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How Do Mindfulness Offerings Support Inner–Outer Sustainability Progress? A Sustainability Assessment of Online Mindfulness Interventions

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Abstract: While there is growing optimism for inner transformations to catalyse systemic shifts towards more sustainable ways of being, no study so far has attempted to assess how well current interventions for inner development address core requirements for collective wellbeing. In this article, we apply a novel assessment framework to examine how mindfulness-based interventions address inner and outer sustainability criteria during a global health emergency. This inquiry informs a growing field of study concerned with leveraging inner transformations for systemic shifts towards sustainability progress. Using three prominent online mindfulness-based offerings as a case study, we demonstrate that mindfulness-based interventions have a broad range of potential desirable to detrimental implications for social and biophysical systems. We conclude by discussing how normative conceptions of inner interventions might be contextualised anew to effectively support more viable, just, and inclusive transformations towards long-term viability.

Keywords: inner transformation; sustainability; mindfulness; sustainability assessment; inner development goals



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1. Introduction

Progress towards sustainability across social and biophysical systems has been profoundly impacted by the COVID-19 pandemic [1]. Some of the most significant challenges for long-term viability to emerge from the global health emergency include intensifying demands for accessible mental health support [2,3] as well as deepening rates of inequality and environmental degradation [4,5]. Accordingly, there is increasing interest converging around the potential capacity for inner transformations to catalyse desirable systemic change [6–8]. Mindfulness and consciousness-based practices, which nurture “inner dimensions” including values, mindsets, awareness, and worldviews [9–12], are presently being explored as deep leverage points for accelerating progress towards collective and lasting wellbeing [13–16]. Some scholars now argue that enhancing conditions for long-term viability is unlikely to occur without greater attention to the inner (and largely overlooked) dimensions of sustainability [17–20]. Despite the mounting enthusiasm, there remain deep gaps in understanding around how inner transformations might effectively generate positive outer systemic change [21,22]. We address this gap by examining how and to what extent inner and outer transformations can be mutually supportive in enriching capacities and pathways for sustainability progress, as well as where precaution and contextualisation are needed to mitigate undesirable trade-offs.

Background: Mindfulness and Inner Transformations for Sustainability during a Global Health Emergency

Humanity’s “mindless destruction of biodiversity” has created optimal conditions for the emergence of new viruses and diseases ([23], p. 1910). The SARS-CoV-2 virus

responsible for the COVID-19 pandemic is the third coronavirus (following SARS and MERS) in the past twenty years to pass between wildlife and humans [24]. Both the speed and scale of COVID-19's transmission have exposed human vulnerabilities arising from and compounded by ecosystem degradation, material deprivation, and deepening inequities [25]. Early responses to the global emergency across sectors expressed interest in the potential for mindfulness to support positive systemic transformations [26,27]. In the health sector, for example, mounting social stresses, compounded by barriers to in-person health resources during the pandemic, escalated needs for accessible and often online medical support, driving a surge of interest in practices such as mindfulness [28–30]. While definitions of mindfulness vary, they converge around practices infused with techniques to enhance capacities for awareness, non-judgement, emotional regulation, and, depending on the context, compassion [31,32]. In the West, mindfulness broadly refers to popular psychospiritual and wellness practices with varying degrees of Buddhist association [33,34].

At the onset of the pandemic, mindfulness-based interventions were among the most widely endorsed and even prescribed health interventions by governments, medical officials, and religious leaders [35]. Online mindfulness-based interventions are generally accessible, scalable, and, as a result, often more convenient than conventional in-person interventions [36]. These digitised offerings have demonstrated a range of effectiveness for improving various health conditions, including reducing stress, anxiety, and loneliness [37,38]. Practices including mindfulness, which have been widely used to mental health and overall wellness, are also being explored as a means to support positive social and ecological change [39–41]. In these contexts, mindfulness is examined as a practice for cultivating individual skills and capacities, including attentional regulation, empathy, and compassion, that are recognised as requisites for sustainability progress [42]. Despite the mounting optimism for engaging inner dimensions for systemic transformations, there are concerns that changes driven by a development paradigm are vulnerable to cooptation by agendas antagonistic to collective flourishing [43,44]. Further concerns centre on fears that when traditional practices are unmoored from ethical and moral traditions through processes of secularisation [45,46] or “de-Buddification”, as in the case of mindfulness ([34], p. 73), they might undermine conditions for long-term viability by weakening pro-social and pro-environmental orientations [47–49].

Early in the pandemic, mindfulness-based interventions were associated with many beneficial impacts, such as reduced loneliness, depression, stress, and anxiety [2]. However, the same interventions for inner transformation were also found to worsen distress by treating conditions such as burnout as a symptom of individual weakness or mindlessness, as opposed to a moral injury sustained by exposure to systemic harms [50–53]. Recognising the increasing volatility, uncertainty, complexity, and ambiguity (VUCA) compounding sustainability challenges [54,55], it is imperative that approaches to inner and outer transformation be synergistic. To inform gaps in understanding around how and to what extent mindfulness supports sustainability progress during a global health emergency, we evaluated three interventions offered during the pandemic and their implications for transformations for collective flourishing.

2. Materials and Methods

Our study examined how a set of online mindfulness interventions that took place at the onset of COVID-19 addressed core sustainability criteria. Applicable mindfulness events were identified through a Google web query using the search string [“mindfulness or mindful” + “event or summit or workshop or gathering + 2020”]. From these initial findings, we cross-referenced results through a snowballing process via popular mindfulness mediums [56]. We screened events based on the following criteria: language (English), accessibility (free, online, provided transcripts), non-specialist audience (designed for non-lay mindfulness practitioners with all levels of mindfulness/meditation experience), and representative of different versions and applications of mindfulness (Buddhist, post-Buddhist, secular, etc.). Initial searches identified 104 possible events, which were pared down to three relevant offerings based on best fit with the inclusion criteria:

- Event 1—Mindfulness presented in a post-Buddhist context for application in daily life, including work, parenting, and interpersonal relationships;
- Event 2—Mindfulness presented in a post-Buddhist context for application in health-care and medical settings; and
- Event 3—Mindfulness presented from a Buddhist context and setting for application in daily Buddhist and/or non-Buddhist life.

