

WORKPLACE GREENERY AND EMPLOYEE GREEN BEHAVIOR: A MODERATED-MEDIATION MODEL

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ABSTRACT

Purpose. The implementation of sustainable corporate policies and practices requires that employees engage in green behavior. Understanding the drivers of employee green behavior is a fundamental research question. This paper extends the scholarship on the micro-foundations of employee green behavior by examining workplace greenery as an antecedent of employee green behavior.

Design/methodology/approach. Drawing from theories in environmental psychology (biophilic design, well-being and nature relatedness), the paper studies the mediating role of well-being and the moderating role of employee nature-relatedness in a three-wave panel study, conducted nine months apart in a sample of white-collar workers.

Findings. Workplace greenery influences the green behavior of employees; whereas the effect is direct for employees with low nature relatedness, for employees high in this trait the effect is mediated by well-being.

Practical implications. Workplace greenery emerges as a practical environmental cue that contributes to achieving the environmental goals of the company reducing its environmental impact. Organizations may consider investing in creating greener workspaces as it implies a double dividend: for employees with stronger environmental identities, these plants enhance well-being and indirectly foster green behavior, but it will encourage green behavior in employees without such an identity.

Social implications. The insights provided about the complex interplay between workplace greenery, nature relatedness, well-being, and environmental behavior can guide the development of targeted and more strategic workplace interventions that foster greener and happier employees and organizations.

Originality/value. This study contributes to the micro-foundations of employee green behavior in three ways. First, it reveals that workplace greenery, an under-researched organizational factor, may be used as a cultural artifact to promote green behavior among employees. Second, it enriches our understanding of the psychological mechanisms leading to employee green behavior. Finally, it expands on the individual determinants of employee green behavior, underscoring the importance of considering nature relatedness in green human resource management.

Keywords: employee green behavior; nature relatedness; workplace greenery; green organizational culture; well-being

1. Introduction

The current socioenvironmental crisis exemplified in global environmental problems such as climate change has motivated organizations in all industries to implement sustainable policies and practices that can curb the negative environmental impacts (Cucino *et al.*, 2023) and enable sustainable value creation (Manninen *et al.*, 2023). Employee green behavior (EGB hereafter) is fundamental for achieving lower organizational environmental impact (Young *et al.*, 2015). EGB can be defined as “scalable actions and behaviors that employees engage in that are linked with and contribute to or detract from environmental sustainability” (Ones and Dilchert, 2013: 87). Not only is EGB necessary for organizations’ building resources and capabilities that enable greater social, environmental, and economic performance, but it also has significant consequences for employees (e.g., greater job satisfaction) (Katz *et al.*, 2022; Norton *et al.*, 2015; Saifulina and Carballo-Penela, 2017). Because EGB is critical for successfully integrating sustainability in organizational practices (Norton *et al.*, 2017),

identifying factors that encourage or hinder employee engagement in green initiatives has become a key research focus (Zacher *et al.*, 2023).

Organizational culture –the collective system of meanings operating in an organization (Pettigrew, 1979)- has been found one of the key determinants of EGB (Katz *et al.*, 2022; Norton *et al.*, 2017; Tang *et al.*, 2023; Yuriev *et al.*, 2017; Zacher *et al.*, 2023). Organizational cultures can be embedded using different artifacts, such as texts, practices, or workspace designs (Schein, 2010). Whereas past work on EGB has examined the influence of environmental policies and practices (Norton *et al.*, 2014; Tang *et al.*, 2023), the influence that other material artifacts such as the design of physical environments may have on EGB has been overlooked. However, workspace design may operate as a “cultural showcase” that both cues and develops an organizational culture supportive of environmental performance (Norton *et al.*, 2021). Specifically, we focus on workplace greenery or the addition of natural elements such as plants or representations of nature (e.g., artificial plants or pictures of nature) to indoor workspaces (Klotz and Bolino, 2021). Drawing from theories on biophilic design (Klotz and Bolino, 2021; Norton *et al.*, 2021), well-being (Kaplan, 1995; Kasser, 2017; Ulrich *et al.*, 1991) and Nature Relatedness (Tang *et al.*, 2015), we investigate whether variations in workplace greenery can account for differences in EGB and the mechanisms and boundary conditions of this relationship.

