



**Mindfulness in Ethical Consumption: The Mediating Roles of
Connectedness to Nature and Self-control**

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3 **Mindfulness in Ethical Consumption:**
4 **The Mediating Roles of Connectedness to Nature and Self-control**
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6 **Abstract**
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9 Purpose: Ethical consumption is an integral component for the sustainable development in the
10 world and is especially challenging in the Western consumer society. This research
11 demonstrates that mindfulness, a Buddhism-based notion, is associated with two related and
12 distinctive approaches of ethical consumption: refinement and reduction. It examines the
13 psychological mechanisms underlying the effects of mindfulness on these two approaches of
14 ethical consumption. It examines the
15 psychological mechanisms underlying the effects of mindfulness on these two approaches of
16 ethical consumption.
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19 Design/methodology/approach: Self-report data were collected through an online survey with
20 consumers from western societies ($N = 523$).
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22 Findings: The findings show (1) that the significance of mindfulness on both approaches of ethical
23 consumption and (2) that the contrast between the different mechanisms underlying them.
24 Specifically, the mindfulness–consumption refinement link is fully mediated by
25 *connectedness-to-nature* whereas the mindfulness–consumption reduction link is fully
26 mediated by *connectedness-to-nature* and *self-control*. A series of supplementary studies
27 further confirmed the proposed model.
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33 Research limitations/implications: It demonstrates the multifaceted and complex nature of ethical
34 consumption, which is positively associated with mindfulness but through distinctive
35 psychological mechanisms.
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38 Social implications : The findings can be adopted to enhance the effectiveness of mindfulness
39 practice in promoting ethical consumption towards achieving the Sustainable Consumption
40 goal, especially in the West.
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43 Originality/value: The paper makes original contribution by conceptualizing two interrelated and
44 distinctive approaches of ethical consumption and shows how mindfulness promotes both
45 through different mediating pathways. Overall, this study paints a clearer picture how
46 mindfulness relates to ethical consumption.
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52 **Keywords:** Mindfulness; ethical consumption; consumption reduction; consumption refinement;
53 mediating effects
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Mindfulness in Ethical Consumption: The Mediating Roles of Connectedness to Nature and Self-control

1. Introduction

It is inevitable that mindfulness and other practices adopted from Buddhism will find new applications in the modern West, where worldviews and lifestyles are so different from those of Southern and Eastern Asia. — Bodhi (2011, p. 36).

Consumption and its impact on sustainable development has risen to a global top priority. In 2015, the United Nations set out the *2030 Agenda for Sustainable Development* and Sustainable Development Goals, one of which specifically aims to “ensure sustainable consumption and production patterns”, and reduce future economic, environmental, and social costs (United Nations, 2015). In 2017, worldwide material consumption reached 92.1 billion tons, up from 27 billion in 1970, with the rate of extraction accelerating every year since 2000 (United Nations, 2019a). A comparison between high-income and other countries based on the United Nations country classification paints an imbalanced picture: the material footprint per capita of high-income countries is more than 13 times that of low-income countries at 2 metric tons (United Nations, 2019b), the unsustainable consumption is more severe in the West.

To reduce the material footprint and achieve the goal of sustainable consumption, consumers can refine their consumption decisions, such as choosing Fairtrade-certified products or reduce their consumption through choosing a simple and frugal lifestyle. Tensions behind ethical consumption appear to be less salient among consumers in Eastern than Western societies (Pecoraro and Uusitalo, 2014). Such differences might be associated with the ancient wisdom and beliefs of Eastern philosophies that advocate a simple and non-luxury life, long-term

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3 planning, and anti-egoism (Ram-Prasad, 2005), which are more in line with the values and norms
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5 driving ethical consumption. An emerging but rapidly growing body of literature explores the
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7 relationship between ethical consumption and mindfulness, a notion and practice central to the
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9 Buddhist teachings which has been widely adapted and applied in psychotherapy and
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11 psychological science (e.g., Bahl *et al.*, 2016; Ericson *et al.*, 2014; Fischer *et al.*, 2017). Taking a
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13 social psychology perspective of mindfulness, these recent works unanimously demonstrate the
14
15 potential impact of mindfulness on ethical consumption (see a summary of the relevant literature
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17 in Appendix). In Western psychology, mindfulness refers to “the state of being attentive to and
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19 aware of what is taking place in the present”, and emphasizes consciousness, awareness, and
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21 attention (Brown and Ryan, 2003, p. 822). This research argues that mindfulness provides a
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23 unifying framework for understanding consumption refinement and reduction, as both require
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25 awareness, consciousness, and attention to one’s decisions and the consequences. Specifically, it
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27 examines whether and how mindfulness is associated with socially and environmentally
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29 responsible consumption as manifestations of consumption refinement, as well as with voluntary
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31 simplicity lifestyle practices and frugal purchasing as manifestations of consumption reduction.
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38 Thus, this research contributes to the mindfulness–ethical consumption research by
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40 developing a conceptual framework that recognizes the complex and diverse forms of ethical
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42 consumption and identify mindfulness as a common and powerful approach promoting the
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44 various formats of ethical consumption. This research also responds to the calls by Mick (2017)
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46 for more consumer research insights built on Buddhist psychology, and by Bahl *et al.* (2016) for
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48 more research into the transformative potential of mindfulness in various consumption contexts.
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51 The results of an online survey with 523 respondents mainly from Western societies show
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3 significant and robust support of the positive association between mindfulness and the four
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5 different ethical consumption practices.
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8 Second, this research uncovers the distinctive mediation mechanisms underlying the effects
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10 of mindfulness on consumption refinement and reduction, respectively. The burgeoning
11
12 mindfulness research has not provided much answer as to the process of how mindfulness
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14 prompts ethical consumption behaviors, except for a few studies such as Barbaro and Pickett
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16 (2016) (Appendix). Our findings revealed two different mediating mechanisms: *connectedness to*
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18 *nature* but not *self-control* fully mediates the mindfulness–consumption refinement link, while
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20 both *connectedness to nature* and *self-control* mediate the mindfulness–consumption reduction
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22 link. These differential mediating mechanisms significantly advances the existing literature
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24 which examines the effects of mindfulness on only a single dimension of consumption ethics,
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26 such as pro-environmental choices (e.g., Geiger *et al.*, 2018). Moreover, our findings on such
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28 underlying mechanisms provide specific methods through which marketers, social and
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30 environmental activists, and policymakers can harness the power of mindfulness to cultivate
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32 ethical consumerism.
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38 39 **2. Literature Review and Hypothesis Development**