Together, these three events were explored as a case study featuring 47 speakers with diverse backgrounds in mindfulness [56,57], covering a diverse sample of the mindfulness-based interventions offered during the pandemic [58]. No mindfulness-based events focused primarily on sustainability or related themes were identified at the time of the analysis. Accordingly, our assessment explores how generic applications of mindfulness in every day domestic and work settings might address sustainability considerations. The value of such inquiry informs how conventional and widely accepted approaches to mindfulness align with conditions for long-term viability. Event organisers granted us permission to examine the offerings with the provision that event names were not reported to protect the professional interests of speakers.

We utilised a novel assessment framework to evaluate how and to what extent requirements for inner and outer sustainability were addressed in the interventions [59]. This model was specifically designed to assess how events oriented towards inner transformation address core criteria for outer transformation and vice versa by weaving together widely accepted requirements for long-term wellbeing including the United Nations Sustainable Development Goals and the Inner Development Goals (IDGs). The IDGs are a core product of a not-for-profit initiative focused on accelerating sustainability progress through inner development as moderated through the cultivation of individual skills and capacities [60]. Part of the assessment process involved qualitatively coding event transcripts using a modified version of Grounded Theory [61–64]. While we analysed the events separately, results were systematised in thematic tables and sub-categories under broad and overlapping inner–outer sustainability criteria (identified in italics). Visually presenting the results in parallel as individual cases increased the accessibility of the data and streamlined the comparison between individual event considerations, common themes, and oversights. Each thematic table also includes a meta summary of shared potential synergies and trade-offs. Systems Theory informed the overarching analytical sensemaking processes and theoretical saturation was determined by data “polyangulation” [65,66].

3. Results

The results of sustainability assessments often become normative reference points for real-world problem solving and systemic transformations towards long-term viability [67,68]. Accordingly, the purpose of evaluating the three interventions was to create a reference point by mapping the content of mindfulness-based interventions offered during a global health emergency. Our inquiry elucidates how and to what extent events geared towards the application of mindfulness in daily living addressed and omitted core attention to interacting and overlapping sustainability requirements during a pandemic. Results are presented in accordance with the criteria identified in a novel inner–outer assessment framework and highlight the individual and combined synergies and trade-offs of each event [59].

3.1. Life Support

Life support is essential for building human and ecological relationships that establish and maintain the long-term viability of social and biophysical systems [69]. The three events that we examined drew correlations between the impacts of individual thoughts and behaviours on collective human wellbeing (Table 1). However, beyond mentioning climate change as a source of mental and physical suffering and an impending threat to social and economic systems, Events 1 and 2 largely overlooked the detrimental impacts of individual and collective actions on ecological systems. For example, only one speaker in Event 1 addressed the impacts of individual actions on biophysical systems, a connection

completely overlooked in Event 2. In contrast, Event 3 drew on Buddhist teachings of interbeing and dependent co-arising to stress that human action and inaction has directly impacted the biosphere and, by extension, social systems as well. Across all three events, speakers correlated increased mindfulness with greater complexity tolerance, which was seen as a vital competency for navigating uncertain times such as the pandemic.

Table 1. Life support.

<i>Requirement: Build human–ecological relations that establish and maintain the long-term integrity of socio-biophysical systems.</i>		
Summary of collective findings		
Potential synergies: emotional regulation, reflexivity, sustained awareness, increased tolerance for VUCA, empathic and compassionate resonance with other people		
Potential trade-offs: life support approached with strong preference for anthropocentric wellbeing		
Event 1	Event 2	Event 3
<i>Being: reflexively and honestly examining the impacts of thoughts and behaviours on the lasting wellbeing of all.</i>		
Increasing emotional regulation as part of the inner work required for forgiveness, discernment, agency, meaning making, and acceptance	Strengthening ability to acknowledge, regulate, and attune to emotional landscape and use these capacities with discernment to help others	Sustaining awareness of interdependence and the impacts of thoughts and behaviours on broader systems
<i>Thinking: developing complexity tolerance and an appreciation for entanglement within broader social and biophysical systems.</i>		
Developing greater awareness of the complex interactions between the inner and outer worlds, especially at moments of heightened stress, and increasing ability to consider multiple perspectives at once; but limited connection to natural world	Greeting uncertainty as a normative experience and responding to complex and challenging situations with agency and discernment; but no mention of interdependence with natural world	Making peace with the discomforts that arise in the face of uncertainty and complexity while developing “raw perception” to see the cause and effect of interconnected phenomenon clearly
<i>Relating: nurturing a sense of concern, gratitude, and reciprocity with all members of the community and the biosphere.</i>		
Strengthening emotional resonance and epistemic trust to increase capacities for individual and collective sensemaking, appreciation for contributions of others to collective wellbeing; but little link to biosphere	Deepening concern, gratitude, and reciprocity for community of caregivers; but no extension to biosphere	Understanding the mind broadens concern for the wellbeing of all life on the planet and nurtures gratitude for all that sustains life
<i>Collaborating: strengthening engagement between diverse and potentially rivalrous groups to constructively manage conflicts that endanger social and ecological systems (SES).</i>		
Nurturing the ability to connect and soothe suffering of others through presence while creating space for healing and forgiveness; but minimal link to how unsustainable social systems endanger natural world	Supporting capacities to be present to experience of others with openness and non-judgement, and continually, self-reflexively assess what conditioned biases bring to encounters; but minimal focus on threats to ecological systems	Recognising that divisiveness arises from collective unconscious (family, community, culture); but minimal connection to resolving conflict and rivalries between social groups and the natural world
<i>Acting: disrupting unsustainable ways of thinking and doing, discouraging behaviours that undermine conditions for lasting wellbeing, and driving positive action at all scales.</i>		
Broadening ability to see how habitual ways of thinking and doing are harmful to self and other people; but limited extension to biosphere	Bringing awareness to patterns of systemic injustices in medical systems, and the need for transformative change to support vulnerable populations; but limited extension to biosphere	Nurturing sense of interbeing to recognise that suffering is shared amongst all beings and the awareness to interrupt ways of thinking and being that could cause harm

