoring and resilience-building *interventions* are, of course, possible at the level of the attentional environment. For example, evidence indicates that the well-being of employees and their families is compromised by workplace expectations that employees will be "always on" and amenable to contact about work issues (Von Bergen & Bressler, 2019). Thus, as an intervention to support attentional and other facets of health, there is growing international interest in "right to disconnect" legislation that limits after-hours contacts by employers, as implemented most proactively in France, with policies or analogous laws under discussion or implemented in numerous countries that include Belgium, Canada, Germany, Ireland, Italy, Japan, Luxembourg, Netherlands, Spain, and the USA (Secunda, 2019; Von Bergen & Bressler, 2019). The attentional and mental health of workers and their families stand to be benefited by policy-level attentional environment interventions that effectively support healthy balance between the two attentional environments of workplace and home. Parallel to MBP pedagogy ("flexible time" in Table 2), and to teachings of other contemplative practice programs (e.g., Oman & Bormann, 2021), such policies support greater flexible time at home.

Perhaps much more insidiously, population mental health and well-being are increasingly endangered, according to emerging literatures, by the dynamics of the "attention economy," an economy now having "well-recognized commercial importance" (Wu, 2019, p. 771; see also Davenport & Beck, 2001; Millington, 2017). The notion of an "attention economy" reflects perceptions that in contemporary society, attention is scarce, and can be captured and resold (e.g., to advertisers by website "attention brokers," Wu, 2019, p. 772). The attention economy provides incentives for media designers to do everything possible—ethical or unethical—to disseminate media content and forms (structures) that keep audiences continuously engaged and "fixed in transmission," where their attention may be resold, regardless of the impact of such fixation on their attentional health. For example, media designers are incentivized to embed "distraction by design"—close to the very opposite of mindfulness—into attentional environments (Williams, 2018, p. 5). One familiar example is the "infinite scroll" whereby websites continuously load new content as a user scrolls down a page, thereby removing any "stopping cue" (Knowles, 2019; Hari, 2022a, pp. 119–122, 159). In some circumstances, "attentional theft" is a legally cogent concept (Wu, 2019, p. 82). Deleterious effects from attention-predatory techniques are compounded by the now-ubiquitous collection of personal data for the fine-tuning of both fixation and reselling of attention, giving rise to an economic system now widely called "surveillance capitalism" (Zuboff, 2015). That our collective attentional environments are strongly shaped by such dynamics clearly raises many ethical, legal, equity, and public health concerns (Millington, 2017; Storeng & de Bengy Puyvallée, 2021; Williams, 2018; Wu, 2019).

To date, public health literature on attentional environments is very limited. However, journalist Johan Hari (2022a) has assembled a reasonably comprehensive overview in an "insightful, well researched analysis" (Kleist, 2022, p. 256) that many feel requires "immediate, serious note of its insights and implications" (Landon-Murray & Dlugos, 2022, p. 1). Hari (2022a) reviewed research evidence on a broad range of factors that may influence our contemporary attentional health, most of them at least partially embedded in our attentional environments. Factors discussed by Hari (2022a) that undermine attentional health, especially our ability to concentrate, include social media as driven by surveillance capitalism, an accelerating pace of living, misguided cultural valorization of multitasking, and culturally abetted physical depletion from poor diets, inadequate sleep, and exposure to environmental pollutants. Eroding attentional capacity also has "very real implications for national security" (Landon-Murray & Dlugos, 2022, p. 1)

and undermines our ability to solve urgent collective problems—for example, "'if we've downgraded our attention spans…where we can't construct shared agendas to solve our problems'…What possible hope do we have to solve global warming?" (Hari, 2022a, p. 142, quoting comments and testimony to the U.S. Congress by Tristan Harris).

How should health professionals respond to this array of pathological influences embedded in contemporary attentional environments? One might undertake individually focused interventions, as recently pioneered by Throuvala et al. (2020). However, in concert with many others (Landon-Murray & Dlugos, 2022; Williams, 2018; Wu, 2019), Hari (2022b) forcefully argued that approaches focusing purely on individuals are insufficient: "At the moment it's as though we are all having itching powder poured over us all day, and the people pouring the powder are saying: 'You might want to learn to meditate. Then you wouldn't scratch so much.' Meditation is a useful tool – but we actually need to stop the people who are pouring itching powder on us." Beyond the "right to disconnect" laws noted above, suggested approaches for improving collective attentional environments include policies to foster or mandate partial or complete substitutes for "surveillance capitalism" such as public utility or subscription-based social media—engineers report that needed software changes are "technically not hard" (Hari, 2022a, p. 159)—as well as a variety of interventions in organizational or other collective attentional environments (Hari, 2022a; Landon-Murray & Dlugos, 2022). Attention and how it is used are central to definitions of mindfulness (e.g., Kabat-Zinn, 1994). Thus, coalitions or social movements—potentially in alliance with a re-grounded and evolving mindfulness movement—might also play key roles in fostering needed change (Campbell & Cornish, 2021; Hari, 2022a; Kegler et al., 2020). Clearly needed is much more work on both policy development and multi-level intervention: To date, the status and dynamics of collective attentional environments are seldom addressed by either the public health or the mindfulness communities, and both fields lag current need (Table 3, A8).

Concern for Equity (A9)

As noted earlier, modern public health has a longstanding interest in health equity (Braveman, 2006). Disadvantaged populations, including racial/ethnic minorities and people of lower socioeconomic status, are generally at higher risk for health problems, and may experience distinctive risk factors and/or require distinctive interventions. Public health has therefore given much attention to socioeconomically disadvantaged populations, whose improved health often benefits the wider population (Bunnell et al., 2021; Satcher, 2011).

The mindfulness movement also largely subscribes to ideals of equity, and some leading books on mindfulness include sections relevant to equity (e.g., Roberts & Crane, 2021). However, less-educated, lower-income, and racial/ethnic minority participants are less likely to actually utilize MBPs (Creswell, 2017; Olano et al., 2015), and have been under-represented in research on MBPs—for example, MBP research under-represents people without college degrees: A recent review found that 47 out of 48 reviewed randomized controlled trials (RCTs) of MBPs included a majority of college graduates (Waldron et al., 2018; see also Eichel et al., 2021). Reporting of study participant sociodemographic characteristics has been haphazard, and little is known about how sociodemographic characteristics may moderate the effects of MBPs (Waldron et al., 2018). A few highly cited studies have examined mindfulness adaptations for specific low-income populations (e.g., Palta et al., 2012). Internationally, most research on mindfulness has been conducted largely in populations that are Western, educated, industrialized, rich, and resident in democratic societies (WEIRD; Henrich et al., 2010). Segal et al. (2021) found inconsistent support for benefits from mindfulness interventions for youth in low-income schools (eight studies). Eichel et al. (2021, p. 2584) cautioned that "the combination of an extensive research literature on one hand, and of demographic homogeneity within this literature on the other, can perpetuate an insidious myth of presumed universality." At present, more research seems needed on generalizability, effectiveness, and optimal adaptations, suggesting that the mindfulness and public health fields are partially aligned in their concern for equity (Table 3, A9).

Attending to Cultural Factors (A10)

The importance of culturally sensitive service delivery and adaptation is widely affirmed across health and human service professions. The present section therefore focuses on overall cultural considerations, with the following three sections focusing on administrative considerations (axis A11), religious considerations (axis A12), and professional competencies (axis A13). The mindfulness field appears to be lagging current need on most of these axes (Table 3). Each of the following subsections therefore suggest steps for addressing these gaps.

The need for cultural sensitivity is pervasively affirmed across health professions, meriting emphasis here in view of its lack of emphasis in much mindfulness literature. More than two decades ago, a highly cited review by Resnicow et al. (1999) already attested that "there is virtual consensus that health promotion programs should be culturally sensitive" (p. 10). Others have characterized the concept of cultural competence as having long ago become "ubiquitous in the health and health care services literature" (Greene-Moton & Minkler, 2020, p. 142). Precise definitions of culturally sensitive adaptation—sometimes called cultural

tailoring—also may vary, as do definitions of culture itself (Asad & Kay, 2015; Kreuter & Skinner, 2000; Pasick, 2001). Nonetheless, culturally adapted interventions are the focus of a large and expanding research base, and much evidence documents the superior effectiveness of culturally adapted interventions (Barrera et al., 2013; Rathod et al., 2018; Truong et al., 2014). A seldom-noted limitation of this literature, relevant to mindfulness, is its overarching emphasis on constructing interventions through specific sectors (e.g., clinical care or workplace health education), while seldom if ever considering the larger strategic issue of how multiple interventions across multiple sectors may be *coordinated* to maximally benefit the same population.