40 41 ***2.1. Ethical Consumption: Refinement and Reduction***

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43 The scope of consumer ethical concerns expands, shifts, and differs across disciplines, and
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45 the literature has generally acknowledged the complex and multidimensional nature of ethical
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47 consumption and hence the difficulty in defining it (Bray *et al.*, 2011). In this study, ethical
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49 consumption is broadly defined as actions, decisions, and choices shaped by concerns for the
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51 well-being of others (e.g., Fairtrade coffee), the natural environment (e.g., less red meat) and
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53 oneself (e.g., overeating) in the consumption process. Consumers' ethical concerns may motivate
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3 them to adopt two interrelated but distinctive approaches to consumption: refinement and
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5 reduction. In consumption refinement, consumers refine their choices by choosing brands
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7 operated by well-performing businesses that exhibit corporate social responsibility, or by buying
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9 and using products that harm the environment less. In consumption reduction, consumers
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11 purposely reduce the current consumption levels through shifting to simple lifestyles or
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13 becoming more frugal in their consumption (Carrigan and Bosangit, 2016). Thus, both
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15 consuming better (*refinement*) and consuming less (*reduction*) are approaches to ethical
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17 consumption. This study suggests that the psychological mechanisms driving them share
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19 commonalities and yet differ at the same time.
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24 Ethical consumption can be driven by political, religious, spiritual, environmental, social, or
25
26 other motivations. For example, Bray *et al.* (2011) show that ethical obligation, inertia, cynicism,
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28 and situational factors (e.g., price of ethical products) influence ethical consumption decisions. In
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30 addition, ethical consumption behavior is influenced by normative social factors or extrinsic
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32 motivations such as social status and reputation (Elliott, 2013) as well as intrinsic factors such as
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34 empathy (Hwang and Kim, 2018) and a cosmopolitan mindset (Moosmayer *et al.*, 2019).
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36 However, the impact of these factors would be less salient if consumers were to make their
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38 consumption choices in a mindless, routine, and automatic way. Therefore, mindfulness, which
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40 is associated with greater self-awareness and moment-to-moment attention, can provide a better
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42 explanation for ethical consumption (Ericson *et al.*, 2014; Fischer *et al.*, 2017).
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47 **2.2. Mindfulness**

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49 Mindfulness (Pāli *sati*, Sanskrit *smṛti*) has a prominent position in Buddhist teaching
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51 (Gethin, 2015; Thich, 2019). The earliest textual records come from ancient Indian Buddhism,
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53 where mindfulness is situated as one of the central components of Buddhist praxis (Sun, 2014).
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3 The introduction of mindfulness-based stress reduction (MBSR) (Kabat-Zinn, 1982) has
4 secularized mindfulness as an intervention to improve cognitive and emotional well-being, which
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6 has further popularized mindfulness in Western societies.¹ Despite being criticized for being
7
8 oversimplified, secularized, and Westernized, mindfulness shares a clear common ground with
9
10 its Buddhist original *sati* in that it emphasizes the presence of the mind and refers to a state of
11
12 consciousness. As a mode of being, it is central to the human experience and is rooted in the
13
14 fundamental activities of consciousness: attention and awareness (Brown and Ryan, 2003;
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16 Brown *et al.*, 2007). Mindfulness is a natural human capacity that varies across individuals in
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18 terms of its frequency and intensity and can be improved through practice and training (Creswell,
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20 2017). Mindfulness training helps develop specific beliefs and intentions toward the self and
21
22 others, such as kindness, compassion, generosity, and equanimity, which are fundamental to
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24 human ethical values related to the animate and inanimate world (Grossman, 2015). Mindfulness
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26 also has positive effects on self-acceptance, self-esteem, and self-compassion, and leads to
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28 prosocial and altruistic behavior (Berry *et al.*, 2018). These behavioral outcomes closely relate to
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30 the acts of ethical consumption (Appendix).
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38 In a review, Fischer *et al.* (2017) note that mindfulness enhances the capacity of individuals
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40 to reflect upon their consumption habits, which in turn encourages sustainable consumption
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42 behavior through increasing the awareness of immediate daily experience, disrupting routines,
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44 cultivating non-material values and well-being, and developing compassion and prosocial
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46 behavior. This echoes Kabat-Zinn's view that mindfulness allows individuals to experience the
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53 ¹ Although discrepancies persist between the usage of the Buddhist term "mindfulness" and its more traditional
54 usage, research has shown that Buddhism and Western psychology have many common grounds. The Buddhist
55 scholar Bodhi (2011) and the psychologist Baer (2011) both agree that inconsistencies in the meanings and usages of
56 mindfulness, although inevitable, can be essential to the application of a valuable philosophical tradition in
57 contemporary society in psychological research, practice, and therapy.
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3 present moment without the distortion of “routinized, habitual and unexamined activity of our
4 thoughts and emotions often involving significant alienation from direct experience of the
5 sensory world and the body” (Kabat-Zinn, 2003, p. 148). Hence, individuals with greater
6 mindfulness are more aware of their present-moment thoughts, emotions, and responses, and are
7 more able to break away from autopilot and mindless consumption practices (Bahl *et al.*, 2016).
8 As such, they are more conscious of acting on their beliefs and addressing their ethical concerns
9 when making consumption decisions (Sheth *et al.*, 2011).

10
11 Based on the above review, this study proposes a theoretical framework (Figure 1) to
12 investigate how mindfulness is associated with the two approaches to ethical consumption:
13 consumption refinement manifested by socially responsible and environmentally responsible
14 consumption behaviors (H1), and consumption reduction manifested by voluntary simplicity
15 practices and frugal purchasing (H2). We also identify two different paths through which
16 mindfulness affects these ethical consumption behaviors (H3 to H6).

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39 **2.3. Mindfulness and Consumption Refinement**

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41 Two manifestations of consumption refinement address ethical concerns in social and
42 environment aspects, respectively. First, consumers may buy options offered by businesses
43 which prioritize social responsibilities (e.g., better hiring practices, active philanthropy) out of
44 social concerns. Such consumption refinement exemplifies consumer social responsibility, a core
45 component of consumer ethics in the same sense that corporate social responsibility (CSR) is a
46 core component of business ethics (Schlaile *et al.*, 2018). Second, consumers with environmental
47 concerns may choose to buy environmentally friendly options while avoiding products that harm
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3 the natural environment. Shopping and consuming in a socially or an environmentally
4 responsible manner demonstrate that consumers are constantly conscious of the well-being of
5 others or the natural environment above and beyond their own desires.
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10 Mindfulness affects socially and environmentally responsible consumption in two ways.
11 First, it promotes *socially* responsible consumption by reducing self-focused concerns, enhancing
12 self–world closeness, and correcting any distortion between perceived internal and external
13 realities (Brown *et al.*, 2016). Theorists informed by Buddhist and organismic psychologies
14 suggest that heightened self-focused concerns are often due to a *lack of awareness* of one’s
15 thought patterns, emotional reactions, desires, and behavioral tendencies (Leary, 2007).
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17 Therefore, a clear and present-moment look at one’s thoughts, emotions, and actions enabled by
18 greater mindfulness should interrupt automatic self-representation and lead to greater self–world
19 connections (Trautwein *et al.*, 2014).
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31 Second, mindfulness increases the concern about the resource footprint, thus promoting *pro-*
32 *environmental* behavior. Many daily decisions and actions are a function of automatic processing
33 (Bargh and Chartrand, 1999). Unless pro-environmental choices become the default, their
34 enactment may depend on focused consideration of options. Mindfulness enhances people’s
35 focus on specific experiences, including feelings and thoughts about the natural world (Bishop *et*
36 *al.*, 2004). When people are mindful, they view subjective well-being and ecologically
37 responsible behavior to be complementary rather than conflictual pursuits, because the quality of
38 consciousness encourages reflection on the ecological impact of one’s behavior (Brown and
39 Kasser, 2005). Mindfulness creates a sensory connection with the world outside, increases the
40 awareness of available sustainable options (Brown and Kasser, 2005), and thus promotes
41 sustainable behavior.
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3 Mindful consumers are more likely to consider the public consequences of their private
4 consumption (Webb *et al.*, 2008). They are more willing to reward or punish companies based on
5 their corporate social responsibility performance. They are also more inclined to prioritize social
6 and environmental criteria over traditional criteria such as quality and price in purchases, and to
7 avoid products that harm the environment. Therefore, we propose:
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15 *H1: Mindfulness is positively associated with consumption refinement that is (a) socially*
16 *responsible and (b) environmentally responsible.*
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19 **2.4. Mindfulness and Consumption Reduction**