Extending the mechanisms explaining the relationship between nature exposure and green behavior, we propose that the relationship between workplace greenery and EGB is mediated by employee well-being. According to Attention-Restoration and Stress Reduction theories (Kaplan, 1995; Ulrich *et al.*, 1991), nature exposure increases cognitive and emotional energy that, in turn, augments individual well-being. This relationship is supported by studies on biophilic ergonomics showing that exposure to

workplace greenery correlates with employee well-being (Dravigne *et al.*, 2008; Kaplan, 1993; Kaplan *et al.*, 1996; Largo-Wight *et al.*, 2011; Pati, *et al.*, 2008). In turn, greater well-being drives green behavior, because individuals with more well-being are less materialistic and have more resources to engage in effortful green actions (Kasser, 2017). Finally, acknowledging that employee performance and well-being result from the congruence between organizational and individual values (Chatman and O'Reilly, 2016), we propose that the influence of workplace greenery on EGB is moderated by employee nature relatedness (NR hereafter). NR “encompasses one’s appreciation for and understanding of our interconnectedness with all other living things on the earth” (Nisbet *et al.*, 2009: 718). Employees higher in this trait find nature exposure more restorative and experience greater well-being (Klotz and Bolino, 2021; Martin *et al.*, 2020); thus, they will be more likely to engage in EGB. In contrast, the well-being of employees lower in NR would be less affected by workplace greenery and thus the effect of workplace greenery on their EGB would be lessened.

Bringing insights from different theories in environmental psychology research (Kaplan, 1995; Kaplan *et al.*, 1996; Tang *et al.*, 2015) into EGB scholarship, this paper makes a threefold novel contribution to the literature. First, it extends our understanding of the micro-foundations of EGB (Zacher *et al.*, 2023) by examining the influence on EGB of workplace greenery, an under-researched cultural artifact. In doing so, it provides evidence of other organizational factors that may drive EGB (Norton *et al.*, 2015). Second, the study responds to calls for expanding the individual determinants of EGB (Lo *et al.*, 2012) and specifically for the examination of positive individual traits (Meyer and Rutjen, 2022) by showing the role of employee nature relatedness on EGB. Finally, it enriches the psychological mechanisms explaining why green organizational cultures influence EGB (Alzaidi and Yihanna, 2022; Norton *et al.*, 2015) by demonstrating the

mediating role of well-being, a mechanism seldom studied in past studies (for an exception see Ahmed *et al.*, 2020). The insights from this study also provide practical recommendations to managers.

2. Conceptual framework

2.1. Cultural artifacts and their influence on EGB

Employee behavior is fundamentally shaped by organizational cultures (Chatman and O'Reilly, 2016; Schneider *et al.*, 2013). Culture is “a pattern of shared basic assumptions learned by a group as it solved its problems of external adaptation and internal integration” (Schein, 2010: 18). These assumptions are channeled or embedded in manifold visible artifacts (Schein, 2010). In the context of EGB, environmental or CSR strategies, Green Human Resource Management practices or environmental communications have been the most studied artifacts of organizational culture (Katz *et al.*, 2022; Norton *et al.*, 2015; Norton *et al.*, 2017; Shah and Soomro, 2023; Young *et al.*, 2015; Zafar *et al.*, 2023).

However, in addition to policies and practices, organizational culture is embedded in the physical layout and design of workspaces (Schein, 2010). Specifically, theories on biophilic design defend that nature exposure is a potential strategy for developing green corporate cultures (Norton *et al.*, 2021). Biophilic design aims to facilitate contact with nature at the workplace by adding natural elements or representations of nature in workspaces (Klotz and Bolino, 2021). The inclusion of natural elements would operate as a cue of corporate values of sustainable development and remind employees of the need to protect nature which may result in greater EGB (Norton *et al.*, 2021). Support for this hypothesis is found in studies showing that following nature exposure, individuals are more likely to engage in green behavior (Ibanez and Roussel, 2022; Zelenski *et al.*, 2015), because nature exposure increases the salience of the importance of nature, makes

individual more aware of nature and this would lead to greater EGB (Klein and Hilbig, 2018). Consistent with this argument and evidence, the introduction of greenery in the workplace may act as a cultural artifact that may influence EGB.

H1. There will be a significant and positive relationship between workplace greenery and employee green behavior.