Like most health and human service professions, public health has widely affirmed the need to provide services and interventions in ways that are sensitive to the culture of the recipients (see introduction above and Table 4). In perhaps surprising contrast, only a very small fraction of research on mindfulness has given substantial attention to cultural factors, cumulatively posing several obstacles for integrating mindfulness into public health. The mindfulness field, of course, is constrained by the well-documented demographic limitations of its existing research base, noted above (section on axis A9). Nevertheless, available empirical evidence does reveal potential problems for conventional mindfulness programs in relation to several facets of culture, perhaps most notably ethnicity and religion (e.g., Proulx et al., 2018; Watson-Singleton et al., 2019; Woods-Giscombé & Gaylord, 2014). A professional literature on cultural adaptations of mindfulness has therefore emerged, although it remains modest in size, and all too often is ignored by the mindfulness mainstream—for example, Creswell's (2017) review article entirely omitted any mention of cultural adaptations. In the wake of such marginalization, Proulx et al. (2018) observed that American minority communities (AMCs) "have well-developed coping mechanisms that are culturally specific and recognizable by community members" (p. 367), but that these culturally determined coping mechanisms are generally ignored in mindfulness interventions—thus, "the steps taken by the mindfulness community may be seen

Table 4 Cultural competence requirements or advisories from various health and human service professions, selected

Field or source	Statement and reference
Public health	"All MPH graduates demonstrate [competency to] apply awareness of cultural values and practices to the design or implementation of public health policies or programs"—Council on Education for Public Health (2016, p. 17, MPH Competency #8)[a] "DrPH graduates demonstrate the [competency to] Integrate knowledge of cultural values and practices in the design of public health policies and programs"—Council on Education for Public Health (2016, p. 19, MPH Competency #15)[a] "Aspects of diversity may include…ethnicity…religion, culture…socioeconomic status" —Council on Education for Public Health (2016, p. 44)[a]
Medicine	"Physicians should… cultivate effective communication and trust by seeking to better understand factors that can influence patients' health care decisions, such as cultural traditions, health beliefs and health literacy, language or other barriers to communication"—American Medical Association *Code of Medical Ethics* (Opinion 8.5, quoted in Chaet, 2017, p. 261)
Psychology	"Where…an understanding of factors associated with…culture,…religion,…socioeconomic status [or other characteristics] is essential for effective implementation of their services or research, psychologists have or obtain the training, experience, consultation, or supervision necessary to ensure the competence of their services, or they make appropriate referrals"—Ethical standards of the American Psychological Association (2002, pp. 1063–1064, Standard 2.01b)
Institute of Medicine	"Cross-cultural curricula should be integrated early into the training of future healthcare providers, and practical, case-based, rigorously evaluated training should persist through practitioner continuing education programs" (Institute of Medicine, 2003, p. 2)
Interprofessional Education Collaborative[b]	"Embrace the cultural diversity and individual differences that characterize patients, populations, and the health care team" —Interprofessional Education Collaborative Expert Panel (2011, p. 19, principle VE3)
The Joint Commission (formerly JCAHO)[c]	"The organization defines in writing the data and information…the social, spiritual and cultural variables that influence perceptions and expressions…by the patient, family members, or significant others" —Joint Commission (2006, p. 5, Standard PC.2.20, applicable to hospital care and ambulatory care)

[a]The Council on Education for Public Health is the body that periodically reviews and grants accreditation to schools and programs of public health in the USA

[b]The Interprofessional Education Collaborative was sponsored by the Association of Schools of Public Health, the Association of American Medical Colleges, and the corresponding national associations for colleges of nursing, osteopathic medicine, pharmacy, and dentistry

[c]The Joint Commission, formerly known as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), is the largest and oldest US accrediting and standards-setting body in healthcare, and accredits more than 22,000 healthcare organizations and programs in the USA

as another example of encouraging AMCs to be more like White communities rather than exploring how spiritual and contemplative traditions in these communities resonate with mindfulness" (p. 362).

How might the mindfulness field become more culturally responsive? This subsection, as noted earlier, focuses on adapting the *intervention*. According to the influential discussion by Resnicow et al. (1999), the changes involved in creating a culturally adapted intervention possess two "primary dimensions," which they call *surface structure* and *deep structure*. Adaptations to surface structure involve "matching intervention materials and messages to observable…'superficial'…characteristics of a population" (p. 10), including modifications to the language and cultural identities of the people who deliver the intervention or are presented as role models of desirable behaviors. In contrast, adaptations to deep structure may involve modifications in response to core cultural values as well as "how ethnic, cultural, social, environmental, and historical factors may influence specific health behaviors [or] how religion, family, society, economics, and…government might influence the target behavior" (p. 12). Other, more fine-grained, adaptation typologies and frameworks have also been offered, such as the enumeration of strategies by Kreuter et al. (2003) that included sociocultural, evidential, linguistic, constituent-involving, peripheral, religious, collectivist, perceptions of time, and cultural (ethno/racial) pride (see also overview by Barrera et al., 2013, p. 201; and frameworks by Airhihenbuwa, 1995; Bernal et al., 2009; Iwelunmor et al., 2014; Padela et al., 2018, p. 93).

Implementing such principles requires many contextual judgements, often with little data on the relative importance of different *components* of adaptation (Barrera et al., 2013). Nonetheless, a suggestive finding comes from Benish et al. (2011), who conducted a meta-analytic "direct-comparison analysis of culturally adapted psychotherapy versus unadapted, bona fide psychotherapy" (p. 285). They tested a "myth" hypothesis derived from the work of Jerome Frank (Frank & Frank, 1993), finding that cultural adaptations for illness treatments were significantly more advantageous (by an extra margin of $d = 0.21$) if they offered clients "a rationale or myth providing a plausible explanation" for the condition requiring treatment (p. 281), a factor present in 10 of the 21 analyzed adaptations. Otherwise, the adaptation advantage was *not* made significantly larger by language matching, or by any other specific measured adaptation component, "indicating that differences in outcomes were explained by myth adaptation" (p. 285). Such findings corroborate the importance of well-constructed face theories (Fig. 1) and suggest the need to consider appropriate adaptions of face theories for diverse recipient populations.

Culturally adapted mindfulness interventions reported to date appear to have been constructed in ways broadly compatible with the main principles described above (e.g., Barrera et al., 2013; Kreuter et al., 2003). Mindfulness adaptation efforts were already well underway a decade ago (e.g., Fuchs et al., 2013). Importantly, there has been some effort to articulate principles of adaptation—for example, as noted above, Crane et al. (2017, p. 992) assert that each MBP includes adaptable "weft" components that permit intervenors to "target the training to a particular population and/or context." Crane et al. (2017) sometimes lack a compelling rationale or transparency for why they insist that certain program components are essential, rendering their view contestable—as noted earlier, program developers may not know which program components are essential and "core" (Blase & Fixsen, 2013). Nonetheless, Crane et al. (2021b, p. 11) affirm that "adapting the 'weft' may be linked to responding to the requirements of…organizational, cultural, socio-political, or religious considerations," and suggest the possibility of employing "a 'cost–benefit' analysis to each element of the program that seems to need adapting." Examples of cultural adaptation along these lines include Ahn (2016), who has described adaptations of MBSR to Korean culture (see also other chapters in McCown et al., 2016, Part II, "Global Cultural Situations").

To date, one of the few probing reviews of mindfulness cultural adaptation is from Castellanos et al. (2020), who systematically reviewed 20 empirical studies of culturally adapted mindfulness interventions for Hispanics, mostly outside the USA (14/20), half of them published in Spanish. Presentation or surface-structure adaptations were most common, and included adaptations to language, person, metaphor, and pragmatics (e.g., facilitator/participant ethnic match, local sayings or stories, and providing childcare). Studies ($n = 8$) with sufficient data were meta-analyzed, revealing a favorable but non-significant relation ($r = 0.34$) between the degree of cultural adaptation and degree of benefit. Yet the potency of deep structural adaptation appears to have remained largely unexplored: Very few of the 20 Hispanic adaptation studies employed deep structural adaptations to content ("knowledge about cultural background…explicitly included in treatment," $n = 2$), goals (framed within culture's "values, customs, and traditions," $n = 1$) or concepts (how "presenting problem" is theorized or explained to clients, $n = 0$) (Castellanos et al., 2020, p. 318).

In sum, mindfulness movement leaders have affirmed the need and viability of cultural adaptation, and have supplied guidance and desirable limits from their perspective. But in published mindfulness literature, studies of culturally adapted mindfulness remain uncommon, under-theorized, and infrequently noted (e.g., Creswell, 2017, as noted above). Based on such considerations, we characterize mindfulness as lagging public health with regard to cultural adaptations (Table 3, axis A10).

Administrative Adaptation and Community Partnership (A11)

The foregoing section emphasized that mindfulness interventions may need to be culturally adapted to benefit their intended *recipients*. Additional *administrative* adaptation may also be needed or beneficial for matching local workforce, institutions, governance frameworks, policies, or cultures. Societies worldwide have evolved diverse institutions for assimilating fruits desired from modern technology. It is now widely affirmed that the world is evolving "multiple modernities," without any straightforward global convergence on what has been called "Euro-American modernity" (Eisenstadt, 2000; Geltner & Coomans, 2022). Adaptation of how interventions are administered may therefore be needed because the operational culture of a health system, an educational system, or a workplace is shaped by and interconnected with local societal culture as well as with codified governance structures (MacCarthaigh & Saarniit, 2019). For example, "what appears to be a similar reform may be very differently received in different cultures. Essentially, the layer of societal culture forms a lens through which different reforms ideas are viewed" (MacCarthaigh & Saarniit, 2019, quoting Pollitt & Bouckaert, 2017, p. 65).

Thus, transporting public health or other interventions to a new cultural setting may sometimes require or benefit from administrative adjustments that are deeper than surface-level language translation. Effective public health initiatives often involve partnering across sectors and with diverse *community* organizations, requiring "cultural competence—respect for, engagement with, and mutual influence among people of different ethnic, racial, and economic backgrounds" (Rousos & Fawcett, 2000, p. 385; see also Cyril et al., 2015). Such partnerships may potentially require bridging differences in administrative culture along dimensions such as individualism, power distribution, uncertainty avoidance, and long-term versus short-term orientation (MacCarthaigh & Saarniit, 2019; see also Veenstra & Lomas, 1999).