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22 Merely substituting consumption options might not lead to a significant reduction in the
23 overall consumption amounts and desires of consumers. The incremental impacts of using
24 socially responsible, ecologically efficient, or “greener” product substitutions might be largely
25 offset by substantial growth in global consumption (Peattie and Peattie, 2009). Reducing
26 consumption could help directly reduce the material footprint by changing the ordinary
27 consumption routines and downshifting consumption frequency, amounts, and activities. Two
28 distinctive approaches—voluntary simplicity lifestyle and frugal purchasing—can achieve such
29 goals. Voluntary simplicity lifestyle refers to limiting material consumption to free one’s money
30 and time to seek for satisfaction of non-material aspects of life (Etzioni, 1998; Huneke, 2005). It
31 emphasizes the values of material simplicity, ecological awareness, desire for smaller but closer
32 community, self-determination, and personal growth, and its primary purpose is to pursue a sense
33 of well-being, identity, and meaning to life via rejecting consumption-oriented lifestyles
34 (Chowdhury, 2018). In contrast, frugal purchasing refers to moderation and restraint in
35 consumption and resourcefulness in the use of goods and services in order to eliminate waste
36 (Pepper *et al.*, 2009). It is usually not voluntarily chosen by individuals and neither is it an
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3 ethically conscious choice but primarily driven by the personal pleasure of savings and waste
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5 reduction (Chowdhury, 2018).
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8 Mindfulness may provide an antidote to consumerism as it promotes reflection on the
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10 ecological impact of one's consumption activities (Rosenberg, 2004). It disrupts and changes
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12 existing lifestyle routines via self-observation practices, which increase both the possibilities and
13
14 choices of lifestyles beyond the mere materialistic pursuits advertised in consumerism (Brown
15
16 and Kasser, 2005). Moreover, mindfulness cultivates openness, generosity, kindness, and mental
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18 clarity, facilitating one's investigation of the self and others, as well as personal experience. This
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20 exploration process helps to develop greater intrinsic and socially oriented values and behaviors,
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22 as opposed to materialistic and hedonistic values (Fischer *et al.*, 2017). Therefore, mindfulness
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24 not only enhances one's well-being or promptencourages ecologically responsible behaviors
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26 (Brown and Kasser, 2005), but further encourages the adoption of values, norms, beliefs, and
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28 practices that favor a voluntary simplicity lifestyle, which contributes to consumption reduction.
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33 Although environmental concerns might not be a key motivator for consumers to live
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35 frugally, frugality is regarded as an independent but significant predictor of spending little on
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37 oneself and engaging in positive environmental behaviors rather than environmental concerns
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39 (Kropfeld *et al.*, 2018). Because frugal purchasing is driven by the pleasure associated with the
40
41 resourceful use and saving of material goods and services, it is thus a lifestyle that relates to self-
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43 interests instead of societal ones (Nepomuceno and Laroche, 2017). As mindfulness enhances the
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45 non-material values in people's lives (Ericson *et al.*, 2014) and is also found to associate with a
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47 tendency toward less monetary-spending consumption activities (Brown and Kasser, 2005), this
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49 study posits that mindfulness is positively associated with frugal purchasing for two reasons.
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54 First, mindfulness may increase the likelihood for an individual to be aware of the pleasure of
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3 saving money and resources (Rick *et al.*, 2008) that drives both a positive attitude toward
4 frugality and frugal consumption practices. Second, mindfulness increases the consciousness of
5 consumption and its consequences which enhance preference toward the efficient use of
6 resources and avoidance of waste, which are also reasons which partly explain frugal purchasing.
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12 Therefore, we propose:

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15 *H2: Mindfulness is positively associated with consumption reduction that involves (a)*
16 *voluntary simplicity lifestyle practices and (b) frugal purchasing.*
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19 **2.5. Mediation by Connectedness to Nature for Mindfulness on Consumption Refinement**

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21 *Connectedness to nature* refers to the extent to which individuals include nature in their
22 representation of themselves (Schultz, 2002), and indicates “individuals’ experiential sense of
23 oneness with the natural world” (Mayer and Frantz, 2004, p. 504). Buddhist principles have been
24 linked to reconnecting self as part of nature (Fabjanski and Brymer, 2017), which might mediate
25 the positive relationship between mindfulness and consumption refinement.
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34 There is a significant and direct association between mindfulness and connectedness to
35 nature (Barbaro and Pickett, 2016). The meta-analysis by Schutte and Malouff (2018)
36 demonstrates that this relationship holds across different demographic populations (e.g., young
37 and old, women and men). They argue that the key characteristics of mindfulness, such as open
38 and non-judgmental awareness and moment-to-moment attention, facilitate the building of nature
39 connectedness. Openness to experience and attentional capacity highly relate to nature
40 connectedness (Nisbet *et al.*, 2009). Moment-to-moment attention increases the richness and
41 vitality of nature experiences (Brown and Ryan, 2003), allowing individuals to engage with
42 nature more fully.
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3 Connectedness to nature can affect consumption refinement in two ways. First,
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5 connectedness to nature may elicit concerns for the wellness of others and of society, leading to
6
7 *socially* responsible consumption behavior. Feelings of being a part of nature elicit positive
8
9 relational emotions such as caring and loving (Vining *et al.*, 2008), and positively predict
10
11 prosocial behavior (Zhang *et al.*, 2014). This is also associated with a greater tendency to take
12
13 the perspective of another person (Mayer and Frantz, 2004), stimulating the desire to develop
14
15 close relationships with other people and engagement in prosocial behavior that supports
16
17 community wellness (Weinstein *et al.*, 2009). Overall, these studies suggest that individuals who
18
19 feel a greater connectedness to nature care about the welfare of other individuals and of society.
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24 Second, connection to nature fosters environmentally responsible consumption, because if the
25
26 natural world is embedded in the self, any behavior that harms the natural world will be
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28 experienced as harming one's self (Mayer and Frantz, 2004). Such connectedness is associated
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30 with environmental values and beliefs (Hoot and Friedman, 2011), environmental concerns
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32 (Davis *et al.*, 2009), and engagement in pro-environmental behaviors such as energy
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34 conservation and recycling (Barbaro and Pickett, 2016). In summary, we hypothesize the
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36 following mediating effects:
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40 *H3: Connectedness to nature mediates the relationship between mindfulness and*
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42 *consumption refinement that is (a) socially responsible and (b) environmentally*
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44 *responsible.*
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47 **2.6. Mediation by Connectedness to Nature for Mindfulness on Consumption Reduction**

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50 Connectedness to nature also mediates the relationship between mindfulness and
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52 consumption reduction. As voluntary simplicity is essentially a practice of conscious living and
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54 the search of authentic self-identity (Huneke, 2005; Kropfeld *et al.*, 2018) as opposed to specific
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3 actors in the marketplace, desires in voluntary simplicity lifestyles cannot be fulfilled through
4 consumption. Instead, they rely on the exploration of the relationship between self and others,
5 including nature and the environment. Voluntarily curtailing one's consumption levels and
6 amounts also relates to altruistic motivations (Shaw and Newholm, 2002), as well as other self-
7 interested desires such as achieving more balance in life (Pepper *et al.*, 2009). Mindfulness,
8 which increases connectedness to nature, thus helps consumers develop their ideological identity
9 with those that live "in a way that is outwardly simple and inwardly rich" (Elgin and Mitchell,
10 1977, p. 255).