3.2. Livelihood Sufficiency and Opportunity

At the core of livelihood sufficiency and opportunity is the need to ensure that all people have access to live a good life and opportunities to improve their conditions in a manner that does not undermine prospects for future generations [5]. Events 1 and 3 placed a strong emphasis on mindfulness practices to cultivate inner skills such as awareness,

compassion, and empathy that were assumed to automatically lead to positive ripple effects through social networks (Table 2). These approaches were primarily focused on personal development as opposed to promoting action to reduce gaps in sufficiency and opportunity. Several speakers posited that mindfulness nurtures awareness in a sense of shared humanity. Through this shared appreciation of others, they suggested, communities of care naturally coalesce around common concerns, and that these communities would influence positive change around areas such as anti-racism, justice, and climate responsibility. While there was some focus on increasing capacities to reduce trauma and facilitate healing in Events 1 and 3, the focus was predominantly oriented towards self-transformation. Contrastingly, Event 2 was primarily focused on improving the overall sustainability of medical systems and improving the access to and quality of treatments. Event 2 also surfaced systemic pressures that lead to burnout because the ability of healthcare providers to do the “right thing” is undermined by systemic conditions such as insufficient access to medical devices and other life-sustaining resources. In these cases, mindfulness was considered helpful for care providers who were forced to deal with what one speaker described as “the worst of the human condition”.

Table 2. Livelihood sufficiency and opportunity.

<i>Requirement: Ensure that everyone has enough for a decent life and opportunities to seek improvements in ways that do not compromise the opportunities of future generations.</i>		
Summary of collective findings Potential synergies: interrupting habitual ways of thinking and doing that harm other people, nurturing more compassionate and empathic responses to the suffering of others Potential trade-offs: circle of concern is often limited to humankind, strong emphasis on inner transformation to solve large systemic issues		
Event 1	Event 2	Event 3
<i>Being: influencing values, mindsets, and lifestyle choices to enhance attention to the wellbeing of the collective.</i>		
Increasing awareness of how emotions influence thoughts, behaviours, and motivations to respond to stimuli with discernment and agency instead of reactivity	Challenging normative systems that value efficiency over quality of care and recognising how personal actions can reduce suffering of others	Recognising that individual thoughts and actions impact the wellbeing of the collective; accepting that unwholesome thoughts and behaviours should be interrupted before they cause harm
<i>Thinking: strengthening understanding and other capacities for weighing the impacts of thoughts and actions on other people and the natural world.</i>		
Reducing reactive responses to stimuli that could cause harm to other people; but limited consideration of impacts of thoughts and behaviours on biosphere	Encouraging moments of reflection and recalibration throughout the day to consider how individual thoughts and actions impact others; but not extended to the natural world	Transforming individual suffering naturally strengthens capacities for and inclinations to help support wellbeing of other people and the planet
<i>Relating: increasing empathetic and compassionate concern for, and commitment to enhancing, the wellbeing of SES.</i>		
Strengthening capacity for empathic resonance and compassionate response to the suffering of others; but limited consideration beyond human wellbeing	Attuning to the suffering of others through empathic resonance and compassionate response, while recognising that one individual cannot heal all suffering; no attention to harms inflicted to the natural world	Connecting with the suffering of others through the recognition of interbeing and dependent co-arising nurtures compassionate and empathic resonance; minimal focus on pathways to reducing suffering of others besides inner transformation

Table 2. *Cont.*

<i>Collaborating: creating safe and lasting conditions for inter-generational healing, collaboration, and trust building.</i>		
Connecting with community to create safe and nourishing spaces to learn, heal, care, and collaborate; focus limited to welfare of social systems	Nurturing diverse and inclusive safe spaces in health organisations that offer a range of supports for those who care for others; but concerns limited to welfare of social systems	Focusing on inner transformation to recognise how ingrained patterns of thinking have undermined conditions for trust, collaboration, and healing at individual and collective scales
<i>Acting: consciously choosing a meaningful and fulfilling approach to life that does not undermine conditions for others to do the same.</i>		
Building capacity to recognise habits of mind that can both cause and heal suffering, and develop the stamina to maintain this attentiveness and ability to skilfully respond to challenges	Interrupting systems that limit the resources, capacities, and conditions to care for all people equally so that they may live healthy, meaningful, and fulfilling lives	Vowing to protect life and reduce violence in the world by aligning individual thoughts and behaviours with ethical principles linked to doing no harm

3.3. Intergenerational and Intragenerational Equity

Progress for inter- and intragenerational equity requires that all people have access to conditions that sustain wellbeing “without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status” [70]. Throughout the events, it was strongly suggested that by practicing mindfulness, individuals would develop greater awareness of their thoughts and behaviours (Table 3). In Event 1 specifically, positive systems-level changes were assumed to occur when individual needs are prioritised. The following excerpt exemplifies many of the sentiments expressed in the event: “When you meet some of your own needs, you actually have more to give to others”. Event 2 paid specific attention to how mindfulness can help to surface inequities in healthcare such as racism and the need for individuals to engage in collective action to support transformation. Speakers also addressed the benefits of mindfulness practices for helping clinicians to slow down and “see” the uniqueness of their patients beyond their race, gender, socioeconomic status, or other identifiers that are typically aggregated into a profile to expedite treatment delivery. As one healthcare worker described, mindfulness was a way to “give yourself the time you need to be a resource for other people”. Speakers in Event 3 spoke about how mindfulness practices nurture awareness of how personal thoughts and actions contribute to systemic inequity and why they are needed to cultivate more nourishing ways of thinking and doing at scale for collective wellbeing.

Table 3. Intragenerational and intergenerational equity.

<i>Requirement: Favour present options and actions that are most likely to preserve or enhance the capabilities of all people to live sustainably while reducing dangerous gaps in sufficiency and opportunity.</i>		
Summary of collective findings Potential synergies: nurturing capacities to recognise systems of oppression Potential trade-offs: strong focus on identifying inequities but not challenging them, limited focus on long-term wellbeing or links between the unsustainability of social and ecological systems		
Event 1	Event 2	Event 3
<i>Being: deepening empathy, compassion, and presence.</i>		
Confronting unconsciously internalised thoughts, values, and biases through sustained awareness to show up with openness, kindness, and curiosity	Increasing awareness, curiosity, and courage to investigate subconscious biases and learning how to engage non-judgmentally with all people	Cultivating raw perception to recognise phenomena as they are without judgement naturally increases capacities for compassion and empathy to care for other people and the planet

Table 3. Cont.