Partnerships play a key role in collaborative health promotion efforts worldwide in urban areas and in workplaces (María-Ángeles et al., 2021; Nickel & von dem Knesebeck, 2020). Moreover, strong relations with the local community—"community trust and ownership…through an inclusive consultation process engaging communities meaningfully"—are a key foundation of health system resilience (Blanchet et al., 2017, p. 433). Of special interest from a global perspective are the types of partnering needed where staff shortages are particularly acute, such as in rural areas of both richer and poorer countries. In such contexts, task sharing, definable as the "redistribution or delegation of health care tasks within workforces and communities" (Orkin et al., 2021, p. 5), has been described as an "essential response" to shortages in human resources for mental health (Kakuma et al., 2011, p. 1656). Tasks may be shared or shifted from highly trained professionals to others such as non-specialist health professionals, or to community health workers, affected individuals, and caregivers with brief training and appropriate supervision (Kakuma et al., 2011; Orkin et al., 2021). The WHO has offered recommendations for some forms of task sharing, to help countries "produce a strengthened and flexible health workforce that can respond to the changing landscape of public health need" (World Health Organization, 2007, p. 8).

Task sharing with community health workers can result in care that is more culturally and contextually appropriate (Orkin et al., 2021), and partnering with communities to design task-sharing approaches can facilitate shifts in power dynamics that are especially beneficial for communities overcoming histories of colonization (Hoeft et al., 2018). Along these lines, partnering with various types of indigenous, alternative, and complementary health providers is recognized as a valuable option for public health initiatives (Bodeker & Kronenberg, 2002). Experience with such efforts in numerous countries suggests that "despite differing conceptualisations of mental illness causation, both traditional healers and biomedical practitioners recognize that patients can benefit from a combination of both practices and demonstrate a clear willingness to work together" (Green & Colucci, 2020, p. 94). For example, Shields et al. (2016) have described an exemplary referral network in India that is based on respecting the status and livelihood of both traditional healers and biomedical practitioners, and has been notable for its endurance and sustainability.

For achieving wide dissemination, mindfulness interventions will therefore need to be adapted or adjusted not solely for end recipients, but also for diverse local administrative and community partnership cultures. To date, mindfulness research has been overwhelmingly focused on validation rather than dissemination (Dimidjian & Segal, 2015). Thus, little if any literature documents the administrative challenges that may arise in transporting mindfulness interventions to diverse or non-Euro-American public health systems. However, an analogous set of challenges has been acknowledged for achieving widespread uptake of MBPs in the contexts of Euro-American health systems. In the UK's National Health Service (NHS), Crane and Griffiths (2021) recently reported only "a very mixed picture of service availability with a small number of well developed services" (p. 214). For explaining patterns of dissemination, they noted the importance of each local NIH site's "organisational culture…the presence [or absence] of supportive colleagues who welcome the implementation activities," whether the "philosophical values base to the overall service" emphasizes a biomedical versus a well-being model, and the value of "a combination of top-down and bottom-up" staff engagement (pp. 216–217). They also noted that

implementation standards risk being eroded in insufficiently supportive organizational contexts, a manifestation of the common "'voltage drop' that often occurs… as interventions are 'scaled up' for dissemination in community settings" (Dimidjian & Segal, 2015, p. 608).

Within Euro-American societies, the influence of local community culture has also been evident in the dissemination of mindfulness interventions to schools and other settings focused on children and youth. Negatively, some local communities have resisted school-based mindfulness as conflicting with community religious beliefs (Brown, 2019). Positively, a few reports have described community partnerships that offered mindfulness to youth or mothers with small children (Burns et al., 2019; Le & Gobert, 2015). For example, Burns et al. (2019) described a partially mindfulness-based resilience-focused parent education program for Latina immigrants in California that over a period of 5 years was culturally adapted and transformed by a volunteer community workforce from an academic-community research partnership into a sustainable community-led partnership.

Local resistance to mindfulness programs on religious grounds might be viewed by some as idiosyncratic (Brown, 2019). However, such resistance may also be viewed from a global perspective as part of widespread efforts to enlist policy in defense of facets of local culture deemed salutary. At the global level, policy efforts of this type have operated at least since the WHO's 1981 promulgation of a model policy framework (known as the WHO Code) for protecting salutary local breastfeeding cultures and practices from still-ongoing aggressive direct-to-consumer marketing by infant formula manufacturers (Sethi, 1994). Parallel concerns, meriting serious consideration, have also been voiced about threats to indigenous contemplative practices (e.g., decontextualized Westernized meditation as "colonization of the mind" that undermines indigenous psychologies, Walsh & Shapiro, 2006, p. 228).

Finally, in multicultural contexts, a practical yet consequential issue for health and human service systems is selecting the number, type, and interrelationship of different culturally adapted programs that should be offered as options to recipients (Sierens & Van Avermaet, 2014). For an educational example, consider a small community in which multiple languages are spoken. Should separate school classrooms be organized for each language? Dutch educators Sierens and Van Avermaet (2014) described pros and cons of various alternatives, noting that "no single model can possibly suit all contexts" (p. 204), and documenting beneficial implications of viewing students' home languages as "didactic capital that is deliberately exploited to foster personal development" (p. 217). Similarly, healthcare systems must choose an *ensemble of options*—sometimes encompassing only one option—that will meet satisfactory thresholds for the population they serve. Providing modalities that match recipient characteristics and needs may reduce costs as well as improve outcomes (e.g., Holder et al., 2000). Anecdotal reports document cases when healthcare sites have offered multiple alternative meditative programs (e.g., a campus health center offering both MBSR and Passage Meditation; Oman & Bormann, 2018). Multiple sets of meditative practices have not infrequently been taught in higher-education settings, although it is unclear whether any single format is optimal for effectively delivering such multiple methods with fidelity (Burke, 2012; Oman, 2016, 2021; Sarath, 2003). Thus, formal study and analysis from an administrative perspective is needed, but appears lacking.

An interrelated issue also arises from the perspective of systemic capacity building (Brooks & Muyia Nafukho, 2006; Fricchione et al., 2012; Green & Colucci, 2020). The mindfulness field has built an important track record regarding the scaling up (dissemination) of interventions, while attending to standards of intervention fidelity (Crane & Hecht, 2018). However, development and evaluation of train-the-trainer procedures appears less advanced for cultural analogues of mindfulness, although some achievements are evident. Maintaining fidelity requires appropriately codified or manualized interventions as well as effective train-the-trainer procedures. Manualized programs with functional similarities to MBPs include mantram repetition and various methods of Christian meditation (Hulett et al., 2023; Knabb et al., 2020b). For one of these functionally similar programs, the manualized Mantram Repetition Program, a multisite study reported significant improvements in all outcomes, including mindful awareness, regardless of whether facilitators were trained through apprenticeship or a 2-day training (Buttner et al., 2016, p. 74).

In sum, the needed adaptation of health programs to local community and administrative cultures is widely affirmed and acted upon in public health, even if not always with uniform earnestness or success. The mindfulness field, too, has developed considerable awareness of the challenges of adapting to local administrative cultures and engaging with local community partners, although such engagement to date has occurred less in the health sector than in the youth education sector. More documentation would be useful, however, of the nature of these challenges and how they have been successfully met. Table 3 (axis A11) therefore characterizes the mindfulness field's response to issues posed by administrative adaptation and community partnership as "so far so good" and "with pending challenges."

Attends to Religious Factors (A12)

Mindfulness is derived largely from a single religious tradition (Buddhism), so it is perhaps unsurprising that the

literature on religion and mindfulness is complex, and cannot be ignored from a public health standpoint. Religion is closely intertwined with the construct of spirituality, which holds greater connotations of individual seeking (Oman, 2013; Oman & Paranjpe, 2018). For brevity, the present paper's terminology will subsume spirituality as a facet of religion, which is relevant to public health in at least three ways. First, as noted in a previous section, religion (spirituality) is a key dimension for *cultural adaptation* (e.g., Kreuter et al., 2003, see also Table 4). Second, public health has long recognized the benefits of *partnering* with the religious sector to foster public health, through religious institutions and communities such as churches, synagogues, mosques, temples, gurudwaras, and other organizations intended to foster spirituality (Levin, 2014, 2022); religion and the religious sector may also be relevant to administrative adaptation (Triandafyllidou & Magazzini, 2021). Third, much evidence now indicates that religious engagement itself often functions as a *health and resilience factor*, which interventionists should seek to support, or at least accommodate, rather than disrupt (Fleming & Ledogar, 2008; Oman & Syme, 2018; Schwalm et al., 2022).

Attempts to integrate mindfulness into public health must take these considerations into account, even as these same considerations should arguably be acted on proactively and independently by the mindfulness field. To inform needed action, this paper now briefly overviews (i) the emerging interest across health professions in religion and spirituality as health and resilience factors; (ii) debates about the relation between religion and modernized mindfulness; (iii) the main approaches used to date for generating religiously adapted mindfulness interventions; and (iv) administrative adaptations that may be needed in relation to religion.