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12 Besides, through increasing one's connectedness to nature, mindfulness also increases the
13 awareness of consumption efficiency, waste reduction, and saving. Frugal consumption is
14 negatively associated with materialism but positively associated with self-transcendence values
15 such as universalism and benevolence, both of which place greater emphasis on understanding,
16 appreciation, tolerance, and protection for the welfare of all people and for nature (Pepper *et al.*,
17 2009). Mindfulness promotes a non-material lifestyle, thus also positively influences frugal
18 consumption tendency by increasing connectedness to nature. To summarize:

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*H4: Connectedness to nature mediates the relationship between mindfulness and
consumption reduction that involves (a) voluntary simplicity lifestyle practices and (b)
frugal purchasing.*

45 **2.7. Mediation by Self-control for Mindfulness on Consumption Refinement**

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47 Self-control refers to the ability to override or change one's inner responses, as well as to
48 interrupt undesired behavioral tendencies and refrain from acting on them, which is widely
49 regarded as a capacity to adapt the self so as to live happier and healthier lives (Tangney *et al.*,
50 2004). Mindfulness can be viewed as a nonjudgmental and nonreactive awareness of experiences
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3 and the surrounding environment, and thus facilitates emotion and attention regulation and
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5 reduces the depletion of cognitive resources, which are crucial aspects of the self-control process
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7 (Frieese *et al.*, 2012). Mindfulness involves self-regulation, particularly of automatic or reactive
8
9 autopilot tendencies of the mind (Bahl *et al.*, 2016). Extensive clinical evidence shows that
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11 mindfulness intervention exercises (even for just a few minutes) can foster self-control (Kabat-
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13 Zinn, 2003). Mindfulness facilitates self-control at both activation and exertion phases (Liang *et*
14
15 *al.*, 2018). For the activation of self-control, mindful individuals are more likely to detect their
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17 desires, impulses, and temptations in the present moment and thus avoid acting automatically.
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19 When exerting self-control, mindful awareness frees up cognitive resources that otherwise would
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21 be consumed by elaborating on the desire, and thus conserves the resources required to increase
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23 the capacity for self-control. Thus, we hypothesize a positive association between mindfulness
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25 and self-control capacity.
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31 We further postulate that self-control promotes consumption refinement. Within
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33 consumption refinement, consumers choose options offered by businesses who prioritize social
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35 responsibilities or choose environmentally friendly options. While these choices enhance the
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37 well-being of others or the natural environment, they may involve some costs to the self in terms
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39 of money (e.g., if the environmentally responsible options are more expensive) or time (e.g., if
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41 those options are less convenient). Because pursuing personal gains could often be the natural
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43 and default response, to overcome their automatic selfish impulses, people need advanced
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45 psychological processes such as self-regulation (DeWall *et al.*, 2008).
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50 Several studies show the link between self-control and prosocial behaviors. Self-control
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52 mediates the links between parental attachment and prosocial behaviors across the sexes (Nie *et*
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54 *al.*, 2016). Depletion of self-control reduces altruistic actions; for instance, individuals high on
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3 self-control depletion are less willing to help others (DeWall *et al.*, 2008), but it may not reduce
4 attitudes toward being prosocial (Osgood and Muraven, 2015). Factors such as moral identity
5 can mitigate the negative effect of self-control depletion on prosocial behaviors (Joosten *et al.*,
6 2015). To summarize:

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12 *H5: Self-control mediates the relationship between mindfulness and consumption*
13 *refinement that is (a) socially responsible and (b) environmentally responsible.*
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15 16 17 **2.8. Mediation by Self-control for Mindfulness on Consumption Reduction** 18

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20 Though driven by different motivations, both voluntary simplicity lifestyle and frugal
21 purchasing require strong self-control ability in resisting the consumption temptation
22 surrounding consumers' daily decision-making process (Ortega-Egea and García-de-Frutos,
23 2013). Self-control is regarded as an important determinant of one's ability to resist consumption
24 (Baumeister, 2002; Nepomuceno and Laroche, 2017).
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31 Both voluntary simplicity and frugality are important anti-consumption lifestyles leading to
32 consumption reduction (Kropfeld *et al.*, 2018). As both involve changing one's consumption
33 routines and adapting to simple or frugal lifestyles, enhanced self-control can contribute to
34 lifestyle changes. For example, individuals who choose voluntary simplicity usually try to
35 cultivate self-reliance and increase their control over their daily lives, while minimizing
36 dependence on marketplaces (Huneke, 2005). Moreover, self-regulating consumers can better
37 resist the temptations of and overreliance on immediate materialistic gratification as the only
38 way to obtain pleasure (Nepomuceno and Laroche, 2017). Self-control helps them derive a
39 greater sense of achievement from avoiding excessive consumption, consistent with Rick *et al.*
40 (2008) that frugality is driven by the pleasure of saving rather than the pain of spending. Overall,
41 people with greater self-control capacity can seek happiness by setting up more clear standards
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3 that regulate and monitor their desires and increase their capacity to change their behavior
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5 (Baumeister *et al.*, 1994). We thus hypothesize that self-control increases voluntary simplicity
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7 practices and frugal purchasing.
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10 To summarize, mindfulness helps cultivate healthier and more ethical consumption habits
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12 via increasing one's self-control capacity to repair the fragile self, which are significant motives
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14 for both voluntary simplicity and frugal consumption lifestyles. With an increased self-control
15
16 capability, mindful people can also shift resources to reclaim vital energy, maintain comfort, or
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18 promote their inner growth (Mick, 2017), and in turn increase the tendency to choose an
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20 alternative simple or frugal lifestyle. Thus,
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24 *H6: Self-control mediates the relationship between mindfulness and consumption reduction*
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26 *that involves (a) voluntary simplicity lifestyle practices, and (b) frugal purchasing.*
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29 **3. Method**

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31 We first describe the data collection procedure and the measures, and then conducted
32
33 multiple analyses to assess the relationships between mindfulness and ethical consumption.²
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36 **3.1. Participants and Procedure**

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38 We recruited 546 online participants through Prolific, an online research platform that
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40 resemble Amazon's Mechanical Turk in facilitating reliable and high-quality data collection
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42 (Palan and Schitter, 2018). Participants upon completing the survey could receive US\$3.8. We
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44 applied the demographic filter in Prolific and restricted the participants to those born in the
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53 ² Three additional studies were performed to verify the robustness of our proposed model, which includes analyses
54 using alternative measures of mindfulness, voluntary simplicity, and consumption reduction as well as controlling
55 the direct effects and mediating effects of various personality traits including empathy, self-reflexive consciousness,
56 and cosmopolitan mindsets. Available upon request.
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3 United States or the United Kingdom.³ We eliminated 23 unreliable responses, as these were
4 completed very quickly and the same answers to all the questions were chosen. Table 1 reports
5
6 the sample demographics.
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11 INSERT TABLE 1 ABOUT HERE
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14 **3.2. Measures**