Yet, evidence about the influence of nature exposure on green behavior is mixed (Lange and Truysens, 2022). To disambiguate this conflicting evidence, past work has called for greater attention to mechanisms and boundary conditions of the relationship between nature exposure and green behavior (Klein and Hilbig, 2018; Zelenski *et al.*, 2015) to which we turn our attention next.

2.2. The mediating role of well-being

To explain why nature exposure may drive greater green behavior, past work has discussed and tested mechanisms such as an increased salience of nature or the development of green attitudes (e.g., Klein and Hilbig, 2018; Zelenski *et al.*, 2015). To extend this knowledge, we propose a novel psychological mechanism, overlooked in past work. Specifically, we contend that the relationship between indoor nature exposure and EGB is mediated by employee well-being. Support for this mechanism is found in different theories. First, this mechanism is consistent with affective accounts of the influence of organizational cultures. This scholarship shows that cultures instill positive affects among employees (e.g., job satisfaction, passion, or positive emotions) (Meyers and Rutjen, 2022; Saifulina and Carballo-Penela, 2017) and this leads them to perform behaviors highly valued in the organization. Second, it is consistent with research examining the relationships between nature exposure, well-being and green behavior, as discussed next.

The positive relationship between nature exposure and well-being is supported by Attention-Restoration Theory (Kaplan, 1995) and Stress Reduction Theory (Ulrich et al., 1991): nature exposure increases individuals' cognitive and emotional energy, which results in greater well-being (Klotz and Bolino, 2021). There is much evidence about the positive effects of nature exposure on employees' well-being: the amount of indoor natural items that employees are exposed to correlates negatively with stress (Bringslimark *et al.*, 2007; Largo-Wight *et al.*, 2011; Lottrup *et al.*, 2013; Trau *et al.*, 2016) and negative emotions (Li *et al.*, 2022) and positively with quality of life (Dravigne *et al.*, 2008) and well-being (Douglas *et al.*, 2022; Korpela *et al.*, 2017a; Korpela *et al.*, 2017b). Formally, we hypothesize

H2a. There is a significant and positive relationship between exposure to workplace greenery and well-being.

In turn, well-being theories have shown that individuals experiencing greater well-being have less materialistic values, are less prone to overconsumption, and are more willing to engage in eco-friendly (Kasser, 2017) and pro-social actions (Lane, 2017). Greater well-being gives individuals the resources to engage in pro-social behaviors such as EGB (Lange and Truyens, 2022; Zelenski *et al.*, 2015). Confirming this, several studies have found a correlation between individual well-being and green behavior (Brown and Kasser, 2005; Ganglmair-Wooliscroft and Wooliscroft, 2016; Manríquez-Betanzos *et al.*, 2016; Richardson *et al.*, 2020) also in the workplace (Ahmed *et al.*, 2020). Consequently, we formally hypothesize

H2b. There is a significant and positive relationship between employee well-being and EGB.

2.3. *The moderating role of employee nature relatedness*

Although green culture is one of the drivers of EGB, past work has shown that EGB results from the interaction of organizational and individual factors (Katz *et al.*, 2022; Lo *et al.*, 2012; Lülfs and Hanh, 2013; Norton *et al.*, 2015; Tang *et al.*, 2023; Wahab, 2017; Zacher *et al.*, 2023). Employees perceive and respond differently to organizational green policies, depending on their attitudes towards the environment: employees with more supportive attitudes exhibit greater EGB (Tang *et al.*, 2023). Despite the importance of individual traits in explaining distinct responses to organizational factors, past work has only examined the influence of the Big Five personality factors, showing that those higher in openness to experience, conscientiousness or agreeableness are more likely to engage in EGB (Tang *et al.*, 2023).

