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Mindsets for Sustainability: Exploring the Link Between Mindfulness and Sustainable Climate Adaptation

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ABSTRACT

Growing globalisation and climate change are challenging the sustainability of our societies. It is now clear that climate change and its devastating impacts cannot be resolved by new technology or governance alone. They require a broader, cultural shift. As a result, the role of human beings' 'inner dimensions' and related transformations is attracting increased attention from researchers. Recent advances in neuroscience suggest for instance that mindfulness can open new pathways towards sustainability. However, the role of mindfulness in climate adaptation has been largely ignored. This paper is the first exploratory empirical investigation into linking individuals' intrinsic mindfulness (as opposed to outside mindfulness interventions) to pro- and reactive climate adaptation. Based on a survey of citizens at risk from severe climate events, we explore if, and how individual mindfulness is correlated with climate adaptation at different scales. The results show that individual mindfulness coincides with higher motivation to take climate adaptation actions or to support them, especially actions that are 'other-focused' or support pro-environmental behaviour. Mindfulness may also corroborate the acknowledgement of climate change and associated risk perception, and it may steer people away from fatalistic attitudes. We conclude with a call for more research into the relationship between human beings' inner dimensions and climate adaptation in the wider public domain.

1. Introduction

Current development patterns, marked by growing globalisation, unsustainable consumption, and inequalities, are producing increasingly risky and unsustainable conditions for our society (IPCC, 2014; Kates et al., 2001; Raworth, 2012). In 2017, a string of unusually powerful hurricanes accompanied by flooding and storm surges hit the Caribbean and the United States, supporting climate scientists who state that "climate change is already with us" (Sneed, 2017).

Scholars, thus, increasingly argue that complex global sustainability challenges, such as responding to climate change and its devastating impacts, cannot be resolved by new technology or governance alone. They also require a broader, cultural shift towards sustainability (Edwards, 2015; Esbjörn-Hargens and Zimmermann, 2009; Dhiman and Marques, 2016; O'Brien and Hochachka, 2011; O'Brien and Selboe,

2015; Parodi and Tamm, 2018).

In the search for new approaches, examining human beings' 'interiority' or 'inner dimensions' is attracting increased attention (Buchanan and Kern, 2017; Hedlund-de Witt, 2012; O'Brien and Hochachka, 2011). Inner dimensions, as used here, refer to subjective domains within the individual relating to people's mindsets, worldviews, beliefs, values and emotions. In climate adaptation, which is "the process of [societal] adjustment to actual or expected climate and its effects" (IPCC, 2014: 1758), such dimensions have, to date, been largely overlooked (O'Brien and Selboe, 2015; O'Brien and Hochachka, 2011; Wamsler et al., 2017; Wamsler, 2018). In cognate fields, however, research on inner dimensions, transformation¹ and associated features, such as mindfulness, is gaining increasing momentum.

In fact, recent advances in neuroscience and neuroplasticity² (Doty, 2016; Goleman and Davidson, 2017; Lazar et al., 2005; Luders et al.,

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¹ Inner transformation describes changes in the sphere of human inner dimensions/interiority and relates to all kinds of activities that can support such changes. They involve changes in people's consciousness and can be related to mental, religious and indigenous practices/knowledge, such as mindfulness.

² Neuroplasticity refers to the brain's lifelong ability to reorganise itself by forming new neural connections. It allows the neurons (nerve cells) in the brain to adjust in response to learning and practices, such as mindfulness meditation (cf. Goleman and Davidson, 2017). The associated changes in neural profile can, among other things, impact people's readiness for action and helping others (Goleman and Davidson, 2017).

2009; Tang et al., 2012; Valk et al., 2017a, 2017b; Vestergaard-Poulsen et al., 2009), psychiatry (Hölzel et al., 2011), (eco)psychology (Koger, 2015) and education (Powietrzynska et al., 2015) suggest that mindfulness can open new pathways towards achieving sustainability. Mindfulness is generally defined as intentional, non-judgmental attentiveness to the present moment (Kabat-Zinn, 1990). While rooted in Buddhist psychology, it is commonly seen as “an inherent quality of human consciousness” that is accessible to—and empirically assessable in—individuals, independent of their religious or spiritual beliefs (Black, 2011: 1; Baer, 2003). Since its introduction into Western science around 40 years ago, extensive research has linked mindfulness to established theories of attention, awareness, and emotional intelligence (Buss, 1980; Brown et al., 2007; Carroll, 2016; Goleman, 2011). In addition, different theories and methods have been developed for its assessment as both a dispositional characteristic (a medium to long-lasting trait, e.g., Baer et al., 2006), a state/outcome (resulting from mindfulness training, e.g., Valk et al., 2017a, 2017b) and a practice (mindfulness training itself, e.g., Condon et al., 2013) (Black, 2011).

Related results suggest that mindfulness may support a fundamental shift in the way we think about—and ultimately act on—local and global economic, social, and ecological crises (Carroll, 2016; Ericson et al., 2014; Scharmer, 2009; Wamsler et al., 2017). Different studies have found that mindfulness training changes for instance the physical structure of the brain and produces an increase in gray matter concentration in brain regions involved in learning and memory processes, emotion regulation, self-referential processing, perspective taking and response control (Hölzel et al., 2011; Luders et al., 2009; Vestergaard-Poulsen et al., 2009). Others have reported on the role of mindfulness for developing psychological resilience (the ability to rebound after adversity) (Chen, n.d.; Powietrzynska et al., 2015; Thompson et al., 2011) and compassion for others and the environment (Condon et al., 2013; Ericson et al., 2014). More recent studies also indicate that mindfulness may open up for new ontological, epistemological and institutional perspectives in climate change research and planning (Bai, 2013; Osborne and Grant-Smith, 2015; Schwartz, 2011; Wamsler et al., 2017; Wamsler, 2018).