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16 All measures are adopted or adapted from existing literature. Except for those noted below,
17 most of the scales are measured on a five-point Likert scale, anchored “strongly disagree” (1) to
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19 “strongly agree” (5).
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23 *Consumption refinement.* We adopted two dimensions of the Social Responsible Purchase
24 and Disposal (*SRPD*) scale (Webb *et al.*, 2008) on a five-point rating scale (1 = never true, 5 =
25 always true), including (a) socially responsible consumption through purchasing from firms with
26 excellent corporate socially responsible performance (*CSRPF*) (13 items) and (b) environmentally
27 responsible consumption by avoiding buying or reducing the use of products that have negative
28 environmental impacts (*ENVIRON*) (7 items). The remaining dimension on recycling behavior is
29 excluded because it is more about product disposal and is inconsistent with our conceptualization
30 of consumption refinement. The exploratory factor analysis (EFA) identifies *CSRPF* and
31
32 *ENVIRON* as two different factors and the Cronbach’s alpha (α) are .94, and .86, respectively. A
33 composite score was calculated for each factor.
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46 *Consumption reduction.* For *voluntary simplicity*, we adopted the 21-item measure from
47 Huneke (2005) by asking respondents to rate their own consistency in practicing different
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49 aspects of *voluntary simplicity* on a nine-point scale ($\alpha = .87$). These diverse practices include
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55 ³ The US and the UK are typically non-East Asian societies where Buddhist practices and thoughts are increasingly
56 popular (Khazan, 2019).
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3 not only less consumption, but also community engagement, better time use, limit of TV/Ads,
4 and development of spiritual life. Because a person defined as pursuing a voluntary simplicity
5 and development of spiritual life. Because a person defined as pursuing a voluntary simplicity
6 and development of spiritual life. Because a person defined as pursuing a voluntary simplicity
7 lifestyle does not necessarily engage in all these practices simultaneously, we thus believe that
8 each of these practices contributes to, instead of being driven by, voluntary simplicity. In other
9 words, all the 21 practices are formative indicators of voluntary simplicity instead of reflective
10 indicators of the latent variable of voluntary simplicity. Aligning with the literature that suggests
11 that formative scales should be used on the condition that the indicators are “viewed as causing
12 rather than being caused by the latent variable measured by the indicators” (MacCallum and
13 Browne, 1993, p. 533), we treated the Huneke (2005) scale as formative, rather than reflective.
14 For *frugal purchasing*, we adopted a 6-item measure from Pepper *et al.* (2009) ($\alpha = .81$).

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Mindfulness. We adopted the 15-item Mindful Attention Awareness Scale (MAAS), (Brown
33 and Ryan, 2003), which conceptualizes mindfulness as a trait measured on a 6-point scale (1 =
34 almost always, 6 = almost never) ($\alpha = .90$).

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Mediators. (1) *Connectedness to nature.* We adapted the 14-item measure of Mayer and
54 Frantz (2004) and dropped 3 items due to the low factor loading in our model ($\alpha = .92$). (2) *Self-*
55 *control.* The 13-item scale of Tangney *et al.* (2004) was adopted to measure how the respondents
56 typically fared in various aspects of exerting self-control on a 5-point scale (1 = not at all, 5 =
57 very much) ($\alpha = .86$).

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Control variables. We controlled five demographic characteristics: age, household size,
education, employment status, and income. We also controlled personality factors that might
affect consumers' ethical consumption behavior, such as the 5-item scale of *intrinsic religiosity*
($\alpha = .87$), which is found to affect voluntary simplicity (Chowdhury, 2018), the 9-item scale of
spirituality ($\alpha = .92$), taken from the International Personality Item Pool (similar to the Values in

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3 Action Inventory; Peterson and Seligman, 2004), as well as *locus of control* measured on a 23-
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5 item unidimensional scale (Rotter, 1966), with higher (lower) measures reflecting an internal
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7 (external) locus of control.
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9 10 **3.3. Measurement Model**

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12 First, we used AMOS 26.0 to conduct the CFA to estimate our measurement model
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14 including our key unidimensional variables that we adopted from the existing literature following
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16 the two-step approach in Anderson and Gerbing (1988). The initial measurement model analyses,
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18 which included all items of the scales⁴, suggested that the model needed improvements. Three
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20 out of the fourteen items of *connectedness to nature* demonstrated very low factor loading (<
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22 40) and the modification index reported in the initial AMOS results also showed high error
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24 correlations among these three items. With these three items dropped, the revised model yielded
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26 an acceptable fit ($\chi^2 = 4631.08$, $df = 1991$, $p < .001$, goodness of fit (GFI) = .86, comparative fit
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28 index (CFI) = .86, incremental fit index (IFI) = .86, and root mean square error of approximation
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30 (RMSEA) = .05); all coefficients were significant. The Cronbach's alphas (ranging from .81
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32 to .94) were acceptable for construct reliability. The CR exceeded .70 (ranging from .73 to .93).
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34 The average variance extracted (AVEs) were above the .50 threshold, except for Mindfulness
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36 and Self-control. According to Fornell and Larcker (1981), even if AVE is lower than .5, if CR is
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38 higher than .6, the convergent validity of the construct is still adequate. Given that the CR of
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40 Mindfulness (.81) and of Self-Control (.84) were far above the threshold, the convergent validity
41
42 of our measures was established. For the discriminant validity, our findings also fulfilled the
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44 requirement that AVE should exceed the squared correlation (Table 2). Overall, our findings
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55 ⁴ We only included the composite measure of voluntary simplicity by Huneke (2005) in our CFA model because it is
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57 treated as a formative scale in our model testing.
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supported both the convergent and discriminant validities of each scale (Fornell and Larcker, 1981). For each determined factor, we calculated a composite score by averaging all items under the corresponding construct. Table 2 summarizes the key statistics and correlations.

INSERT TABLE 2 ABOUT HERE

Common method bias can be a concern for the self-report data by a single group of respondents used in this research. We ran Harman's one-factor test to assess the potential bias (Podsakoff and Organ, 1986). An EFA with all our variables produced a multifactor solution, accounting for 63.58% of the total variance. The first factor explained 13.66% of the variance, and no single factor accounted for the majority of the variance. We also conducted CFA where all the measured items loaded on one latent factor. This single-factor measurement model showed very poor model fit, suggesting that one-factor solution did not fit our data. Overall, these two tests showed that common method bias was not a major concern in our data.

3.4. Testing for the Relationships between Mindfulness and Ethical Consumption

To test the relationships between mindfulness and ethical consumption, we employed a structural equation modeling approach using AMOS 26. Specifically, our model included the demographic and personality factors (i.e., intrinsic religiosity, spirituality, locus of control) as the control variables predicting ethical consumption.