Religion and Health Professions

Health professions that ignore religion and spirituality are increasingly out of step with mainstream practice, and, in the past decade, public health has given increased attention to religious and spiritual factors (Idler, 2014; Oman, 2018). This interest is synchronous with broad increases in attention to religion/spirituality across many other health and human service fields, including medicine, psychology, and social work. In medicine and psychology, for example, comprehensive volumes of resources for understanding and addressing religion and spirituality have been published (e.g., Cobb et al., 2012; Pargament, 2013; Richards & Bergin, 2014). Consensus panels have articulated specific competencies related to religion/spirituality that should be possessed by clinical professionals in medicine and psychology, enabling them to take into account patient religion/spirituality (Anandarajah et al., 2010; Vieten & Lukoff, 2022). Evidence suggests that such attention can be beneficial.

Worthington et al. (2011) meta-analyzed 46 studies of religiously/spiritually accommodative therapies, finding that such psychotherapies outperformed both no-treatment controls (Cohen's $d = 0.45$ in 22 studies) and alternate secular psychotherapies ($d = 0.26$ in 29 studies). Moreover, accumulating evidence from epidemiology and other fields also indicates that religious involvement can often be a causative factor in promoting mental and physical health, associated with an approximately 7 years' additional longevity in representative samples of the US adult population (e.g., Hummer et al., 1999; Oman & Syme, 2018). Accordingly, multiple books and major reviews have been published on the arts of collaboration between public health professionals and religious communities, both for fostering cultural sensitivity and for taking into account religion and spirituality as health determinants (Campbell et al., 2007; Chatters, 2000; Idler, 2014; Oman, 2018; Tuggle, 2000) (see also Table 4 rows for public health, psychology, and The Joint Commission). In such ways, these health and human service professions are all transcending what Dwyer (2016, pp. 758–759) called the "modernist academic gaze," a gaze that "ignored or suppressed the agency and salience of the sacred."

Relation to Mindfulness

Implications for the mindfulness field, however, are complex and contested, and have generated a small but growing professional literature, too complex to encapsulate here (Knabb, 2012; Palitsky & Kaplan, 2021; Palitsky et al., 2022; Sobczak & West, 2013). Debate on the relation between mindfulness and religion has been especially intense with regard to the use of mindfulness in grade school education, but discussion and debate has also occurred regarding other social sectors such as the workplace, the clinic, and the religious congregation (e.g., Bretherton et al., 2016; Palitsky & Kaplan, 2021; Primdahl, 2022; Purser & Milillo, 2015).

For those unfamiliar with these debates, six points may provide a useful orientation. First, as noted earlier, modern mindfulness interventions are frequently asserted as "derived" mainly from one specific religion, namely, Buddhism (Shonin et al., 2016; see also Patel, 2016), although some contents of MBPs (e.g., yoga postures) are drawn from non-Buddhist religious traditions. Second, modern mindfulness practices are also commonly claimed as de-linked or extracted from Buddhism and compatible with adherence to any tradition (e.g., "mindfulness will not conflict with any beliefs or traditions – religious or for that matter scientific," Kabat-Zinn, 1994, p. 6). Third, although accepted by some religious leaders (e.g., see Niculescu, 2020), such claims have also been contested by critics who assert that modern mindfulness programs continue to transmit Buddhism, thereby functioning non-transparently as "stealth Buddhism"—a phrase ironically used first by mindfulness

advocates themselves (Brown, 2016, p. 84; 2019). Fourth, Buddhist critics have conversely begun arguing that mindfulness *alone*, separated from other Buddhist practices, loses much beneficial value, and hence modern mindfulness must integrate *more* Buddhist perspectives (e.g., Lomas, 2017; Marx, 2015; Shonin et al., 2014; Stanley, 2013).

Fifth, practices analogous to Buddhist mindfulness can be found across all major religious traditions, and many Buddhists, scholars, and other observers regard it as appropriate and meaningful that such practices should *also* be called "mindfulness" on appropriate occasions (e.g., Singh, 2010; see also Bretherton et al., 2016; Jaoudi, 2021; Kabat-Zinn, 2010; Niculescu, 2020). More broadly, intervention programs based on non-Buddhist contemplative practices have often been viewed as *analogues* to modernized mindfulness programs, "similar or comparable in certain respects" (Webster & McKechnie, 1983, p. 64), reflecting what Peterson and Seligman (2004) called a "coherent resemblance" (p. 35). Parallels across diverse contemplative traditions in the features and/or functions of their practices have long been noted by scholars, using phrases such as "basic sameness [as well as] genuine differences" (Goleman, 1977, pp. xxii–xxiv) and often "analogous" (Knabb et al, 2020a, p. 9; Oman, 2010, p. 8; Shapiro et al., p. 847; see also Oman, 2021)—even while recognizing that the analogy may be stronger for some parallels and weaker for other parallels, and that mindfulness itself is conceived differently in various Buddhist traditions (Rosch, 2015).

Last but not least, prominent mindfulness leaders convey what may appear a paradoxical stance regarding the relevance of religious culture to MBPs. On the one hand, the presence of "mindfulness practices" across diverse traditions outside of Buddhism is affirmed, but on the other hand, the mainstream mindfulness literature has kept aloof from exploring the depths of these practices, the goals and functions that they serve within various traditions, or how they might be used in developing culturally tailored versions of MBPs or analogues in other sectors. Religious variants or adaptations of mindfulness interventions outside of Buddhism have therefore seemingly emerged with little support from the most prominent mindfulness leaders, advocates, and funders.

Religious Adaptations of Mindfulness

Such neglect has not prevented the emergence of an expanding literature on non-Buddhist religiously adapted or attuned mindfulness interventions, especially in popular media and in the health sector. Such interventions have been offered as clinical functional substitutes for MBPs, as generating equivalent or superior clinical outcomes, as illustrated by a recent special issue (Knabb et al., 2020a; see also Davis & Hook, 2021). Too large for full review here, this literature can be usefully examined along dimensions that include level of programmatic support, target sector, target tradition, supporting research, and adaptational depth, which we now explore in turn.

The first dimension, programmatic support, is absent in stand-alone media such as lay-oriented books, which nonetheless encompass some serious efforts by well-qualified authors, conveying experience-tested accounts of analogues to mindfulness in authors' own traditions, with practical aims such as helping readers to know "where you can apply [mindfulness] in your daily following of Christ" (Bretherton et al., 2016, p. 24; for another tradition see Slater, 2004). Addressing readers primarily as religious adherents, books in this genre may also point out potential benefits for their reader's engagement in other sectors (e.g., stress reduction for health; enhanced employee effectiveness). Beyond such practically oriented yet scholarly books are many other publications, blogs, and other media, both scholarly and popular, aiming to characterize the doctrinal and/or practical relation between a specific religious tradition and contemporary mindfulness (e.g., Parrott, 2017). The complex and constantly evolving non-Buddhist religious appraisal and uptake of mindfulness appears largely unstudied as a sociocultural phenomenon, with Niculescu's (2020) studies of orthodox Jewish uptake being an exemplary exception.

Among religiously attuned interventions that are programs rather than stand-alone media, a small number are targeted at workers, especially health professionals themselves (e.g., Trammel et al., 2021). Religious meditation has also been used as a mindfulness analogue in grade school educational settings (Graham & Truscott, 2020). Regarding the religious sector, a rare account of using a slightly adapted MBP for explicitly religious recipients is Marks and Moriconi's (2016) report of delivering an MBSR adaptation for religious professionals such as clergy. Adapted elements seemed primarily to reflect surface structure (e.g., ordering of activities), with additional adjustments for how to handle specific issues that may arise in discussion (e.g., the relevance of Matthew 6:28 to "non-driven ways of being," p. 424). Opportunities were also created "to consider similarities and differences between spiritual practices and mindfulness" (p. 424), yet the authors characterize as a "pitfall" the possibility that "drawing strong parallels between spiritual practices and mindfulness practices used in the curriculum…could reinforce continued adherence to a devotional practice that differs significantly from mindfulness practice, particularly from the embodied practices" (p. 424).

Regarding target tradition, most extant adaptation efforts have focused on adapting for adherents to a single tradition (e.g., Christianity or Islam), but a few teach practices that exist in analogous versions across diverse traditions, such as meditating on sacred texts (Oman & Bormann, 2021; see adaptation to Islam by Elnehrawy & Zewiel, 2021),

"cultivating spiritual connection" (Feuille & Pargament, 2015, p. 1096), or repetition of a mantram or holy name (Hulett et al., 2023; Oman et al., 2022).

Regarding supporting research, of greatest interest are a small number of RCTs of religious mindfulness analogues. A notable RCT by Ford and Garzon (2017, $n = 78$) reported that a Christian-accommodative mindfulness intervention was more effective in reducing depression and perceived stress than conventional mindfulness training. Similarly, five RCTs in the USA and Korea have demonstrated the efficacy of mantram repetition for reducing stress and enhancing several dimensions of mental health, and two RCTs of a passage meditation program for meditating on sacred texts have documented reductions in stress and improvements in mental health, compassion, and work effectiveness. Each of these programs also significantly enhanced mindful awareness (Hulett et al., 2023; Oman & Bormann, 2021; Oman et al., 2022). Favorable effects have also been documented in other research on mindfulness analogues that has used quasi-experimental and pretest–posttest designs (e.g., Al-Ghalib & Salim, 2018; Trammel et al., 2021).