Another individual trait that may explain differences in EGB performance is Nature Relatedness (NR). NR “encompasses one’s appreciation for and understanding of our interconnectedness with all other living things on the earth” (Nisbet *et al.*, 2009: 718). As NR theory shows, individuals high in NR integrate nature in self-construal, developing an intrinsic motivation to protect and care for nature (Nisbet *et al.*, 2019). This trait would explain different responses to nature exposure in the workplace. Individuals with greater NR would be more likely to engage in EGB. Studies on consumers show the relationship between NR and performance of green behavior (Gifford and Nilsson, 2014; Nisbet *et al.*, 2019; White *et al.*, 2019): the more consumers integrate nature into their self-construal, the more likely are to carry out actions to protect nature or to avoid harm to nature, because harming nature would be akin to harming oneself (Bragg, 1996). Reinforcing this argument, some studies have shown that individuals with high and low NR are differently influenced by exposure to nature and this is reflected in greater (or lower) green behaviors (Klein and Hilbig, 2018; Martin *et al.*, 2020). For instance, Ojala and colleagues (2009) demonstrated that when individuals with a high connection with

nature were exposed to outdoor nature, they shifted significantly more their ecological worldview than those with a low connection; the authors explained this finding by arguing that the strong emotional bond with nature prompted to adopt more ecologically centered beliefs. Another study found that exposure to nature positively affected donations to green causes, but only for those individuals who already possessed a strong sense of connectedness to nature so that a previous connection with nature was essential for the behavioral effects (Arendt and Matthes, 2016).

Not only may the direct effect between workplace greenery and EGB be moderated by employees' nature relatedness, but also the proposed mediation of well-being. Meta-analytical evidence has shown a moderate-to-large effect of NR on well-being (Capaldi *et al.*, 2014; Pritchard *et al.*, 2020). This finding is attributed to the distinct restorative potential of nature exposure depending on the individual's nature relatedness (Berto *et al.* 2018; Kaplan, 1995; Morton *et al.*, 2017; Tang *et al.*, 2015). Individuals with higher levels of NR view natural environments as more attractive and fascinating (Tang *et al.*, 2015), experience more positive emotions when exposed to nature (Berto *et al.*, 2018; Menardo *et al.*, 2021), and tend to seek experiences in nature to a larger extent (Rosa *et al.*, 2020). For these reasons, individuals high in NR experience more well-being following nature exposure.

Drawing from this evidence, we defend a moderated-mediation model, so that employees with greater NR will experience greater well-being from nature exposure and will be more likely to engage in EGB.

H3. The relationship between nature exposure and EGB and the mediation of well-being will be moderated by nature relatedness, so that the relationship between nature exposure, well-being and EGB will be greater(lower) for employees with high(low) nature relatedness.

Figure 1 depicts a visual summary of the conceptual model.

[INSERT FIGURE 1 OVER HERE]

3. Method

3.1. Data collection

Data were collected at three points in time (T1, T2 and T3) with an online questionnaire administered by the panel of a commercial marketing research company. The questionnaire was administered following the Ethical Guidelines regarding informed consent and anonymization. The target population was white-collar workers residing in Spain. A priori power analysis for multiple linear regression with a small to medium effect size (.10), power of .95, and alpha of .05 with 2 predictors suggested a sample size of 132. Accordingly, we oversampled at T1 to ensure that we would reach that sample size of 132 at T3.

1,203 individuals filled up the questionnaire time 1 (T1) providing data regarding demographics, exposure to workplace greenery and NR. Three months later (hereafter T2), all respondents were contacted again and asked to complete a measure of well-being. A valid sample of 608 individuals was obtained. Finally, 6 months after T2, individuals were contacted again (T3) to ask for data regarding EGB. A final sample of 283 individuals was obtained, well over the target size. 50.2% were male; $M_{age}=42.86$ years ($SD=9.85$); 73.85% were married or lived with their partners; 78.80% had university studies and 27.92% had a managerial position in the firms. The industries represented in the study were professional services (24.7%), public administration (16.3%), education (10.6%), building (5.3%), banking (3.5%), and energy (3.2%). These industries were

selected due to their significant contribution of white-collar employees to Spain's labor market, according to Official Statistic Bureau data 2023, and ensure the representativeness of the sample.

3.2. Measures

Workplace greenery was collected at T1 using the Nature Contact Questionnaire (Largo-Wight *et al.*, 2011) as the sum of the natural elements that employees reported being exposed to from their workstations.

Natural relatedness was collected at T1 with the 6-item, 7-point Likert scale taken from Nisbet and Zelenski (2013). This brief scale has been shown to have good reliability and validity in Spanish populations (Merino *et al.*, 2020). Sample items included "My ideal vacation spot would be a remote, wilderness area" or "My relationship to nature is an important part of who I am" ($\alpha=0.91$).