<i>Thinking: increasing understanding of how contributions to sustainability can and should create spirals of equity and wellbeing.</i>		
Recognising social determinants of health, systemic oppression; limited connections made between unsustainability of social and ecological systems	Addressing the impacts of social determinants of health and the need to tackle broader issues that undermine conditions for wellbeing, including poverty and racism	Identifying patterns of thought that perpetuate notions of separation and exceptionalism between different people and the planet; but little extension beyond cultivating awareness
<i>Relating: increasing humility, concern, and commitment to reducing the suffering and strengthening the foundations for greater opportunities for present and future generations.</i>		
Developing awareness of one's embeddedness in larger systems and moving beyond polarities; but limited focus on humility or future generations	Learning how to see and appreciate the intrinsic value of all people and their differences, and heal multi-generational traumas	Seeing that the past, present, and future are mental constructs and that reducing the suffering of others starts with transforming individual minds; but minimal focus on urgency to act
<i>Collaborating: cultivating skills for compassionate, healing, and generative dialogue between diverse groups.</i>		
Recognising interdependence with larger systems and need for these connections for survival; but no connection to concerns for future generation	Developing agency to see and appreciate the shared humanity in all people while not homogenising or generalising experiences or needs	Reducing emotional reactivity and increasing reflexivity to recognise ingrained patterns of thinking that create false boundaries of separation between people
<i>Acting: challenging and dismantling systems of oppression and building equitable replacements.</i>		
Deepening awareness of systems of oppression and how they undermine conditions for collective wellbeing by weighing individual decision making with equitable considerations	Raising awareness of health disparities and inequities and where possible, actively championing change within systems of influence	Encouraging ways of seeing and being that reduce harmful impacts on other people and the biosphere beginning with self-transformation

3.4. Resource Maintenance and Efficiency

Gains made for increasing resource maintenance and efficiency help to reduce threats to socioecological systems and make more of the material foundations of wellbeing available to the now disadvantaged (Table 4). In Event 1, mindfulness was framed as a complementary practice for enabling conditions such as patience and forgiveness that are needed to support processes of healing. Additionally, mindfulness was seen as beneficial for increasing the stamina needed to stay present to the suffering of others and not bypass challenging discussions about topics such as trauma. Some speakers in Event 2 highlighted that health-care workers are not only deeply aware of how insufficient material resources contribute to ill health and undermine conditions for wellbeing, but also suffer system-induced distress and trauma because of insufficient access to these resources. However, the focus of mindfulness in this event was focused on how clinicians could maximise their capacity to serve as resources for their patients and colleagues. Throughout Event 3, it was strongly implied that mindfulness would foster inner transformations that would automatically result in positive contributions to collective flourishing but that an emphasis should be placed on transforming the self before others. As one speaker explained, "If I take care of myself, I'm taking care of you, my fellow human being and I'm taking care of you, animal species, the plants species, and mineral species". While Event 3 specifically addressed the importance of using mindfulness to deepen the awareness of resource use and consumption patterns, it did not reveal an interest in mobilising energy and resources to help those in urgent need, or in taking action to change systems that undermine conditions for long-term viability.

Table 4. Resource maintenance and efficiency.

<i>Requirement: Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long-term integrity of socioecological systems.</i>		
Summary of collective findings		
Potential synergies: cultivating awareness, compassion, and cultural sensitivity to respond to suffering		
Potential trade-offs: overlooking the need to mobilise significant resources to support systemic change		
Event 1	Event 2	Event 3
<i>Being: linking concern for the individual to the lasting collective interests of all.</i>		
Developing competencies including awareness, acceptance, kindness, and non-reactivity to cultivate greater compassion	Questioning assumptions and deepening concern for cultural and racial humility, prioritising sensitivity over competency	Deepening understanding of interdependence between individual, collective, and the planet and the interconnectedness of suffering
<i>Thinking: encouraging more informed decisions with consumption patterns of both materials and information.</i>		
Strengthening emotional regulation to moderate reactive tendencies and increase agency and discernment of information; but minimal connection to reducing material consumption	Recognising how much medical knowledge is influenced by systems of oppression that undermine conditions for wellbeing; but minimal connection to reducing material consumption	Purposefully choosing not to consume products or information that could directly or by extension harm others or the planet; cultivating gratitude for simple pleasures
<i>Relating: minimising negative impacts and maximising positive sustainability effects of individual behaviours.</i>		
Enhancing skills such as awareness to identify harmful patterns of thinking and doing within the context of relationships; but minimal focus on connections between individual actions and ecological harm	Discerning how certain practices and procedures have been developed through a model of efficiency instead of a model of care, interrupting habitual processes that endanger wellbeing	Reducing desire for modern material comforts and luxuries, finding meaning and beauty in the simplicity of nature and the beauty of the present moment
<i>Collaborating: mobilising energy and resources to vulnerable communities who have been systematically oppressed.</i>		
Widening circles of care to community level and providing support for healing trauma and reducing suffering of disenfranchised populations; but little attention to mobilising resources that would support systemic change	Supporting efforts to transform systems is linked to awareness, compassion, and empathy; unclear how mindfulness is linked to mobilising energy and resources for vulnerable populations	Minimal focus on mobilising energy and resources to vulnerable communities and those in need
<i>Acting: increasing awareness of the unsustainability of many normalised behaviours and the availability of positive alternatives.</i>		
Raising awareness of unconscious patterns of thinking and doing that have been systemically engrained; but limited focus on the unsustainability of prevailing systems beyond racial inequities	Encouraging leaders to engage in courageous conversations within their organisations to recognise and transform patterns of systemic violence; but emphasis placed only on individual to drive transformation	Surfacing destructive patterns of consumption that have been normalised in modern society and deliberately choosing to avoid participating in these behaviours

3.5. Understanding, Commitment, and Engagement

Progress towards understanding, commitment, and engagement requires strengthened capacities and inclinations to integrate considerations for sustainability progress into decision making (Table 5). A speaker in Event 1 explained that mindfulness is needed to make progress on systemic challenges by “helping us bring forth the commitment, the intentionality to make the most of the opportunities presented by our lives, to move in the direction of our values and . . . to try and make the world a better place in whatever ways we can”. In medical settings, the focus of Event 2, mindfulness was regarded as generative for increasing capacities for understanding by helping to cultivate skills for deep listening, authentic relating, and presence. The impetus to cultivate these inner skills was directed towards clinicians so that they could provide the best service to those in their care. Throughout Event 3, mindfulness was seen as essential for deepening the understanding of the impermanence and interconnectedness of all phenomena. Many speakers spoke

about the importance of recognising that how individuals think, act, and speak can cause or relieve suffering for the self and others. Several speakers argued that without capacities for sustained awareness, people will unconsciously contribute to individual and collective suffering. Understanding the relationship between patterns of thinking, speaking, and doing was therefore seen as fundamental for releasing inherited mental models. It was suggested that mindfulness was a way to purify one's consciousness and be fully present. Commitment, in the context of this event, was focused on self-development, specifically by interrupting individual thoughts and behaviours that could cause harm to others. With greater dispositional mindfulness, it was assumed that one would naturally engage more compassionately and skilfully in the world and thus have a positive ripple effect through their thoughts and actions.