Importantly, religious mindfulness adaptations/analogues vary along a surface-to-depth spectrum. At the surface end of the spectrum are MBP adaptations that make small adjustments to accommodate the culture of the target religious tradition (e.g., Marks & Moriconi, 2016). At the deepest end of the spectrum are interventions—perhaps best called "analogues" rather than "adaptations"—that are entirely reliant on a target tradition's contemplative practices (e.g., Knabb, 2012). In between are interventions that draw on target religious traditions to *augment* MBPs through additional practices deemed helpful to the primary intervention goal, and/or to *replace* some MBP elements with ostensible functional substitutes. Such adaptations often utilize "bridging concepts" that help "better connect mindfulness to the client's theistic worldview" (Thomas et al., 2017, p. 976). Examples of bridging concepts include discussions of "God's mindfulness" (Bretherton et al., 2016, p. 27), as well as the centuries-old Christian notion of the "sacrament of the present moment," and Islamic concepts and practice of *muraqaba* (Islamic meditation), and perhaps Jewish concepts of *d'at* (awareness) (de Caussade & Muggeridge, 1989; Isgandarova, 2019; Niculescu, 2020; Tan, 2011).

Alternatively, some interventions, though possessing demonstrated effects on measures of mindfulness, may employ "implicit mindfulness…[that] does not systematically employ the vocabulary and concepts of mindfulness" (Oman et al., 2022, p. 1422), building presentation rationales (face theories) from alternative religious and psychological constructs such as concentration, wisdom, or retraining attention. Such programs have notably incorporated practices omitted from MBPs but that are widespread or even foundational for some branches of Buddhism, suggesting their inclusion could enhance value for some Buddhist populations (Hulett et al., 2023; Oman et al., 2022).

Furthermore, religious or spiritual adaptations of mindfulness, although usually targeted at individuals, also merit consideration at *collective* socio-ecological levels. Little if any published literature has directly addressed such interventions from a mindfulness adaptation perspective, although it could be argued that significant portions of the workplace spirituality facilitation literature concern mindfulness analogues across diverse traditions (Benefiel et al., 2014; Pawar, 2009; Petchsawang & McLean, 2017). Furthermore, religious traditions themselves have intervened on the collective attentional level through activities such as a "digital sabbath" (Rauch, 2014, p. 237). Lastly, across multiple societal sectors, an increasingly popular but seldom-evaluated collective-level intervention has been the creation of a "room of silence" or "meditation room," sometimes conceptualized in partially religious terms, where people in workplaces, schools, airports, or even intergovernmental organizations, may go for meditative or contemplative practice (Christensen et al., 2018, p. 305; Hafenbrack, 2017).

Religion and Administrative Adaptation

Interventions may also sometimes require administrative adaptation to accommodate religious dimensions of culture and community. Such adaptation, if needed, represents one aspect of the overall administrative adaptation discussed earlier (section on axis A11). In health and human service settings, for example, multireligious populations may sometimes best be served through *ensembles* of religious alternatives of mindfulness. On the author's own campus, for example, options of Sufi meditation or MBSR have been made available to students. Also in the public higher education sector, creative forms of task-shifting have been used successfully to incorporate multiple forms of spiritually based contemplative practices into curricula at a secular public university (Sarath, 2003; see also Oman, 2016, 2021). More broadly, there are many reasons to keep an open mind about what types of ensembles and religious adaptations may be administratively optimal in the coming decades. That is because "the health value of religion has entered the secular domain of medicine and public health" in discourses of global health governance, through increased recognition of the importance of phenomena such as religion-health partnerships (Hanrieder, 2017, p. 94). About 40% of national governments worldwide now favor a specific religion (Pew Research Center, 2017, Oct. 3). Thus, the role of religion in health governance is being overseen today in nations with widely varying traditions (e.g., Euro-American secular democracies versus Islamic republics). And at every level from the local to the continental, "different

regional and institutional sites might produce different variations of religious themes in public policy" (Hanrieder, 2017, p. 95; see also Cox et al., 2014; Eisenstadt, 2000; Triandafyllidou & Magazzini, 2021).

Importantly, scholarly views of the dynamics of *secularity*, viewed by many as a key context that displays comparative advantages of MBPs, are undergoing a field-ground reversal paradigm shift. Secularity is no longer understood as mainly the absence of religion, and its components have been found to vary significantly between societies and cultural zones. In different societies, "cultures of secularity are by no means identical or coextensive with atheist or irreligious worldviews, subjectivities and sensibilities"—instead, secularities can be seen as socioculturally based attempts to solve specific societal problems, such as protecting individual liberties or balancing religious diversity (Burchardt et al., 2015, p. 6). Thus, the progressively oriented International Panel on Social Progress affirms that "modernity can be realized through distinct cultural and religious traditions…culture [is] a historical quarry from which social imaginations extract creative and substantial framings of modernization in locally meaningful ways, and culture may be a powerful source for synergies between identity dynamics and socially inclusive forms of individualization" (Bowen et al., 2018, p. 632). Such considerations suggest that, as time passes, MBPs stand to be increasingly evaluated in part for the specific secularity *functions* they may serve (or fail to serve) in particular societal contexts, rather than uncritically presumed as an optimal one-size-fits-all solution, even for maximal compatibility with local secularity.

Summary and Future Directions

The growing body of research on religiously adapted mindfulness interventions clearly demonstrates promise, although much more work is needed for building a rich and well-documented pool of alternatives that can be readily scaled up for public health efforts in healthcare and other sectors. Moreover, the topic's scientific cogency, practical value, and felt need are demonstrated by the background religion and health research, the earnest debates, and the diversely sourced religious adaptation attempts. From an epidemiologic perspective, research on religiously adapted mindfulness interventions might be viewed as facets of the *translational epidemiology of religion*, a facet perhaps helpfully designated as *contemplative translation*, refining Levin's (2022) typology of clinical translation, pastoral translation, and public health translation. The conclusion of the present section is that both public health and mindfulness lag current need in their attention to religious factors and religious adaptations, and that progress in religious adaptation of mindfulness could help remove barriers to integrating mindfulness into public health (Table 3, A12).

Supports Intercultural and Interreligious Competence (A13)

Three previous sections focused on adaptations of *interventions* for different administrative contexts and multiple cultures and religions. But skills and knowledge for the *intervenor* are also recognized as important in innumerable health and human service professions, including public health (Table 4). Cultural competence, cultural humility, and intercultural competence are three of many phrases that have been used to refer to an intervenor's needed cultural skills, conceptualized in several overlapping ways (Fleckman et al., 2015; Tervalon & Murray-Garcia, 1998; Tervalon, 2003, p. 573). Even beyond health professionals, interculturally competent *citizens* may also benefit society, leading to long-standing efforts in scholarship, policy, and advocacy for "intercultural," "multicultural," "global," or other related forms of citizens' education (e.g., Berry et al., 2022; Faas et al., 2014; Landis & Bhawuk, 2020; Mitchell & Salsbury, 1996; Seiple & Hoover, 2022; van Leeuwen, 2010). By reducing civic strife and promoting salutary factors such as civic cohesion, trust, and social capital, such citizen-focused educational efforts may plausibly improve public mental and physical health (Berkman & Kawachi, 2000). However, these plausible outcomes from citizens' intercultural education and skills have received little attention in published public health literature, which emphasizes professionals' own intercultural skills.

Importantly, current state-of-the-art thinking holds that optimal intercultural competence requires both (i) substantive knowledge and (ii) interaction process skills. That is, for working with a specific cultural group, an interculturally skilled health professional should (i) be aware of core issues that may operate within the recipient group, such as its family structure or views about birth, dying, religion, spirituality, and practices of traditional healers. In addition, an interculturally skilled healthcare professional should (ii) possess skills and attitudes, such as cultural humility and the capacity to listen, that permit ongoing, in-the-moment learning and adjustment to individuals and specific local communities. Whereas such learning processes were often overlooked in the earliest wave of literature under the rubric "cultural competence," both knowledge and process are addressed in many recent approaches, sometimes labeled "intercultural competence" (Fleckman et al., 2015). Recent efforts to foster competence have also been informed by a growing understanding of developmental steps and processes through which people acquire intercultural competencies. For example, the influential Developmental Model of Intercultural Sensitivity (DMIS) describes a spectrum of perspectives on cultural differences that extends from "denial" of cultural differences, via minimization of such differences, to higher-competence states such as "adaptation," implying behavioral, affective,

and cognitive frame-shifting abilities (Hammer et al., 2003, pp. 424–425; for other models see Landis & Bhawuk, 2020).

Two intercultural competence subsets are of special relevance to the mindfulness field: Interreligious competence and intercontemplative competence (Komjathy, 2017; Morgan & Sandage, 2016). These skill subsets have received little discussion in public health literature but hold special relevance here due to the oft-affirmed source of MBPs in religious contemplative practice, and the dominance of the mindfulness movement by those professing commitment to contemplative practice in one specific tradition, Buddhism. Such skills are especially relevant to the delivery of MBPs or their adaptations to non-Buddhist populations (sections on axes A10, A12). Intercultural, interreligious, and intercontemplative skills are relational, and their adequate assimilation can help facilitate relationship-building microbehaviors, such as engaging in microkindnesses and avoiding microaggressions—that is, demonstrations of informed sensitivity or its absence—that may possess significant and cumulative relational effects with recipients and collaborators (Nadal et al., 2010; Topor et al., 2018).

Developmental models of intercultural competence, encompassing stages such as denial, minimization, and adaptation, may be usefully applied to interreligious and intercontemplative skills. For example, based on the DMIS, Morgan and Sandage (2016) have presented a typology of orientations for *interreligious* competence, understood as intercultural competence applied to the "religious other" (p. 142). The seven orientations of their model range from denial and defense to minimization, acceptance, and adaptation (see their Table 1, p. 143).