We first tested the main effect and included only Mindfulness, control variables, and four dependent variables. The modification index in the original model suggested the correlations between the errors of *CSR*, *ENVIRON*, and *voluntary simplicity*, which might be driven by the latent concept of ethical consumption. In addition, following the suggestions of modification index in our initial model estimation, we also allowed the control variables to be correlated. We added these three pairs of error correlations and correlations of the control variables to the

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3 model, which yielded an acceptable fit: $\chi^2 = 67.50$, $df = 12$, $p < .001$, $GFI = .98$, $CFI = .97$, IFI
4 $= .97$, and $RMSEA = .094$. We found significant main effects of mindfulness on *ENVIRON* (β
5 $= .154$, $p < .001$), voluntary simplicity ($\beta = .257$, $p < .001$), and frugal purchasing ($\beta = .394$, p
6 $< .001$), in support of H1b, H2a, and H2b. However, there is no significant main effect on *CSR*.
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8 To test the mediation effects, we examine a fully mediated model (i.e., direct paths from
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10 mindfulness to the dependent variables were removed), which yielded the model fit: $\chi^2 = 132.68$,
11 $df = 33$, $p < .001$, $GFI = .97$, $CFI = .95$, $IFI = .95$, $TLI = .85$, and $RMSEA = .076$. We had also
12
13 run a partially mediated model but find it inferior to the fully mediated model. Our findings
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15 showed that mindfulness significantly affected both connectedness to nature ($\beta = .227$, $p < .001$)
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17 and self-control ($\beta = .565$, $p < .001$). Connectedness to nature significantly affected *CSR* (β
18
19 $= .329$, $p < .001$), *ENVIRON* ($\beta = .473$, $p < .001$), voluntary simplicity ($\beta = .412$, $p < .001$), and
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21 frugal purchasing ($\beta = .124$, $p < .01$). In contrast, self-control only significantly affected
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23 voluntary simplicity ($\beta = .143$, $p < .001$) and frugal purchasing ($\beta = .315$, $p < .001$), showing no
24
25 significant effect on either measure of consumption refinement. Overall, the SEM results
26
27 provided preliminary support for H3, H4, and H6, but not for H5a and H5b.
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38 **3.5. Bootstrapped Mediation Test**

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40 To better capture and test the significance of each specific direct and indirect effect proposed
41
42 in our model, we further followed the mediation effects testing procedures proposed by Zhao *et*
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44 *al.* (2010) and conducted the bias-corrected bootstrapped analysis ($n = 5,000$) and 95%
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46 confidence intervals in AMOS 26. Unlike the previous tests in which we included all four
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48 dependent variables in the same model, we tested the proposed mediating effect for each type of
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50 ethical consumption separately. As we have two different mediators in our model, we used the
51
52 *user-defined estimands* approach in AMOS to construct and specify the estimate for each indirect
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path (e.g., indirect effect of mindfulness through connectedness to nature vs. indirect effect of mindfulness through self-control) on each dependent variable to estimate the significance of each mediating effect. Overall, the four models fit our data very well. The parsimonious fit was $\chi^2/df = 4.461$, which is below the threshold value of 5. Our absolute fit and error measure was around the desired value of .08 (RMSEA = .081). Various model fit indexes all achieved satisfactory levels larger than .90 (CFI ranging from .928 to .934, AGFI = .965). The bootstrapped mediation test results of each model are reported in Table 3.

 INSERT TABLE 3 ABOUT HERE

For consumption refinement, we found significant indirect effects of mindfulness through connectedness to nature on *CSR*P ($\beta = .085, p < .001$) and on *ENVIRON* ($\beta = .118, p < .001$). The indirect effect of mindfulness on consumption refinement through self-control is not statistically significant on either *CSR*P or *ENVIRON*, and consequently there is no mediation through self-control. Overall, our results support H3a and H3b⁵, but not H5a and H5b. The results showed that mindfulness affected individuals' decisions to refine their consumption options and to be socially and environmentally responsible primarily through increasing their concerns beyond themselves (i.e., connectedness to nature) rather than suppressing their consumption preference (i.e., self-control). Furthermore, the results indicated that the direct effect of mindfulness on consumption refinement became insignificant ($\beta = -.006, p > .10$; β

⁵ Although mindfulness has no significant total effect on *CSR*P, however, according Zhao *et al.* (2010), the significance of the total effect of the independent variable is not a condition necessary to establish the mediation effect. Instead, they suggest that the mediation effect is significant as long as the indirect effect through the mediator is significant. In our case, the mediating effect is regarded as significant as the indirect effect of mindfulness on *CSR*P through connectedness to nature is significant.

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3 = .022, $p > .10$) when considering the mediating effects via connectedness to nature, thus
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5 suggesting full mediation.
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8 For consumption reduction, our results show significant indirect effects of mindfulness on
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10 *voluntary simplicity* via both connectedness to nature ($\beta = .140$, $p < .01$) and self-control (β
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12 = .149, $p < .01$). Similarly, the indirect effects of mindfulness on frugal purchasing via
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14 connectedness to nature ($\beta = .030$, $p < .05$) and self-control ($\beta = .177$, $p < .01$) are both
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16 significant. These results support H4a, H4b, H6a, and H6b. Furthermore, the results indicate that
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18 the direct effect of mindfulness on voluntary simplicity and frugal purchasing became
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20 insignificant ($\beta = -.067$, $p > .10$, and $\beta = .068$, $p > .10$ respectively) when controlling for the
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22 mediators, thus suggesting full mediation. Overall, our findings suggested that mindfulness
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24 affected consumption reduction and consumption refinement via different mechanisms as
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26 proposed.
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31 32 **4. Discussions and Conclusions**

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34 The present study incorporates mindfulness—a central component of Buddhism teaching—
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36 into the examination of two interrelated yet distinctive approaches to ethical consumption:
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38 consumption refinement and consumption reduction. As practicing ethical consumption
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40 inherently requires attention and consciousness, mindfulness is found to be positively associated
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42 with both reduction and refinement. Hence, we contribute to the research on ethical consumption
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44 by identifying a common driver—mindfulness—and by contrasting the different psychological
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46 processes through which its effects take place. The findings thus significantly enrich our
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48 understanding of the multifaceted issues of ethical consumption.
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52 This research captures the relationship between mindfulness and two representative practices
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54 in consumption refinement. We have found a significant direct association between mindfulness
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3 and environmentally responsible consumption, and an indirect association between mindfulness
4 and socially responsible consumption via enhancing one's connectedness to nature. It provides
5 additional support to previous findings on the positive effects of mindfulness on prosocial
6 behavior (Condon *et al.*, 2013), but extends to the context of ethical consumption.
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12 Our research is the first to conceptually argue and empirically demonstrate that mindfulness
13 facilitates consumption reduction manifested by voluntary simplicity lifestyles and frugal
14 purchasing. Consumption reduction has received limited attention in the literature, but it
15 critically affects the well-being of individuals, society, and the environment (Carrigan and
16 Bosangit, 2016).
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24 We have identified and compared how mindfulness affects the two forms of ethical
25 consumption via different mediation processes. In the first path, mindfulness facilitates a
26 psychological connection to nature, which in turn leads to engaging in socially and
27 environmentally responsible consumption as well as adapting simpler and more frugal lifestyles.
28 While the mediating role of connectedness to nature in ecological behavior has been
29 demonstrated (Barbaro and Pickett, 2016), this present study shows that connectedness to nature
30 also mediates the effect of mindfulness on another manifestations of consumption refinement
31 (i.e., socially responsible consumption) as well as consumption reduction. It shows that
32 mindfulness, through a greater sense of connection to nature, can promote ethical consumption in
33 an overarching way.
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47 In the second path, mindfulness helps exert self-control and in turn inhibits desire to
48 consumer excessively, because reducing consumption requires substantial change of routines and
49 lifestyles. We show that consumption reduction practices not only require the connectedness to
50 nature, but also the awareness of one's actions, afforded by mindfulness. Although previous
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3 research has demonstrated the importance of self-control in reducing compulsive or impulsive
4 buying (Faber and Vohs, 2004), this study is the first to empirically confirm the mediating effect
5 of self-control on the mindfulness–consumption reduction relationship.
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10 Lastly, we empirically demonstrated the distinctiveness of the two approaches to ethical
11 consumption by incorporating the two potential mediators *simultaneously* in the analyses. Such
12 analyses allowed us to show that different factors emerged as the dominant and significant
13 mediator of the link between mindfulness and either approach of ethical consumption.
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19 Our results provide important social implications. When people are more mindful, they can
20 feel more connected to nature and can develop stronger self-control, which helps them to choose
21 more ethical product options and to resist compulsive and conspicuous consumption.
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26 Mindfulness is a trainable quality (Goleman and Davidson, 2017), in that it can be enhanced
27 through meditation and mindfulness training. Our results imply that it may be useful to include
28 mindfulness practices in ethical education interventions. If mindfulness training can provide a
29 practical means to increase connectedness to nature and improve self-control, such training could
30 be conducive to sustainable consumption, and contribute to shaping lifestyles and consumption
31 cultures in order to be more responsible and ethical. Besides, training can focus on more specific
32 issues, such as understanding one's own consumption patterns (e.g., buying secondhand), which
33 can be incorporated gradually in everyday life (Kirby, 2019). Indeed, recent research shows that
34 specific mindfulness training with situational cues can better bridge the intention–behavior gap
35 for behavioral changes (Papies, 2017).
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49 One limitation of the current study is that our measures of mindfulness reflect chronic
50 dispositions (rather than states) and therefore the relationships with the ethical consumption
51 practices that we reveal are correlational in nature (rather than causal). Future studies could
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include experiments that involve mindfulness interventions to draw causal conclusions.