Table 5. Understanding, commitment, and engagement.

<i>Requirement: Build the capacity, motivation, and habitual inclination of individuals, communities, and other collective governing bodies to apply sustainability principles through more open and better-informed sensemaking.</i>		
Summary of collective findings		
Potential synergies: strengthening awareness of the suffering of others and capacity to respond		
Potential trade-offs: responsibility for driving systemic transformations relegated to individuals		
Event 1	Event 2	Event 3
<i>Being: nurturing sense of responsibility and commitment to lasting wellbeing for all.</i>		
Heightening compassion motivates concerns to reduce suffering of others and to foster connection through which healing can occur; but limited focus on responsibility for collective wellbeing	Buffering the distress experienced by healthcare workers who have limited access to resources to support their patients; strong focus on inner transformations to reduce systemic suffering	Focusing on transforming inner dimensions, which, by extension, is assumed to nurture generative conditions for collective wellbeing; strong emphasis that inner change will automatically drive positive outer change
<i>Thinking: encouraging greater discernment and agency to critically examine contradictory, incomplete, complex, and ambiguous information.</i>		
Strengthening tolerance for complex, challenging, and dynamic situations through emotional regulation and skilful response	Employing cognitive control to self-regulate and skilfully respond to complex, uncertain, and crisis situations without reactivity	Increasing capacities to see phenomena as they are emerging in the present without bias, premature judgement, or aversion to complexity
<i>Relating: living in a meaningful way that enhances conditions for collective wellbeing.</i>		
Aligning values, meaning, and purpose by increasing capacities for awareness and compassion and creating positive ripples of influence; limited focus on biospheric impacts	Supporting conditions for health whereby people can pursue meaningful lives; but little focus on reducing negative impacts on the biosphere	Nurturing sense of meaning and fulfilment by purposefully choosing a life of simplicity, reverence, and connection with all life
<i>Collaborating: facilitating conflict resolution, problem solving, trust building, and mutual aid.</i>		
Increasing limbic resonance with others through presence combined with a motivation of care facilitates conditions for trust, openness, and healing	Attuning to the experience of others to improve quality of healthcare by nurturing trust, authenticity, respect, open dialogue, and bi-directional learning	Skilfully responding to situations without emotional reactivity or unconscious biases that obscure the nature of phenomena as they unfold in the present moment
<i>Acting: nurturing courage, optimism, and hope for positive innovations.</i>		
Generating greater awareness of how ingrained patterns of thinking need to be challenged to be present and non-judgmental to phenomena as they are unfolding	Encouraging ontological humility, courage to engage in complex situations, reverence for shared humanity to transform healthcare in such a way that it serves all people	Approaching each experience with curiosity and presence to break old patterns of thinking and doing; but minimal attention to innovation

3.6. Precaution and Adaptation

At the core of requirements for precaution and adaptation is the need to respect and plan for volatility, uncertainty, complexity, and ambiguity (VUCA). Across the three events

was a consensus that mindfulness was instrumental for increasing complexity tolerance and skill in responding to challenging situations without reactivity (Table 6). None of the events explicitly focused on facilitating joint and collective efforts to encourage low-risk and adaptive alternatives to unsustainable practices or precautionary pathways towards just transitions. A speaker in Event 1 described mindfulness as a diagnostic tool for reading one's own "dashboard" to gauge the conditions of one's emotional landscape. This deliberate and conscious calibration, they argued, protects limbic systems from becoming hijacked by threat responses that prioritise self-protection over connection and creates space to respond skilfully to challenges. Similarly, in Event 2, mindfulness was considered valuable for helping people respond to dangerous and high-stress situations with agency, integrity, and discernment. Throughout Event 3, mindfulness was commonly presented as essential for preventing and reducing collective suffering via inner transformation. Increasing one's understanding of one's mind, specifically patterns of thoughts and behaviour, was strongly emphasised to interrupt destructive tendencies that could endanger socioecological wellbeing. These shared sentiments were summarised by one speaker who offered, "Misunderstanding of our relationship with the earth, with our own body, is bringing about a catastrophic climate change. All of these things are rooted in our mind. And so, understanding the mind is essential. How can we possibly bring about a change without understanding our mind?"

Table 6. Precaution and adaptation.