Intercontemplative Competence

Contemplative practices, the religious subdomain most relevant to mindfulness interventions, is addressed by Morgan and Sandage (2016) only tangentially. However, "intercontemplative," sometimes hyphenated as "inter-contemplative," has become a term of choice for referring to respectful interactions between individuals committed to different types of contemplative practice (e.g., Catholic and Buddhist laypeople or monks, Komjathy, 2017, p. 314). A natural correlate is using *intercontemplative competence* to refer to skills for effective cooperation between adherents of diverse contemplative traditions, perhaps especially when engaged in ongoing mutual interaction, as may be required for collaborative delivery of psychosocial health promotion interventions, or adaptation ensembles (e.g., MBSR and Christian Centering Prayer; see sections on axes A11, A12). Orientations toward intercontemplative differences have received little formal study, but the prospect seems strong that analogous developmental orientations may apply, such as denial, minimization, and adaptation.

Importantly, intercultural, interreligious, and intercontemplative skills need not a priori imply any specific ontological stance about the existence of higher realities or multiple pathways for aligning with them or realizing them. For example, psychologists Zinnbauer and Pargament (2000) have articulated four broad orientations toward religious and spiritual issues in counseling, labeled rejectionism, exclusivism, pluralism, and constructivism, with the latter two advocated as most appropriate for psychotherapists. The pluralist orientation "recognizes the existence of a religious or spiritual absolute reality [and] allows for multiple interpretations and paths toward it" (p. 167), whereas the constructivist orientation "denies the existence of an absolute reality but recognizes the ability of individuals to construct their own personal meanings and realities" (p. 166). Despite their contrary ontological commitments, "the pluralist and constructivist approaches are [each] flexible enough and respectful enough to treat religious clients effectively and ethically" (Zinnbauer & Pargament, 2000, p. 170). Although formally unstudied, there seems little reason to doubt that varying personal ontological stances may be similarly compatible with high levels of intercontemplative competence.

An example of a relational issue that may benefit from intercontemplative competence is respecting distinctions between the long-term goals and immediate functions of contemplative practice systems. Multiple authors have long noted that methods of meditation use different in-session proximate objectives—for example, seeking to concentrate on a particular focus object versus maintaining a state of open monitoring of mental activities (Goleman, 1977; Lutz et al., 2008). Systems of contemplative practice employing concentrative meditation therefore seek to eliminate in-session engagement with mental distractions. But that need not imply that systems using concentrative meditation lack compatibility with non-monastic householder lifestyles that purposefully engage with the so-called full catastrophe of contemporary living (Kabat-Zinn, 1990). Rather, as noted long ago by Goleman (1977, p. 116), the ultimate goal of most or all traditional systems of contemplative practice is an "awakened state" that integrates into daily living "altered traits," often including virtues such as generosity, compassion, patience, and wisdom (see also Goleman & Davidson, 2017, pp. 262–269; Oman, 2021).

Mindfulness and Intercultural Competencies

One might plausibly hope that high levels intercultural competence would have been embedded in the mindfulness field as it grew, because Buddhism is often viewed as compassionate and religiously inclusivist (Fuller, 2022). Indeed, Kabat-Zinn (2019b, p. xiii) has argued that "mindfulness is intrinsically inclusive." However, after editing a volume with in-depth coverage of more than a dozen contemplative

traditions, the editors of the *Oxford Handbook of Meditation* expressed a cautionary note: "It is relatively easy to fall into the trap of imagining that the meditation that one practices, or the tradition that one is versed in, is sufficiently representative of the whole field" (Farias et al., 2021, p. 4). Moreover, a closer inspection shows that Buddhism too, like other major religious traditions, possesses significant streams of religious exclusivism (Fuller, 2022). Many mindfulness leaders came of age during ascendant phases of the modernist academic gaze and of secularization theories that posited the fading away of theistic religion (Burchardt et al., 2015; Dwyer, 2016). It is perhaps therefore unsurprising that the mindfulness field's support of intercultural competencies appears mixed with regard to implementation, arguably thin and with notable gaps by conventional standards, especially regarding the balancing of knowledge and process.

On the positive side, the mindfulness field's espoused theoretical ideals are generally well aligned with prevailing best practice recommendations (e.g., Table 4). For example, according to Crane et al. (2017), besides "embody[ing]" mindfulness qualities and possessing the six "visible" competencies and knowledge related to "specialist populations" noted earlier (section above on "What is Mindfulness?"), an MBP instructor should have "knowledge of relevant underlying theoretical processes which underpin the teaching for particular contexts or populations" (pp. 993, 995).

In practice, these principles appear to have been implemented in satisfactory surface structure adaptation, but there is sparse evidence of support for training in competencies relevant to deep structural adaptations as described in earlier sections (on axes A10, A12). Regarding the positive record on surface structure adaptation, Castellanos et al. (2020) reported that 16 of 20 meta-analyzed Hispanic-adapted interventions included "persons adaptation," typically involving a "cultural match" between facilitators and participants (p. 325). Similarly, a person with insider cultural experience appears to have devised and implemented Ahn's (2016) Korean adaptation. Such patterns are consistent with the recommendations of Roberts and Crane (2021, p. 195) that "encourage teachers who have lived experience of particular populations, cultures, and communities to offer MBPs within these contexts."

Mindfulness cultural adaptations appear inconsistent in whether they follow best practices by conveying both knowledge and process skills (Fleckman et al., 2015). On the positive side, mindfulness itself can be plausibly viewed as a key process supportive of sensitivity, as has been noted in the mindfulness literature on guidance for mindfulness program teachers. For example, Crane et al. (2021a) mention "connection and acceptance" as a relational skill expected of mindfulness teachers, noting that it "includes working sensitively with…cultural diversity, and respecting difference" (pp. 24, 26). And for Roberts and Crane (2021), it is "imperative that we all participate in training on, and proactively raise our awareness of, equality, diversity, inclusion, and conscious and unconscious bias" (p. 196). However, *knowledge* components of cultural sensitivity are largely absent from publicly available mindfulness teaching materials. For health professional education, Tervalon (2003, p. 573) recommends "using complex, textured examples…[to] present basic knowledge about core cultural issues with examples that alert students to the kinds of key cultural issues that may arise…[which] avoids the problematic approach of presenting detailed lists of traits or characteristics" (p. 573). Although such material has been included in exemplary chapters (McCown et al., 2010), there do not appear to be any systematic collections similar to either the textual examples recommended by Tervalon, or to knowledge-component resource books assembled for many professional groups to support intercultural competencies (Cobb et al., 2012; Purnell & Fenkl, 2019).

Similar if not larger limitations in mindfulness approaches are evident in relation to interreligious and intercontemplative competencies. On one hand, McCown et al. (2010) offer considerable discussion of the universal spiritual impulse that draws and supports many people to become mindfulness teachers. And Kabat-Zinn (2010) has stated that he personally considers "sitting long [dharma] teacher-led retreats periodically to be an absolute necessity in the developing of one's own meditation practice, understanding, and effectiveness as a [mindfulness] teacher," with benefits he views as derivable, as noted earlier, from "traditions that value the wisdom of mindfulness, such as Sufism, the yogas, and Taoism" (p. xii). But with the partial exception mentioned earlier of the clergy adaptation by Marks and Moriconi (2016), little published attention has seemingly been given to how teachers can understand and respond to pre-existing religious, spiritual, or contemplative interests of MBP participants. For example, although readers are urged to impartially distinguish between concentrative and mindfulness forms of meditation (e.g., p. 36), "religion" is essentially unmentioned in the volume by Crane et al. (2021b), except as part of a laundry list of "considerations" for adapting an MBP (p. 11; see also Roberts & Crane, 2021, p. 198, Fig. 24.1).

A previous section (on axis A11) noted issues of scaling up and train-the-trainer. Scaling up a system's capacity to offer ensembles of adaptations will also require that those who deliver such ensembles are sufficiently trained in intercontemplative skills for their ongoing daily interactions and task sharing with coworkers and recipients engaged in different modes of contemplative practice. Viewed from a systemic capacity-building perspective, training a workforce in such skills will rely upon and in turn generate both intercontemplative skills (human capital) and collaborative relationships (social capital), "developed by…meaningful social relationships that individuals invest in creating together over time" (Brooks & Muyia Nafukho, 2006, p. 121). In many cases, the realized social capital emerging from such

collaborative efforts will be *bridging* social capital, "relations of respect and mutuality between people who know that they are not alike in some socio-demographic (or social identity) sense," and perhaps in some cases *linking* social capital, "norms of respect and networks of trusting relationships between people who are interacting across explicit, formal or institutionalized power or authority gradients in society" (Szreter & Woolcock, 2004, p. 655). "Social connectedness" is one of five key dimensions of community resilience identified by Wulff et al. (2015, p. 366), and bridging and linking social capital are often especially beneficial for both individual and community resilience (Aldrich et al., 2018), providing an added public health incentive for developing intercontemplative skills among mindfulness teachers.

In sum, public health, while appearing to make solid progress on overall intercultural skill development, has given little attention to interreligious skill development, and appears to lag current need. The mindfulness field, while making good progress on scalability of unadapted interventions, and arguably strong on the facet of process skills, appears lacking in systematic attention to disseminating knowledge components of interreligious skills, and has largely or entirely neglected intercontemplative skills, which may be necessary in many parts of the world for the administrative and community-collaborative facets of public health integration. In conclusion, the public health and mindfulness fields both lag current need, but the mindfulness field possesses the larger lag (Table 3, A13).