Longitudinal studies could be further conducted to examine the effects of shorter- or longer-term mindfulness training.

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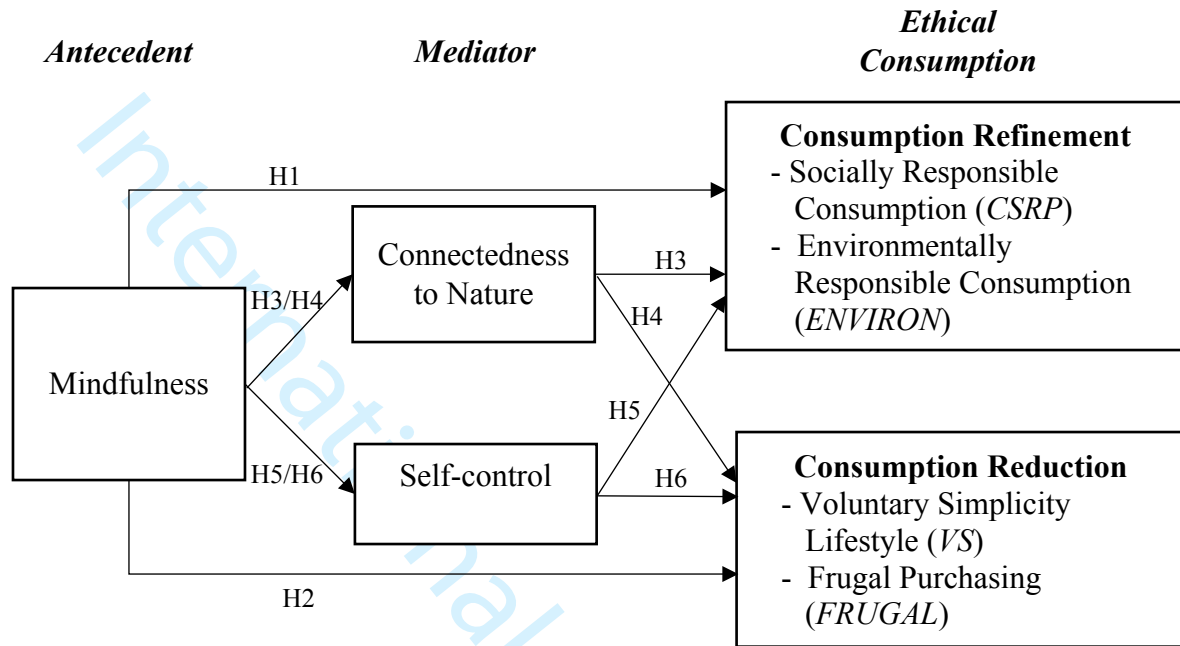
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Figure 1. Theoretical Framework: Effects of Mindfulness on Ethical Consumption



Notes: Control variables are included as drivers of all the dependent variables, but are not shown up in this figure.

Table 1. Descriptive statistics

Demographics	Frequency	Percent	Cumulative Percent	Demographics	Frequency	Percent	Cumulative Percent
Gender				Age			
Female	143	27.34	27.34	Under 18	1	0.19	0.19
Male	380	72.66	100.00	18-24	82	15.68	15.87
Household Size				25-34	192	36.71	52.58
Only me	67	12.81	12.81	35-44	109	20.84	73.42
Two people	158	30.21	43.02	45-54	76	14.53	87.95
Three people	114	21.80	64.82	55-64	50	9.56	97.51
Four people	120	22.94	87.76	65-74	13	2.49	100.00
Five or more people	64	12.24	100.00	Income			
Education				Less than \$12,700	46	8.80	8.80
Below high school	8	1.53	1.53	\$12,700 - \$25,399	92	17.59	26.39
High school or some college	227	43.40	44.93	\$25,400 - \$38,099	104	19.89	46.27
College graduate	205	39.20	84.13	\$38,100 - \$50,799	103	19.69	65.97
Postgraduate degree	83	15.87	100.00	\$50,800 - \$63,499	61	11.66	77.63
Employment				\$63,500 - \$76,199	41	7.84	85.47
Employed full-time	203	38.81	38.81	\$76,200 - \$88,899	28	5.35	90.82
Employed part-time	115	21.99	60.80	\$88,900 - \$101,599	16	3.06	93.88
Self-employed/freelance	68	13.00	73.80	\$101,600 - \$114,299	10	1.91	95.79
Unemployed	137	26.20	100.00	\$114,300 - \$126,999	9	1.72	97.51
				\$127,000 - \$190,500	7	1.34	98.85
				More than \$190,500	6	1.15	100.00

Note: This is based on 523 observations.