Well-being was measured at T2 with 7 items from the Oxford Happiness Questionnaire (Hills and Argyle, 2002), whose psychometric properties had been validated in Spanish samples (Tomás-Sábado *et al.*, 2014). Sample items comprised "I find beauty in some things" or "I am well satisfied about everything in my life" ranging from "1= strongly disagree" to "6 = strongly agree" ($\alpha=0.77$).

EGB was measured at T3 with a 5-point, 10-item Likert scale, taken from Robertson and Barling (2017). The measure includes three facets of EGB: self-enacted ("At work, I recycle whenever possible"), organizational ("I persuade my organization to purchase environmentally friendly products"), and co-worker ("I help my co-workers be environmentally friendly at work") ($\alpha=0.94$).

Control Variables. We have considered recommendations related to control variable usage (e.g., Carlson and Wu, 2008; Spector and Brannick, 2011) and we have employed

a quite parsimonious model. Accordingly, the only control variables included were gender, age, education (measured at T1), and tenure (measured at T2) as these variables may influence EGB and well-being (Katz *et al.*, 2022; Norton *et al.*, 2017; Saifulina and Carballo-Penela, 2017; Wiernick *et al.*, 2016).

3.3. Analyses

As data were gathered at three different points in time, we do not expect problems of common method bias. Before analyzing data, we checked for attrition bias using ANOVA analysis. Then, we employed a multigroup structural model to test the proposed moderated mediation model. This method allows to assess whether two or more variables have the same/different relation across groups and has been suggested as a powerful alternative for assessing the effect of a moderator variable in a mediated model because it is a robust framework to test complex configurations simultaneously (Hawkins *et al.*, 2021; Manohar *et al.*, 2020; Redondo *et al.*, 2023). Thus, following recommendations, we first checked for the adequacy of the scales by analyzing the measurement model and then the multigroup structural model. Accordingly, the total sample was divided into two groups according to the median reported by NR: high(low) NR are those individuals with NR over(under) the median.

We initially checked for the measurement invariance to ensure that the measures used in different conditions/groups yielded equivalent representations of the same constructs. This is key to avoid errors, to accentuate the precision of estimators and to increase the power of statistical tests of hypotheses (Hair *et al.*, 2010). Then, to check for the possible moderation of NR, several models were estimated. First, we estimated the unconstrained model, in which the structural paths were freely estimated for each group (low and high NR), allowing the moderator to exert different effects on every structural path. As no constraint is imposed, this model is always the one with best fit, reflected in

the smallest χ^2 . Then, this model was tested against three alternative models; in each of them, one specific structural path was constrained to be equal for both groups (partially constrained models) to assess if that specific path was moderated by NR. As each of these models have a constrained path, the corresponding model fit is worse than the one in the unconstrained model. Then, the χ^2 fit measure of these partially constrained models was compared to the corresponding χ^2 in the unconstrained model. Using this technique, we confirmed moderating effects in those paths where significant deterioration in model fit was found between the corresponding partially constraint model and the unconstrained model. All the models were run adding control variables (gender, age, education, and tenure) to test the hypotheses. Additionally, to check for the mediating role of well-being we analyzed the indirect effect of indoor nature exposure and EGB. To ensure the significance, we conducted bootstrapping (sample size of 200) using the bias-corrected percentile method (Preacher and Hayes, 2008). The analyses were conducted using SPSS v.28 and AMOS v.28, a tool widely used and rigorous for testing causal models in social sciences and business research (Memon et al., 2019; Rönkkö and Evermann, 2013).

4. Results

4.1. Attrition bias check

Because data was collected at three separate points in time, it is necessary to assess attrition bias. For this, an ANOVA analysis between drop-outs and follow-ups was run. Results in Table I show no significant differences between the two groups for any of the variables except for age. As will be shown later, age was not statistically significant in any of the relationships in the structural model. So, we can conclude attrition bias is not a threat.

[INSERT TABLE I OVER HERE]

4.2. Confirmatory factor analyses and measurement invariance

To assess the quality of the measurement model, two confirmatory factor analyses (CFA) were conducted. The first one was employed to assess the validity of the measure and the second one to ensure measurement invariance. The two-construct measurement model was compared with an alternative nested model in which the two different constructs were set to load on a single one. The two-construct model significantly fitted data better than the alternative model, confirming construct discriminant validity (Table III) and, therefore, being the (final) measurement model.