However, knowledge on the mindfulness–sustainability nexus is still scarce (Dhiman and Marques, 2016; Ericson et al., 2014; Inayatullah, 2005; Koger, 2015; Sol and Wals, 2015; Wamsler et al., 2017; Woiwode, 2016) and empirical studies on how inner dimensions and mindfulness might be linked to sustainable climate adaptation are lacking (O'Brien and Hochachka, 2011; Wamsler et al., 2017; Wamsler, 2018). This study addresses this gap. Based on a survey of citizens at risk of severe climate conditions (described in Section 2), we explore if, and how individual mindfulness disposition is correlated with (attitudes and practices for) climate adaptation. The patterns identified are presented in Section 3, followed by a discussion and conclusions (Sections 4–5).

2. Methodology

The mindfulness study was part of a larger, structured survey of citizens at risk of severe climate conditions in the coastal municipality of Lomma, in the Scania region of Sweden. This area was selected as it is expected to be one of the Swedish regions hardest-hit by climate change (Hall et al., 2015; SCCV, 2007). The survey participants were households at risk from current and future climate change, who were identified based on past hazard events and future municipal flood scenarios.

The survey took the form of a written questionnaire, which was sent to 600 households in the municipality.³ Its aim was not to target a representative sample of the population, but rather to focus on information-rich population groups (as regards the research objectives), and to obtain enough variation between a number of features to allow inter-

group comparison (Glaser and Strauss, 1967; Marris et al., 1998). The response rate was 36% (n = 217). There was a 3:2 ratio of men to women among the respondents.

In the survey, individual mindfulness disposition was assessed by four questions, adapted from the Five-Facet Mindfulness Questionnaire (FFMQ) (Baer et al., 2006). The FFMQ is a 39-item standardised instrument based on a 5-point Likert scale that measures mindfulness across five dimensions:

- observing (e.g., “I pay attention to how my emotions affect my thoughts and behaviour”),
- non-reacting (e.g., “When I have distressing thoughts or images, I ‘step back’ and am aware of the thought or image without getting taken over by it”),
- non-judging (e.g., “I criticize myself for having irrational or inappropriate emotions” [*reversed scale*]),
- acting with awareness (e.g., “It seems I am ‘running on automatic’ without much awareness of what I’m doing” [*reversed scale*]), and
- describing (e.g., “I’m good at finding words to describe my feelings”).

The selected mindfulness items had been tested and adapted for Swedish audiences (FFMQ_SWE; Lilja, 2009). To fit the adaptation context of our survey, respondents were asked to answer the mindfulness questions in relation to climate change, preventive actions or in general (see Table S1 in the Supplementary material). An overall mindfulness index was created from the respondents’ rating of the first four dimensions/items. The ‘describing’ dimension/item had to be deleted to avoid repetition and respondent fatigue.

The mindfulness dimensions and index were then assessed in relation to the other survey questions, which asked about respondents’ attitudes and practices for sustainable climate adaptation, and environmental issues in general (Table S1 in the Supplementary material). Sustainable climate adaptation is here understood as individual and collective processes and actions that enable people to cope better with climate impacts, by reducing negative effects on wellbeing and the disruption of key natural resource flows for present and future generations (cf. Eriksen et al., 2011; Tompkins and Eakin, 2012; McNeeley, 2012). The concept recognises that not every adaptation to climate change is a good one, and there is the need to distinguish between desirable and undesirable adaptation processes (Eriksen and O'Brien, 2007). Accordingly, sustainable climate adaptation practices depend on the (level of) inclusiveness and flexibility of the combined set of adaptation measures employed (rather than the effectiveness of a single measure) and how they are linked to institutional support and structures for adaptation mainstreaming (Wamsler and Brink, 2014a, 2014b; Wamsler and Pauleit, 2016). Inclusiveness refers here to the inclusion of measures taken to address all types of risk factors (i.e., hazards, vulnerability, lack of response capacity and lack of recovery capacity (Wamsler and Brink, 2014a)). Flexibility relates to the number and diversity of activities implemented for each type of measure (e.g., including economic, social, physical/technical and ecosystem/nature-based activities (Wamsler and Brink, 2014a)).⁴

A quantitative measure of the level/diversity of adaptation activity was thus created based on a checklist of 14 common household adaptation actions (Wamsler and Brink, 2014a, 2014b) and a free-text option. The listed measures included both proactive and reactive actions and related to economic (e.g., home insurance), social (e.g., warning neighbours), physical (e.g., adapting the house to withstand extreme weather), and ecosystem-based (e.g., use plants to create a more comfortable climate) actions to address different risk factors. Next,

³ The survey was accompanied by a letter, which also included a link to a general description of the larger research project.

⁴ For further explorations, theoretical assumptions, and hypotheses on the potential connection between the two subjects of investigation (i.e., mindfulness and sustainable climate adaptation) that underpin this study see Wamsler (2018).

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