<i>Requirement: Respect uncertainty and avoid pursuing poorly understood risks where there is potential for serious or irreversible damage to lasting wellbeing for all by designing for surprise and managing for adaptation.</i>		
Summary of collective findings		
Potential synergies: strengthening capacities to navigate VUCA, recognising suffering of other people		
Potential trade-offs: limited focus on reducing vulnerabilities or changing unsustainable systems		
Event 1	Event 2	Event 3
<i>Being: cultivating presence, intention, and active but respectful engagement with complexity.</i>		
Increasing capacity for self-regulation to reduce reactivity when facing complex or challenging situations	Helping healthcare workers develop stamina to remain present, non-reactive, and grounded when facing complex challenges	Sustaining awareness in the unfolding present moment nurtures a relaxed attentiveness that creates conditions for insights to emerge and guide skilful action to complex challenges
<i>Thinking: developing agency to make well-informed and non-reactive decisions in challenging situations.</i>		
Supporting tolerance for complexity directly increases agency and the ability to recognise how the outer world influences experience and understandings	Nurturing capacities for emotional regulation to maintain agency during times of heightened stress and difficulty	Noticing how thoughts, feelings, and past experiences influence perception and how modern stimuli amplify exposure to triggers that misinform and increase reactivity
<i>Relating: increasing concern for the most vulnerable and increasing commitment to reducing threat exposure.</i>		
Bringing attention to systemic oppression through sustained awareness; but limited focus on reducing exposure of vulnerable populations to threats	Increasing awareness of inequities in healthcare that increase threat exposure to marginalised groups; but minimal attention to reducing threat exposure	Recognising that individual thoughts and actions create suffering for others; but limited focus on reducing exposure of vulnerable populations to threats
<i>Collaborating: encouraging and facilitating joint efforts for low-risk, adaptable, and just transitions.</i>		
Not addressed	Not addressed	Not addressed
<i>Acting: cultivating resilience and embracing the richness of complexity.</i>		
Strengthening emotional regulation and compassion helps to increase stamina while cultivating a sense of inner calmness when facing complex challenges; but limited extension to long-term solutions	Deepening capacities including gratitude to recognise positive impacts supports resilience during times of heightened stress; but limited focus on long-term solutions	Focusing on self-healing and cultivating calmness in the face of challenge strengthens resilience and helps to prevent overwhelm or burnout; but minimal focus on long-term solutions

3.7. Immediate and Long-Term Integration

Immediate and long-term integration necessitates that all sustainability requirements be pursued together with the intention of maximising positive benefits. None of the events paid much attention to broad outer sustainability considerations (Table 7). Mindfulness practices were commonly associated with the cultivation of sustained awareness, emo-

tional regulation, resilience, and compassion. Speakers frequently suggested that inner development, especially when facilitated through mindfulness practice, would provide immediate benefits to the individual and, according to some speakers, organically catalyse positive effects throughout the outer world. Event 3 provided a strong contrast to the other offerings by focusing on how mindfulness helps people find peace for “living in the eternity of the present moment”. Peace in this context was linked to freedom from the stories of the past that individuals have curated, those they have inherited, or notions of a pre-ordained future they have been led to believe is inevitable. As several speakers explained, the present moment offers opportunities to experience both the past and the future. Furthermore, it is only in the present that there is an opportunity to witness beauty, especially in nature, since it unfolds moment to moment, and neither the person bearing witness, nor the external conditions, will be the same again. Focus was more on learning how to be in the present moment, rather than on trying to interrupt it or change conditions for the future. As one speaker explained,

Table 7. Immediate and long-term integration.

<i>Requirement: Attempt to meet all requirements for sustainability together as a set of interdependent parts, seeking mutually supportive benefits.</i>		
Summary of collective findings		
Potential synergies: deepening quality of awareness and engagement in present tasks		
Potential trade-offs: disregard for long-term and collective impacts of unsustainability		
Event 1	Event 2	Event 3
<i>Being: attuning to present conditions with consideration for future impacts.</i>		
Cultivating sustained awareness to attune to present moment with awareness and non-judgement and increasing capacity to consider impacts of behaviour on others; minimal focus on long term	Meeting present moment challenges with sustained attention despite immediate conditions of immense stress, uncertainty, and reduced resources; but less focused on long-term impacts	Recognising that temporality is a mental construct and that the past, present, and future “inter-are”; but limited focus on transforming conditions for a more desirable future
<i>Thinking: considering the impacts of decision-making on the full range of sustainability considerations and making multiple mutually reinforcing contributions to both present and future wellbeing.</i>		
Encouraging greater awareness and compassion to act skilfully in the present; but limited focus on larger sustainability considerations and future wellbeing	Directing attention towards profound suffering in the present moment with recognition that transformations need to occur across healthcare systems to reduce equitable access to care; but little focus on future wellbeing	Transforming inner dimensions positively contributes to collective healing and the reduction of suffering through sphere of influence; but minimal focus on changing conditions to ensure collective future wellbeing
<i>Relating: building personal satisfactions through just, equitable, joyful, and farsighted relations.</i>		
Finding life satisfaction by aligning values, purpose, and meaning in daily interactions	Cultivating sense of satisfaction and meaning through deep connection and positive experiences facilitated through healing	Pursuing non-material sources of meaning and fulfilment that are not linked to exploitation of other people or the biosphere
<i>Collaborating: nurturing conditions for healing past and present traumas, fostering peace, and building trustful relationships across diverse groups.</i>		
Nurturing connections through presence, compassion, and emotional resonance supports trauma healing while building trust across different groups	Approaching healing through a health equity lens to support trauma healing, cultural humility, and sensitivity while nurturing trustful relationships with others	Enhancing capacities to recognise and decondition ways of thinking and being that marginalise others due to gender, “race”, culture, species, etc.
<i>Acting: seeking multiple, mutually reinforcing gains; sustaining patience, determination, stamina, and optimism for change.</i>		
Being open to transformative change and greeting the barriers to complex challenges with humility, honesty, and hope	Reducing psychological distress, boosting resilience, and building institutional capacities for change via individual transformation	Reconciling with the impermanence of all increases appreciation for phenomenon while releasing the need to control or change things

“Some of us really become burned out trying to take care of the earth . . . so we forget to take care of our self. We forgot that we are a child of the earth. So just to be able to do nothing is also a way of taking care of the earth; to sit peacefully . . . restore yourself to rest and do nothing. You may say, I’m not doing anything to take care of the earth, but you are with every breath that restores you. You are helping the earth”.

4. Discussion

The assessment results are helpful for informing the planning, decision making, and execution of future mindfulness events to maximise positive contributions and reduce undesirable trade-offs for sustainability progress. The application of a novel inner–outer assessment framework identified potential synergies and trade-offs between different conceptions of inner and outer sustainability transformations. These insights are of particular value for informing the complementarities of mindfulness for long-term viability and identify key opportunities to enrich the understanding and applications of inner transformation for sustainability progress.