[INSERT TABLE III OVER HERE]

The measurement model presented a good fit ($\chi^2 = 536.052$; $df = 223$;

GFI=0.842; IFI=0.935; TLI=0.926; CFI=0.935; SRMR=0.071). The CFA standardized regression weights (SRW) were significant ($p < 0.001$), all of them over 0.5, supporting the convergent validity of the scales (Table IV).

[INSERT TABLE IV OVER HERE]

We assessed measurement invariance on the constructs well-being and EGB, conducting multigroup analysis in the measurement model composed by those constructs. Thus, we first estimated the unconstrained measurement model to specify the same factor structure across groups but allowing all parameters to vary. Then, the unconstrained measurement model ($\chi^2=506.490$; $df=228$; $\chi^2/df=2.221$) was tested against a model with all the regression weights fixed to be equal for both groups, high and low NR ($\chi^2=514.055$; $df = 243$; $\chi^2/df=2.115$), thus, a model with imposed measurement invariance. As the variation in model fit ($\Delta \chi^2=7.565$, $\Delta df=15$) was not statistically significant ($p=.940$), measurement invariance of well-being and EGB between the two groups was awarded.

We ran the structural unconstrained model and its goodness of fit was acceptable ($\chi^2 = 709.807; df = 378;$

GFI=0.810; IFI=0.903; TLI=.879; CFI=.901; SRMR=.056). We then ran the partially constrained models and compared them to the unconstrained ones. Paths moderated by NR (Table V) were the ones associated to the partially constrained models where a significant deterioration in model fit was found (Redondo *et al.*, 2023), specifically in the relationships between Workplace greenery and Well-being and between Well-being and EGB.

[INSERT TABLE V OVER HERE]

4.3. Hypotheses testing

Our results confirm H1, stating a significant and positive relationship between Workplace greenery and Employee green behavior (see figure 2). However, this relationship is direct for individuals with low NR and indirect for those with high NR. Results show a direct, significant and positive standardized estimate between Workplace greenery and EGB for the group of low NR individuals ($\beta = 0.289, p = .007$), whereas the direct relationship for high NR individuals is not significant ($\beta = 0.073, p = .356$). For this group we found a significant standardized indirect effect of .079 ($p = .011$), which indicates that the relationship between Workplace greenery and EGB is fully mediated by Well-being.

Accordingly, the mediation of Well-being (H2) is supported for the high NR group. For employees with high NR, the relationships between Workplace greenery and Well-being, and Well-being and EGB are statistically significant and positive, as expected. However, for employees with low NR these relationships were not significant. Therefore, the mediation hypothesized (H2) is only partially supported.

These results give partial support to H3, that proposed a moderated mediation model. H3 hypothesized that the relationship between nature exposure and EGB and the mediation of well-being was moderated by nature relatedness, so that the relationship between nature exposure, well-being and EGB will be greater(lower) for employees with high(low) nature relatedness. The relationships among the focal constructs significantly varied for employees with high and low NR supporting the moderating role of this trait (Table V). Our results, however, partially support this hypothesis. It is supported for the mediation path, as results show that the relationship between Workplace greenery and Well-being, and Well-being and EGB is stronger for people with higher NR. Yet, it is not supported for the direct path, as the direct relationship between Workplace greenery and EGB is stronger for employees with lower NR. Thus, H3 is partially supported.

[INSERT FIGURE 2 OVER HERE]

5. Discussion

Despite the significant role of material artifacts in promoting employee green behavior, previous research has overlooked the role of workplace greenery in promoting EGB. Bringing insights from environmental psychology theories (biophilic design, well-being and nature relatedness) into EGB, this study examines whether exposing workers to natural elements enhances green behavior by increasing employee well-being. Furthermore, it tests the moderating role of employee nature relatedness defending that the hypothesized relationships will be stronger among employees with greater nature relatedness. The results show that workplace greenery directly influences EGB of workers with low nature relatedness; however, for workers with high nature relatedness workplace greenery influences their EGB through increases in well-being.