Employs Branding (A14)

Since at least the 1990s, public health has engaged in social marketing, definable as "the use of marketing to design and implement programs to promote socially beneficial behavior change" (Grier & Bryant, 2005, p. 319). A key part of successful social marketing is often *branding*, which involves building a label, sign, or symbol as a tool for communicating a brand's value to its audiences, thereby building a relationship (Evans et al., 2008). Branded campaigns commonly present a social exemplar or aspirational imagery of "a social or personal benefit that would accrue" from the proposed action (Evans et al., 2008, p. 726). The application of branding as *public health branding* has been increasingly used since the 1990s, as reported in dozens of public health campaigns on issues as varied as tobacco control, nutrition, physical activity, utilization of emergency services, antibiotic use, child care, and transportation safety (Evans et al., 2015). Systematic branding approaches have also been applied in community-wide mental health promotion (Koushede & Donovan, 2022).

Maximally effective use of branded public health messages benefits from success in building brand identity and brand equity (i.e., reputation—see Blitstein et al., 2008). Of special relevance in the present context may be concepts of *brand alliance* or *co-branding*, "a long-term brand alliance strategy in which one product is branded and identified simultaneously by two brands" (Helmig et al., 2008, p. 360), and of a *family*, *unifying* or *umbrella* brand, in which a single brand identity is used for several related campaigns or products (Erdem, 1998). Such branding enables the understanding and trust achieved by one campaign or product (brand equity) to support the public's understanding of a subsequent campaign or product. One major type of co-branding is *umbrella co-branding*, using two or more brands simultaneously as an umbrella to jointly designate several related campaigns or products (Erevelles et al., 2008).

Brand architecture describes the structure of a group of inter-related brands, sub-brands, and campaigns or products (Muzellec & Lambkin, 2009). Importantly, branding "cannot be understood as a mere communications campaign [but] represents a cultural process, performed in an interplay between art and business, production and consumption, images and stories, design and communication" (Schroeder & Salzer-Mörling, 2006, p. 3), and "neither managers nor consumers completely control branding processes – cultural codes constrain how brands work to produce meaning" (p. 1). Brand architecture therefore affects public understanding and behavior through a "brand association base" (p. 6) of meanings drawn from imagery, brand and co-brand reputations, and sometimes meanings drawn from "institutional associations… the church and the university…marriage and art" (Uggla, 2006, p. 793), a complexity reflected in the contemporary scholarly use of a "brand ecosystems" framework (Schroeder & Salzer-Mörling, 2006, p. 9; see also Pinar et al., 2011).

For better or worse, Euro-American public understandings of mindfulness have been inescapably shaped by widespread commercial branding. Wilson (2014) characterized "the 2000s [as] the crossover decade for mindfulness," noting an explosion of books with "mindful" or "mindfulness" in the title, as well as a "proliferation of trademarked mindfulness brands" (p. 40). Numerous journalists, scholars, and op-ed writers have narrated the twists and turns of the branding of mindfulness-based programs along with a broad spectrum of "mindful products" ranging from cushions to apps to CDs to vacations (e.g., Purser, 2017, Dec. 16; Purser, 2019; Wilson, 2016). Moreover, MBPs themselves are presented in ways that sometimes celebrate and sometimes deny their Buddhist connections, an approach Purser (2019, p. 88) calls "'on and off' Buddhist branding." Not surprisingly, mindfulness and meditation are understood by the public in many ways, not always aligned with Buddhism, or with psychology, or with corporate marketing (Choi et al., 2021; Haddock et al., 2022).

In this environment, could public health branding approaches be useful for better disseminating scientifically supported and appropriately culturally adapted mindfulness practices? If so, how should a public health campaign

employ such polyvalent terms as "mindfulness" and "meditation"? The answers likely vary between programs, populations, and cultures. Answers might also vary according to whether the campaign was solely promoting an unreconstructed or superficially adapted MBP, versus a single cultural or religious adaptation of mindfulness, versus an ensemble of functionally analogous alternatives (e.g., MBSR, Centering Prayer, or the Mantram Repetition Program). Moreover, there is no a priori reason for a campaign to restrict itself to any specific semantic scheme, such as the MBPs' face theories (Fig. 1). Branding concepts from public health and beyond suggest many questions for future research and practical debate. For example, both (i) *wisdom* and (ii) *meditative/contemplative practices* show persistence as co-branding approaches for presenting MBPs and their cultural/religious analogues (e.g., the umbrella concept of wisdom in Rosch, 2007, and Jaoudi, 2021; and of contemplative practices in Plante, 2010).

Would adopting wisdom or meditation as global *umbrella co-branding* approaches for these practices be helpful for global mental health? Could such a branding approach beneficially unite a consortium of movements concerned with mindfulness and other contemplative practices (e.g., Cornelissen, 2002; Dalal & Misra, 2010; Knabb, 2012; Walsh, 2015)? To what extent is such an umbrella cobranding process *already underway*, in as much as branding is beyond any one stakeholder's control and unfolds in an ever-evolving cultural ecosystem? And in what ways could public health branding efforts for MBPs and their analogues be helpfully informed by scholarship on strategies for higher educational branding (e.g., Pinar et al., 2011)?

Clearly, branding is an activity in which both the public health and the mindfulness communities have deep interest and much relevant experience. If or when mindfulness programs and interventions are embraced by public health systems, public health branding efforts might soon follow. In conclusion, public health and mindfulness are aligned in their interest in branding, with many emerging strategic and practical questions, and much further refinement needed (Table 3, A14).

Other Axes

The foregoing subsections have discussed what the present author believes are the most important and currently generative axes for comparison between the public health and mindfulness fields. For brevity, my analyses conclude here. However, I in no way wish to imply that comparison of additional axes could not suggest useful insights, cautions, or future directions. Potentially useful additional axes for comparison might include, for example, psychological theorization relevant to population dissemination (e.g., Glanz & Bishop, 2010; Kobau et al., 2011; Schuster et al., 2020), psychological theorization relevant to recognizing indigenous functional substitutes (e.g., influence of sacred focus object, Oman, 2021), demonstrated relevance to various demographic or geographical groups (e.g., lower and middle income countries, Ajari, 2020), relevance to health behavior change (Johnson et al., 2010; Schuman-Olivier et al., 2020), relevance to United Nations SDGs (Votruba et al., 2014), relevance to cultural approaches for fostering environmental sustainability (Graham & White, 2016; Komatsu et al., 2022; Thiermann and Sheate, 2021), and emphasis on servant leadership (e.g., Czabanowska et al., 2014; Koh, 2009).

Discussion: Roads Forward

In this investigation, with special attention to a global perspective, the present paper has examined the potential for modern mindfulness to contribute to public health and resilience. The first two sections provided overviews of the public health and mindfulness fields, emphasizing features relevant to integrating fruits of the mindfulness field into global and public health. The paper then examined the fundamental compatibility and current status of mindfulness and public health from the perspective of 14 axes or dimensions of comparison. As summarized in Table 3, the public health and mindfulness fields are largely aligned on several foundational axes, including orientation toward prevention and resilience-building (Table 3), and appreciation for the importance of mental health and stress. The fields are also largely aligned in their orientation toward intervening across multiple sectors, such as healthcare, workplaces, and schools. At the other end of the spectrum, both fields were appraised as lagging current need on considering the collective attentional environment, attending to religious factors, and supporting intercultural and inter-religious competencies; we suspect that these mindfulness weaknesses may *sometimes* be perceived as barriers to uptake in public health (e.g., concerns about religion by Ajari, 2020). Finally, mindfulness substantially lags public health best practices on axes of epidemiologic foundations, multi-level interventions, and cultural adaptation. We suspect that these latter lags collectively represent larger barriers to the uptake of mindfulness by public health, and may account for the overall absence of mindfulness from public and global health literature.

Going forward, what are the implications of these analyses for the fields of public health and mindfulness, especially for building population resilience on societal and global levels? These questions arise on two levels, fundamental orientations and institutional implementation. On the level of fundamental orientations, areas of common vision are strong and foundational: With looming challenges, the world desperately needs a public health fortified and informed by the wisest and most effective resilience-building approaches, including on the key dimension of psychological resilience

(Wulff et al., 2015). The present analyses confirm that mindfulness holds promise for such purposes. Springing from these analyses, therefore, Table 5 displays a selection of questions for future research to facilitate the integration of public health and mindfulness.

But on the level of institutional implementation, difficulties are evident. Beyond their Euro-American subcultural origins, interest in MBPs exists, but has been comparatively modest. There is accelerating interest in indigenous religious and cultural alternative practices as functional alternatives for mindfulness programs, but integration into the major currents of mindfulness field seems at best haphazard, and at worst persistently neglected. In an ideal world, public health systems would have available toolkits that encompass a spectrum of readily implementable culturally adapted functional analogues of MBPs. In each locale, public health leadership could then (collaboratively) craft a locally tailored ensemble of alternatives, such as a single optimal program, or an ensemble of multiple programs that includes options that are more "secular" (e.g., MBSR), and other options that are more rooted in local culture, perhaps including more spiritual elements (e.g., Centering Prayer; or Mantram Repetition Program, or a more fully Buddhist mindfulness program). Across societies, religions, and sometimes even neighborhoods, the optimal ensemble and implementation will surely vary according to local cultural and administrative conditions.