Despite the growing interest around the use of mindfulness for sustainability progress, there were no sustainability-focused mindfulness-based interventions that met our selection criteria at the time of the case study analysis. We assume that this is partly a result of the novelty of the field and because the pandemic drove a surge in urgent needs across social systems that eclipsed considerations for long-term biospheric wellbeing. By representing a broad range of applications for mindfulness in daily life—including work, parenting, and interpersonal relationships—the case studies highlight many opportunities and trade-offs for sustainability progress. For example, as evidenced in the case study analysis, the diverse interventions framed mindfulness as a positive mechanism for strengthening inner capacities such as emotional regulation, awareness, compassion, and complexity tolerance. While these skills are useful for navigating increasingly complex social and ecological challenges (including a global pandemic), many core requirements for supporting conditions for long-term wellbeing were entirely overlooked. The most notable oversights included a lack of concern for and commitment to reducing environmental degradation, as well as mobilising resources for disenfranchised populations. Not only were these oversights missed opportunities for broadening conceptions of and applications for mindfulness, but they also unconsciously perpetuate individualism and systems of oppression. Contrary to what was articulated by many speakers, engaging with mindfulness for the primary benefit of the individual—whether for personal development or wellbeing—is unlikely to result automatically in profound contributions to sustainability progress [71,72]. Accordingly, a more nuanced understanding and recontextualised approach to individual mindfulness programs is likely needed to align requirements for inner and outer sustainability transformations, especially as socioecological challenges intensify [49,73,74].

The three events commonly described mindfulness as a muscle, tool, and/or technology that helps to improve emotional regulation, decision making, and compassion. Aside from having an impact on oneself and one’s immediate circle, it was not evident how mindfulness practices could directly leverage broader systemic changes. Similarly, throughout many of the discussions, causal pathways between inner transformation and broader positive systemic change were often unclear or tangential. There was, however, a consensus amongst contributors at all three events that mindfulness supports individual wellbeing, and naturally, by extension, collective wellbeing as well. Many of the sessions ignored causal structures that bind decision making in ways that limit opportunities for sustainability progress to individual behaviour change. As others have cautioned, placing the responsibility for sustainability transformations on the individual is not an effective route to systemic change and can be detrimental to collective wellbeing [75]. Throughout the three events, there were also inconsistencies related to how mindfulness ought to be conceived and practiced. One speaker from Event 1 warned that mindfulness needs to be part of a consistent and disciplined practice that exists within a community setting

and should not be approached through consumptive models. Other speakers at the same event suggested a more individualised approach to mindfulness that modifies practices to accommodate the demands of a busy on-the-go lifestyle. Similar contradictions included how much time people should spend practicing. As one speaker suggested,

“You don’t have a minimum viable dose, if you will, of mindfulness. A good rule to think about is that, you know, the more you practice, the better . . . So start small. Focus on building that sort of habit into your routine and then you can go up. Then you can go crazy. The sky’s the limit. I mean, we have people who have practice for a thousand hours over their lifetime. We have people, the sort of Olympic champions, the Buddhist monks whose brains get researched in labs”.

Many of the reported benefits of mindfulness, especially in Events 1 and 2, were divided into binaries of helpful or not helpful. For example, a speaker in Event 1 suggested that “If we’re not mindful, we’re mindless. And we wander through our days mindlessly, and that’s not very helpful for ourselves and it’s certainly not helpful for other people”. Similarly, another speaker stated that mindfulness should be used to discern whether an activity is “helping the planet or taking away from it”. These oversimplified conceptions fail to respect the complexities inherent in both sustainability progress and inner development. For context, studies have demonstrated that allowing the mind to wander can have positive and negative effects [76–78]. Similarly, it is not always simple to determine whether activities are inherently good or bad for the planet since what might seem good to one individual can come at the detriment of other people, species, or ecosystems. Event 3 paid much closer attention to the interconnectedness of social and ecological systems; however, it too reduced thoughts and behaviours as either nourishing or destructive.

Recognising that temporal and practical restraints limit how much time participants can invest in these events, there is a high likelihood that individual sessions could be taken out of the larger context of the event. If participants attended only one session or part of a session, they would miss the nuanced, diverse understandings and applications of mindfulness in different contexts. Consequently, the transcontextual richness would be reduced to a limited expression of mindfulness, which might not only differ from other approaches, but also be contradictory to enabling conditions for sustainability [79]. For example, many speakers limited their conception of wellbeing to human systems, ignoring biospheric implications entirely, especially in Event 1. In contrast, Event 3 was much more focused on the interdependence of social and ecological systems. As one speaker explained, “you are not separate from all species. You are not separate from all human beings and your suffering and their suffering is not two separate things”.

Since the pandemic rapidly intensified systemic social and ecological crises, including insufficient access to life-saving resources, the capacity of healthcare workers to provide safe and proper care was dramatically undermined, resulting in increased levels of distress and trauma among clinicians [50,80]. A speaker in Event 2 expressed concerns that “we don’t have the social structures necessary for doctors to practice medicine humanely”. Throughout this event, mindfulness practice was seen as beneficial for increasing the performance of clinicians under the intense pressure of COVID-19. Other speakers, however, cautioned that there is a need to consider whether mindfulness is offered by medical organisations to obscure the unsustainable conditions that cause clinician distress and broader health inequities or offered to invest in long-term collective wellbeing. As one speaker explained, this questioning is needed to “shift that narrative from mindfulness being a tool of tolerance of unethical and toxic situations . . . to see mindfulness as a way to restore agency, to be able to restore mental and emotional stability so that clinicians can be in a place to discern whether or not they want to loan their gifts and talents to that organization or not, and how to be part of a constructive change process that will lead to culture change”.

While Event 2 primarily focused on applications of mindfulness to improve conditions for social systems through healthcare, it largely ignored determinants of wellbeing that extend to the natural world. While not addressed in this event, the use of mindfulness

to enhance the sustainability effects of medical practices was raised by clinicians early in the pandemic. For example, anaesthesiologists expressed the need for mindfulness to minimise the environmental impacts of single-use medical devices and greenhouse gas-emitting anaesthetic agents (Gordon, 2020). A similar concern was raised in the field of dentistry, particularly around issues related to waste and pollution (Khan, 2020). In these contexts, mindfulness was viewed as essential for maintaining the quality of patient care while also reducing medicine's environmental footprint. Others have suggested, "Health care providers have a professional responsibility to educate their patients about climate change and the personal impacts it may have on physical and mental health" and have proposed that mindfulness might offer preventative benefits for individual and ecological wellbeing ([81], p. 1153). These kinds of sustainability-informed applications of mindfulness would interrupt the reproduction of harm within the medical-industrial complex, while simultaneously creating opportunities for broader contributions towards long-term viability.