5.1. Theoretical implications

First, this study calls attention to workplace design as a fundamental element of green organizational cultures. Past work has studied physical spaces only to the extent that they may provide a facilitative infrastructure for the performance of EGB (Young *et al.*, 2015; Tang *et al.*, 2023) (e.g., providing bins increases recycling, Lo *et al.*, 2012). This research calls attention to other elements of workplace design such as greenery as a cultural artifact that can increase EGB for employees with high and low nature relatedness. This implies that nature exposure can effectively stimulate environmentally friendly behaviors among employees who may initially lack a deep connection to nature.

The findings show that workplace greenery positively affects EGB by improving the well-being of employees with greater NR. This is consistent with past work showing that nature is more restorative and elicits more positive emotions among individuals with a higher degree of this trait (Douglas *et al.*, 2022; Korpela *et al.*, 2017a; Korpela *et al.*, 2017b). While we anticipated a lower effect on the well-being of employees with low NR, the results turned out to be non-significant. Nonetheless, greenery is a significant, direct antecedent of EGB among workers with low NR. This suggests that the effect of workplace greenery on EGB is either direct for employees with low NR or that there may be other unmeasured psychological mechanisms through which workplace greenery elicits greater EGB among these employees. This direct effect could be explained by the role of greenery as an environmental cue that shapes behavioral norms within the workplace (Norton *et al.*, 2021). Therefore, the study extends the understanding of green organizational cultures by highlighting the role of physical workplace design, specifically greenery, as not just a facilitative infrastructure but as a cultural artifact that embodies and promotes environmental values. This suggests a broader conceptualization of green organizational culture that includes tangible environmental cues as integral components that influence employee behavior.

Second, this study advances our understanding of the micro-foundations of EGB, responding to calls for more work into the employee traits that may explain differences in their green behavior (Alzaidi and Iyanna, 2022; Norton *et al.*, 2015). Whereas past work has tested traits such as employee green knowledge or environmental concern alongside organizational factors (Ahmed *et al.*, 2020; Young *et al.*, 2015), we foreground NR as an individual trait that is shown crucial to explain the effects of organizational artifacts on individual behavior (Klein and Hilbig, 2018; Martin *et al.*, 2020). Specifically, we show that employees with greater NR experience greater well-being in biophilic workplace settings; this increased well-being provides them the resources to engage in greater EGB.

Beyond scholarship on employee green behavior, this study has implications for adjacent literatures, namely scholarship on the effects of workplace greenery and on the relationship between nature exposure and green action. While the effects of incorporating natural elements into workspace design have been extensively examined with many studies highlighting its benefits particularly on employee well-being (e.g., Korpela *et al.*, 2017a) and productivity (e.g., An *et al.*, 2016), this study demonstrates its impact on EGB. This finding extends and complement the already examined benefits of incorporating nature into the workplace.

Also, empirical studies examining the relationship between nature exposure and green behavior outside the lab are scant and their results are mixed (Lange and Truysens, 2022). Our findings enrich this empirical evidence and offer an explanation to clarify the conflicting findings by testing well-being as a psychological mechanism that can explain this relationship and showing that it is moderated by individuals' NR. In doing so, we respond to calls for more research into the mechanisms and boundary conditions of the relationship between nature exposure and green behavior (Zelenski *et al.*, 2015)

5.2. *Social and managerial implications*

The findings presented in this paper have implications for organizations seeking to promote sustainable practices. Our findings show that the inclusion of natural elements in the workspace and the nurturing of NR among employees can act as a bridge toward green economy goals, contributing to a reduction in the ecological footprint of businesses. These insights can be actioned by organizations as explained below.

First, organizations aiming to boost green behavior among employees might consider investing in creating greener workspaces. Greener workspaces provide a double dividend to organizations according to our findings: not only they promote EGB but they also increase the well-being of employees with greater NR. Workplace greenery has wider societal repercussions, since by increasing EGB, it indirectly contributes to reducing the environmental impact of organizations (Young *et al.*, 2015).

The inclusion of indoor greenery is cost-effective and easy to implement and adaptable to different settings. Workspaces can integrate natural elements in various ways (Kellert and Calabrese, 2015) such as by adding live or artificial plants, natural colors, natural light, and water features. Also, workspaces that mimic nature, such as open areas paired with sheltered spaces (prospects and refugees) or paths and textures inspired by natural landscapes contribute to creating biophilic workspaces (Klotz and Bolino, 2021).