Such an ideal implementation seems within reach if the needed effort is undertaken with dispatch. To date, however, the present analyst has seen only scattered evidence of readiness in the mindfulness field to engage in the needed adaptation for individual end recipients. And regarding interventions in *collective* attentional environments, in many societies, the needed public and political willpower may still be in its infancy, although rapid developments cannot be ruled out as concern spreads to diverse stakeholders (e.g., Landon-Murray & Dlugos, 2022). What, then, should researchers, practitioners, and funding agencies in the public health and mindfulness fields do now, *in real time*, to meet the urgent need of the hour? These are surely questions that can benefit from wide consideration and good-faith debate, so we now articulate and critique three perspectives to encourage future discussion and action.

First, some might argue that, in our current situation, necessary triaging of available time and resources should lead to intensified reliance and scaling up of the use of

Table 5 Questions for advancing the integration of mindfulness into public health

#	Question	Most relevant axis
Q1	How can mindfulness interventions be provided to diverse societies and marginalized groups in ways that support cultural facets of resilience rather than undermine it?	A5
Q2	What are the patterns in various populations of risk and resilience factors and indicators for attentional health?	A6
Q3	Can interventions in the workplace or other social environments be combined with mindfulness to create effective multi-level interventions for attentional health?	A7
Q4	Under what conditions would labor unions collaborate in bringing mindfulness interventions into workplaces?	A7
Q5	How can attentional health be usefully theorized at both the individual and population levels?	A8
Q6	How can mindfulness interventions be constructed or adapted to best serve people in diverse cultures of lower socioeconomic status?	A9
Q7	How might we conceptualize, construct, and recognize the need for deep structural adaptations of mindfulness?	A10
Q8	What sorts of administrative adaptations are needed to deliver surface- or deep-structure mindfulness interventions in various social and geographical settings?	A11
Q9	How can mindfulness interventions be structured for religiously heterogeneous groups?	A11
Q10	What ensembles of culturally adapted variants of mindfulness are optimal for which populations?	A11
Q11	What are "bridging concepts" and major analogues to mindfulness practices within major and minor religious traditions?	A12
Q12	What is needed for *contemplative translation* to emerge as a flourishing subfield of the translational epidemiology of religion (Levin, 2022)?	A12
Q13	How can teachers of mindfulness and other contemplative practices be reliably and effectively trained in intercontemplative competencies?	A13
Q14	What is workable branding for a health or educational system to offer an ensemble (i.e., an option to enroll in one) of two or more unadapted, adapted, or analogue mindfulness programs?	A14
Q15	Can mindfulness, wisdom, meditation, and contemplative practice function together as co-branding for public health campaigns to enhance public attentional health?	A14
Q16	Are mindfulness interventions relevant to lower- and middle-income countries?	–
Q17	Can individually and/or collectively focused mindfulness interventions support United Nations sustainable development goals?	–

existing MBPs, while continuing to deprioritize the development and use of cultural and religious functional alternatives. To the present analyst, such a position seems deeply unwarranted and unwise. First, it would seemingly ignore without evidence the precautionary principle that cultural and religious adaptations may be crucial for effectiveness in many locales. In addition, intensified reliance on existing MBPs alone would run counter to the ethically enshrined importance of cultural sensitivity across numerous health and human service professions (Table 4), entangling the mindfulness field with what many may view as an attempted neo-liberal "colonization of the mind" (Walsh & Shapiro, 2006, p. 228). And, like overzealous infant formula marketing, this would risk driving a wedge between culturally diverse communities and their own indigenous resources. Instead, it would be far better to collaboratively and proactively commit to best practices. But the vision of cultural inclusiveness offered by the "mindfulness establishment" tends to be rather strong on abstractions while thin on details, making it surprisingly difficult to rule out such triage as a component of many current leaders' underlying approaches, most likely entirely unintended (there being "no doubt that their hearts are in the right place," as affirmed by Purser, 2019, p. 8). In the present author's awareness, few if any of the lagging areas noted in Table 3 have been prioritized by leaders of the mindfulness field. Is it possible that the mindfulness mainstream, leadership, and institutional supporters have been overly credulous of the field's own "hype" (Van Dam et al., 2018), dazzled by how interest in contemporary mindfulness has rapidly crossed *social sector* boundaries within Euro-American Modernity, and has confused such hype and mobility with solidly demonstrated *global* promise (contra Ajari, 2020), or a potential for transforming *collective* attentional environments? If so, it is hoped that the present analysis will encourage a more undivided commitment to proactivity.

A second position might conversely argue that we should triage out and deprioritize further efforts to improve *individual*-level mindfulness programs and focus our efforts entirely on improving *collective* attentional environments, as currently shaped by workplaces, highly corporatized electronic media, varieties of entrenched discrimination, and other sociocultural forces. In the two-century history of modern public health, such collectively focused approaches have in many ways enriched what has often been called the "public health movement" (Rosen, 1993, p. 63; Szreter, 2003, p. 421). Indeed, "the early history of U.S. public health was closely tied to social reform movements…Public health can be viewed as a broad social movement" (Schneider, 2020, p. 14). However, state-of-the-art modern public health, when receiving adequate public support, blends together rich influences from diverse sources, aiming to simultaneously target both collective and individual levels (section on axis A7). Such multi-level approaches seem most appropriate and well-matched to current need, and in principle feasible in most parts of the world in varying forms.

Finally, a third position might advocate proactively developing intervention toolkits that encompass integrated ensembles of cultural adaptations and analogues of mindfulness. Such a cultural integration project has much previous work on which to build (see sections on axes A10, A11, A12), but much more work is needed. From a project management perspective, what are the most urgent tasks, the critical path that must be prioritized to prevent unnecessary delays? This question merits wide discussion. The present analyst suspects that the critical path involves developing both human capital and social capital related to intercontemplative competencies: To make culturally adapted mindfulness widely available, we need the collaborative relationships (social capital) and intercontemplative skills (human capital) for successful and resilient implementation and scaling up of the capacity to deliver culturally varied ensembles of adaptations. As noted earlier, the realized social capital emerging from such collaborative efforts will in many cases be *bridging* or *linking* social capital, especially beneficial for individual and community resilience. Perhaps insights from the emerging contemplative studies field, or other religiously inclusive endeavors, could be enlisted to help conceptualize, launch, and scale up the needed collaborative efforts (Komjathy, 2017; Seiple & Hoover, 2022). Such efforts, although challenging, seem necessary not only from the perspective of many marginalized communities, but also from the perspective of the precautionary principle (Grandjean, 2004).

Mindfulness, like historical and contemporary public health, may be viewed as a movement that has been carried forward not solely by professionalism, but also by many idealistic sociocultural and sometimes spiritual motivations. For example, many contributors to the mindfulness field are likely motivated by ideals similar to Jon Kabat-Zinn's (2019a, p. xiii) aspiration "to ignite a global renaissance." A question of interest, therefore, is the implications of the present analyses, and the proposed prioritization of intercultural and intercontemplative collaboration, for how to frame the *promise* of the mindfulness movement. If it is not a contemporary MBP that receives global public health uptake, but an ensemble of variants adapted or extracted from a range of religious traditions, would such uptake count as a mindfulness-catalyzed "global renaissance"? It is said that, near the end of his life, when his disciples begged the Indian sage Ramakrishna to eat enough to maintain his body, he replied that he was already eating through the mouths of all his disciples. Can the mindfulness movement feel a warranted sense of achievement if it discovers itself "eating," so to speak, through a potentially bewildering array of religious and cultural variations and indigenous contemplative practices (Farias et al., 2021; Plante, 2010)?

Fuller (2022) cautions against hidden streams of religious exclusivism within Buddhism but notes that Buddhism has an "abundance of ideas and doctrines" that can contribute to respectful interactions with other religions, including that "a key factor of right-view is that it…eradicates attachment to ideas, concepts, beliefs, and truth claims" (pp. 107–108). Surely, some mindfulness movement participants could go further, deriving empathetic joy (*muditā*, one of the "four immeasurables") from a flowering and uptake in public health of diverse indigenous analogues of mindfulness. In as much as many participants in the mindfulness movement can draw upon and experience such spiritual resources, prospects would seem quite favorable for undertaking the needed skill and relationship development.

Public health, especially at a global level, is perhaps the only health field that directly engages with problems on a scale that match the mindfulness field's aspiration to ignite a global renaissance. And as viewed by the present analyst, the mindfulness movement deserves great credit for breaking much important new ground in the recovery and dissemination of meditative and contemplative practices (Oman, 2021). But moving forward, many paths and tasks may require mindfulness professionals to function as team players, going beyond existing bridging relations with neuroscientists and corporate or school leaders, to develop collaborations with adherents to other forms of contemplative practice, or with groups as diverse as labor leaders and indigenous healers (sections on axes A7, A11), requiring persistence and a learning curve for all parties involved. Such a future, if realized, would stand as additional testimony to the fertility and generativity of the mindfulness concept, as well as to the transitory nature of specific names and forms, including vehicles for mindfulness. But with global challenges looming, now is the time for us to work out our global and societal resilience with diligence. To paraphrase Robert Frost's (1923/2006) well-known poem: The woods are lovely, dark and deep, but we have promises to keep, and miles to go before we sleep, and miles to go before we sleep.

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Declarations

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