Emergent Themes

Of the several emergent themes that arose across the case study analysis, the most common centred on compassion. As described by a speaker in Event 1, "our ability to care for others outside of our kin group is the hope of the world". Several speakers asserted that mindfulness naturally increases responsiveness to suffering because it automatically generates greater compassion, though the theory is disputed in the literature [47,82,83]. In many of the events, speakers explained that practicing mindfulness to develop greater personal competencies, such as self-compassion, would naturally result in positive ripple effects throughout society, though causal pathways were often unclear. Events 1 and 2 emphasised the need for trust to deepen connection with others. In these contexts, trust building included an invitation to share painful lived experiences, the offering of presence through deep listening and interoception, and the maintenance of safe spaces to decompress at work. Trust was recognised as imperative for healing trauma, repairing broken relationships, and connecting with others (especially patients). Additionally, this capacity was understood as a precursor to cultivating humility, sensitivity, and competencies for working with marginalised communities. The potential for mindfulness to confront habitual ways of thinking and doing that have been unconsciously patterned and internalised was frequently discussed throughout all three events. Moreover, mindfulness was classed as part of larger discussions on personal development, especially linked to inner transformation. The precursors to these transformations were commonly associated with healing and inner work linked to recognising, challenging, and transforming mental models.

5. Conclusions and Future Directions

Our study applied a generic inner-outer sustainability framework for assessing mindfulness initiatives. As demonstrated in the analysis, inner transformation offerings are not always aligned with requirements for long-term viability and, in some instances, can even strengthen unsustainable systems. This highlights the need to consider alternative understandings and conceptions of both "mindfulness" and "sustainability". Such inquiry would also entail a shift beyond the prevailing WEIRD (Western, educated, industrialised, rich, and democratic) conceptions of inner and outer sustainability that have so far dominated this field, towards a "pluriverse" or multiplicity of worlds of understanding [84–86]. These considerations would be the first of many steps needed to recontextualise the assessment process for applications in non-Western contexts, and would hopefully encourage more ontological hybridity, epistemic humility, and epistemological plurality into discussions around systemic transformations [87–92]. Additionally, it would offer alternative frameworks to prevailing Western sustainability assessments that have been criticised for advancing neocolonial objectives [93]. Deliberations on how to best revise and/or replace these assessment frameworks would entail timely re-consideration of the implicit "values and moral imperatives used to determine what is to be sustained and for whom" ([94],

p. 105941). Attention to these issues would also spur an examination of broader philosophical and ethical questions related to the plurality of possibilities surrounding what inner and outer wellbeing would entail and whether interventions such as mindfulness would be contextually appropriate.

It is important to recognise that inner and other sustainability are inevitably envisioned and addressed in many different contexts. In these diverse contexts, the key inner and outer sustainability issues will differ, as will the most suitable conceptions and practices of mindfulness. As others have noted, versions of mindfulness have varied significantly depending on settings, making content, target, and outcomes important contextual factors for planning and decision making [95]. It is also worth noting that contexts are often determined by target audiences, who influence the extent to which ethical and soteriological considerations are included or omitted from the practices. As revealed in this study, positive contributions to sustainability progress will likely not be delivered by expressions and applications of mindfulness that are hyper-individualised, human-centric, and uninformed about complexity.

It is important to interpret the results of this analysis within the temporal context in which these events occurred. The cumulative effects of existential threats and shared traumas imposed by pressures such as COVID-19 and climate change [96–98] affected understandings of both inner and outer transformation. Another notable point is that emergent themes including compassion, trust, and inner work, as well as others that arise in subsequent applications of the framework, will merit further exploration. It is both anticipated and hoped that more testing of the framework will lead to richer understandings of the synergies between inner and outer transformations. Moreover, more diverse applications of the framework will better inform the enmeshed generic and context-specific requirements needed for sustainability progress. Lastly, while this paper examined how practices such as mindfulness might be strengthened by greater attention to sustainability requirements, further research is also needed to deepen our understanding of how conceptions of sustainability might in turn be enhanced with greater attention to inner dimensions.

6. Conclusions

“Perhaps there is no lack of knowledge, but there is still a lack of consciousness of sustainability” ([99], p. 70).

As environmental degradation and persistent inequities undermine conditions for human wellbeing, there is added urgency to accelerate sustainability progress and remove systemic barriers to collective flourishing. Our study examined three mindfulness events that took place at the onset of the COVID-19 pandemic. The purpose of our inquiry was to examine how and to what extent inner and outer sustainability considerations were considered in mindfulness-based events during a global health emergency and to test the application of a novel assessment framework.

As others have recognised, transforming entrenched unsustainable systems is unlikely to occur without a collective awakening to the violence and exploitation that enables modern securities and pleasures at the detriment of the environment and vulnerable populations [100–102]. Such awakening would address the cultural dimensions of normalised hegemonic worldviews that perpetuate unsustainability and limit imaginaries of transformability beyond the entrenched status quo [103–105]. Accordingly, inner transformative practices, including mindfulness, will need to pay greater attention to generic and context-specific sustainability requirements for lasting social, ecological, and economic wellbeing if they are to support progress towards long-term viability [106,107]. Moreover, for inner transformations to catalyse progress towards sustainability, practices will also need to support inner development in a sense of maturation and “growing up”, whereby values are extended beyond individual self-care and physical gratifications [108]. This kind of inner transformation is essential for steering efforts away from narrow oversimplifications

of sustainability and a narrow conception of mindfulness, towards processes of “readying” for systemic transformation [109].

It is becoming increasingly evident that sustainability progress will require psychocultural transformation to positively support systemic change [17,110]. Advancing progress towards long-term collective flourishing through the leveraging of inner dimensions will, however, require that interventions focus not only on strengthening individual metacognitive capacities, but also on deepening the understanding of and commitment to transforming entrenched systems that perpetuate biospheric degradation and social injustices. The burgeoning field of inner transformation represents an exciting opportunity to challenge, interrupt, and transform systems that undermine conditions for lasting wellbeing. To maximise the benefits for collective wellbeing and reduce undesirable adverse trade-offs, it is essential that mindfulness-based programs and other interventions for inner transformation be curated with greater attention to sustainability requirements. Applications of inner–outer sustainability assessment frameworks have considerable potential in informing the design and evaluation of future offerings.

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