Second, this work unveils NR as a key trait of employees that motivates greater green behavior. This finding has repercussions for green human resource management, specifically for recruitment and training (Renwick *et al.*, 2013). Regarding recruitment, organizations may seek employees high in this trait, as they will be more likely to facilitate the implementation of environmental policies and practices. These employees may also serve as role models for other employees with low levels of environmental

concern, further contributing to cementing a green organizational culture (Tang *et al.*, 2023; Zacher *et al.*, 2023).

Regarding training, since NR is a malleable trait that can be nurtured (Nisbet *et al.*, 2019), organizations can implement specific actions oriented to develop this trait among their employees; employees high in this trait will be happier and greener. Among these actions, integrating immersive nature activities is recommended in view of evidence showing that experiences in nature significantly increase NR and, in turn, green behaviors (Capaldi *et al.*, 2015; Mayer *et al.*, 2009). Research highlights the effectiveness of repeated and active engagement with nature (Dopko, 2017; Sheffield *et al.*, 2022), such as structured “green mindfulness” sessions including guided nature walks, forest bathing, or outdoor nature experiences. These immersive activities allow employees to experience nature firsthand, which has been shown to build lasting connections to the natural world and foster NR.

Depending on the location of the workspace and the availability of natural spaces near the offices, organizations can invite employees to have these experiences routinely during lunch breaks or after work, or more occasionally in the form of short trips to natural environments or of corporate retreats that include meditation practices in natural environments (Klotz *et al.*, 2023). In both cases, nature experiences allow employees to disconnect from their daily routines and experience nature firsthand which has been shown to build lasting connections to the natural world and foster environmental identities (Lumber *et al.*, 2017; Richardson *et al.*, 2020). Beyond nurturing NR, these experiences in nature would have other positive effects on the well-being and productivity of employees, as past evidence shows (Klotz and Bolino, 2021).

5.3. Limitations and future research

This research is subject to limitations. The first limitation is the generalizability of the results, as this study was carried out in a single country and sampled only white-collar employees; further research is necessary to determine whether same results are obtained with blue-collar employees and in other cultural settings. Likewise, although we did not find differences in the industries represented, we cannot rule out that other studies may obtain distinct results across industries, particularly when other sectors are included in the sample. Additionally, this study has treated EGB as a mono-faceted construct. Future studies may consider the different facets of EGB (e.g. task-related EGB and voluntary EGB), so that the impact of workplace greenery into those may be tested separately. Despite these limitations, we believe that this study may open a fruitful line inquiry for which we provide three research directions.

First, this study has examined the relationship between workplace greenery and EGB. However, we cannot establish the interaction of nature exposure and organizational green policies on EGB; this is an opportunity for further work. Future research should also explore whether workplace greenery serves as a cultural artifact that is integrated into a broader green corporate culture or, on the contrary, whether green elements are used as a form of internal greenwashing. This different use of workplace greenery may affect employee green behavior, such that if employees perceive organizational hypocrisy, they are less likely to engage in EGB (Castro-González *et al.*, 2019).

Second, the findings suggest that the psychological mechanisms explaining the relationships between workplace greenery and EGB for employees with low NR are different. Future work could examine whether workplace greenery was perceived as a cue of subjective norms prescribing certain behavior from employees (Khalid *et al.*, 2022; Lo *et al.*, 2012). Another potential mechanism to be explored is reciprocity: further work could examine the short-term and long-term emotions of employees in green workspaces

and test whether EGB is an intentional action driven by reciprocity for having a more pleasant workspace (Meyers and Rutjen, 2022).

A third interesting line of work concerns the outcomes of workspace greenery. Future studies could examine the influence of workplace greenery on employees' moral or citizenship actions other than green behaviors (Khaskheli *et al.*, 2020). Also, future work could examine whether NR is a distinguishing trait of green leaders that could be associated with their perceived empowerment and engagement in green practices (Renwick *et al.*, 2013). Relatedly, future work can also explore whether workplace greenery differentially influences the distinct facets of EGB (task-related *vs.* voluntary actions) or different green behaviors (e.g., conservation behaviors such as recycling or energy reduction *vs.* promotion behaviors such as green purchases) (Tang *et al.*, 2023).

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