Table 2. Descriptive statistics and correlation analysis

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1 CSRP	0.593														
V2 Environmentally Responsible Consumption	0.630 ***	0.505													
V3 Voluntary Simplicity	0.519 ***	0.650 ***	NA												
V4 Frugal Purchasing	0.066	0.213 ***	0.229 ***	0.479											
V5 Mindfulness	0.025	0.124 ***	0.125 ***	0.255 ***	0.355										
V6 Connectedness to Nature	0.331 ***	0.497 ***	0.446 ***	0.207 ***	0.226 ***	0.517									
V7 Self-control	0.045	0.155 ***	0.274 ***	0.335 ***	0.565 ***	0.237 ***	0.329								
V8 Age	-0.076 *	0.026	0.077	0.114 ***	0.200 ***	0.093 **	0.141 ***	NA							
V9 Household Size	0.033	0.031	0.001	-0.096 **	0.140 ***	-0.010	-0.022	-0.271 ***	NA						
V10 Education	0.055	0.131 ***	0.183 ***	0.061	0.007	0.094 **	0.113 ***	0.014	-0.111 **	NA					
V11 Employment	-0.030	0.052	0.006	0.126 ***	0.067	0.048	0.062	0.159 ***	0.083 *	-0.189 ***	NA				
V12 Income	-0.042	-0.061	-0.033	-0.059	0.035	-0.009	0.087 **	0.006	0.183 ***	0.205 ***	-0.275 ***	NA			
V13 Intrinsic Religiosity	0.200 ***	0.134 ***	0.315 ***	0.049	0.047	0.122 ***	0.176 ***	0.083 *	0.023	0.079 *	0.050	-0.038	0.702		
V14 Spirituality	0.193 ***	0.114 ***	0.265 ***	0.048	0.105 **	0.179 ***	0.220 ***	0.123 ***	0.007	0.029	0.055	-0.031	0.833 ***	0.581	
V15 Locus of Control	-0.033	0.016	-0.073 *	0.061	-0.092 **	-0.103 **	-0.123 ***	0.024	-0.011	-0.071	0.001	-0.033	-0.067	-0.154 ***	NA
Mean	2.695	3.257	4.491	4.896	3.841	3.401	2.980	3.725	2.916	2.694	2.266	4.126	1.904	2.230	33.501
St. Dev.	0.938	0.907	1.253	0.926	0.824	0.675	0.677	1.300	1.237	0.749	1.224	2.362	1.051	1.079	2.056
Min.	1.000	1.000	1.000	1.833	1.533	1.143	1.154	1.000	1.000	1.000	1.000	1.000	1.000	1.000	27.000
Max.	5.000	5.000	8.429	7.000	5.933	4.929	4.846	7.000	5.000	4.000	4.000	12.000	5.000	5.000	41.000

Note: This is based on 523 observations. ***= <0.01 , **= <0.05 , *= <0.1 . AVE of each key construct in our model is reported in the diagonal of the table. AVEs for voluntary simplicity and locus of control were not computed as they were treated as formative scales in our model.

Table 3. Mindfulness: bootstrapped mediation test

Path/Dependent Variable				Socially Responsible Consumption	Environmentally Responsible Consumption	Frugal Purchasing	Voluntary Simplicity
Direct Effect							
Mindfulness	---	Connectedness to Nature	Dependent Variable	0.227 ***	0.227 ***	0.227 ***	0.227 ***
Mindfulness	---	Self-control	Dependent Variable	0.565 ***	0.565 ***	0.565 ***	0.565 ***
Connectedness to Nature	---	Dependent Variable	Dependent Variable	0.331 ***	0.472 ***	0.117 ***	0.419 ***
Self-control	---	Dependent Variable	Dependent Variable	-0.044	0.031	0.278 ***	0.179 ***
Mindfulness	---	Dependent Variable	Dependent Variable	-0.006	0.022	0.068	-0.067
Age	---	Dependent Variable	Dependent Variable	-0.105 **	-0.019	0.018	0.027
Household Size	---	Dependent Variable	Dependent Variable	0.015	0.054	-0.067	0.026
Education	---	Dependent Variable	Dependent Variable	0.022	0.106 ***	0.046	0.116 ***
Employment	---	Dependent Variable	Dependent Variable	-0.042	0.025	0.098 **	-0.031
Income	---	Dependent Variable	Dependent Variable	-0.050	-0.086 **	-0.054	-0.077
Intrinsic Religiosity	---	Dependent Variable	Dependent Variable	0.132 *	0.118 *	0.026	0.320 ***
Spirituality	---	Dependent Variable	Dependent Variable	0.042	-0.084	-0.061	-0.120 *
Locus of Control	---	Dependent Variable	Dependent Variable	0.018	0.078 **	0.108 ***	-0.001
Mediation Effect							
Mindfulness	---	Connectedness to Nature	Dependent Variable	0.085 ***	0.118 ***	0.030 **	0.140 ***
Mindfulness	---	Self-control	Dependent Variable	-0.028	0.019	0.177 ***	0.149 ***
Model Fit Index							
Chi Sq/df				4.461	4.461	4.461	4.461
RMR				0.066	0.068	0.068	0.073
CFI				0.928	0.932	0.928	0.934
AGFI				0.965	0.965	0.965	0.965
RMSEA				0.081	0.081	0.081	0.081

Note: This is based on 523 observations. ***= <0.01 , **= <0.05 , *= <0.1 .

Appendix: Select recent studies investigating mindfulness and ethical consumption

Study*	Research approach	Mindfulness	Ethical consumption behavior outcomes	Mediating mechanisms and effects
Literature reviews				
Ericson <i>et al.</i> , 2014, <i>Ecological Economics</i>	Literature review and conceptual framework	Awareness, Mindfulness mediation	Sustainable behavior, Pro-environmental intention	(1) Well-being, (2) values, empathy, and compassion
Bahl <i>et al.</i> , 2016, <i>J. Public Policy & Marketing</i>	Literature review	Attention, acceptance, & awareness	Consumer, societal, and environmental well-being	N/A
Fischer <i>et al.</i> , 2017, <i>J. Cleaner Production</i>	Literature review	Awareness of moment to moment experience	N/A	N/A
Lim, 2017, <i>J. Business Research</i>	Literature review	Awareness and attention	Responsible consumption	N/A
Empirical studies				
Brown and Kasser, 2005, <i>Social Indicators Research</i>	Survey	MAAS	Subjective well-being, ecologically responsible behavior	N/A
Amel <i>et al.</i> , 2009, <i>Ecopsychology</i>	Survey	FFMQ (only 2 subscales including acting with awareness & observing)	Single-item Green Scale (i.e., frequency of choosing sustainable option)	N/A
Jacob <i>et al.</i> , 2009, <i>Social Indicators Research</i>	Mailed survey	4-item scale to measure mindfulness meditation practice	11 items of ecologically sustainable behavior, including 4 items for recycling, 3 items for sustainable household choices, and 4 items for sustainable food practices	N/A

Ruedy and Schweitzer, 2011, <i>J. Business Ethics</i>	Questionnaire survey and lab experiment	MAAS	Tendency to make ethical decisions, measured with the Self-reported Inappropriate Negotiation Strategies Scale (SINS) such as cheating	N/A
Williams and Grisham, 2012, <i>Cognitive Therapy Research</i>	Surveys	MAAS	Impulsivity and Compulsive buying	N/A
Barbaro and Pickett, 2016, <i>Personality and Individual Differences</i>	Surveys	FFMQ (composite score of the five facets)	17 daily pro-environmental behaviors	Connectedness to nature
Park and Dhandra, 2017, <i>Personality and Individual Differences</i>	Survey	CAMS-R (Awareness, attention, present-focus, non-judgement)	Impulsive buying tendency	Four dimensions of emotional intelligence
Böhme <i>et al.</i> , 2018, <i>Sustainability</i>	Interview, Experiment	8-week mindfulness-based interventions, CHIME-A scale (only use the three subscales related to mindful awareness)	Sustainable consumption behavior in food and clothing, sustainable consumption attitudes, material values, compensatory consumption	N/A
Geiger <i>et al.</i> , 2018, <i>Frontiers in Psychology</i>	Online surveys	KIMS, Awareness CHIME	44 Ecological Behaviors (GEB scale)	Health behavior
Panno <i>et al.</i> , 2018, <i>Environment and Behavior</i>	Surveys	MAAS	Pro-environmental behavior	Social dominance orientation
Dhandra, 2019, <i>Ecological Economics</i>	Survey	MAAS	Life satisfaction, green purchase intention, social conscious purchasing, frugal purchasing, materialism	N/A

* In chronological order.

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