

Research article

Exploring the impact of green HRM practices on pro-environmental behavior via interplay of organization citizenship behavior

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Abstract: Using Green human resource management practices (HRMPs) as a multi-component construct, this study investigated the influence of bundle of Green HRMPs on pro-environmental behavior (Pro-EB) and organizational citizenship behavior towards the environment (OCBE), and examined the mediating effect of OCBE as a psychological mechanism that defines Green HRMPs and Pro-EB relationships. Data were obtained using self-administered questionnaires from a sample of 247 full-time academics working in public sector higher education institutions of Pakistan. The hypotheses were verified using partial least squares structural equation modelling (PLS-SEM). The results revealed that Green HRMPs bundle had a significant and positive effect on both Pro-EB and OCBE, and OCBE, in return, had a positive relationship with Pro-EB. It was further revealed that OCBE positively mediated the association between Green HRMPs bundles and Pro-EB. The originality of the study lies in conceptualizing Green HRMPs bundles as a multi-component construct and examining the relationships between Green HRMPs bundle, OCBE, and Pro-EB in the context of Pakistan's higher education institutions. Besides, exploring OCBE as a mediator between Green HRMPs bundles and Pro-EB is one of the novel contributions of this study. This study helps management and practitioners in developing Green strategies that can promote Green and Pro-EB among academics/faculty members.

Keywords: green human resource management (HRM) practices; pro-environmental behavior; organizational citizenship behavior; higher education institutions

1. Introduction

With the growing concern worldwide regarding global warming, natural resource depletion, climate change, and pollution, researchers' and practitioners' interests in Pro-environmental Green behavior (Pro-EB) have grown rapidly. Pro-EB consists of a wide range of voluntary actions, such as switching off unnecessary light, avoiding usage of disposable cups, recycling, printing double-sided, conserving water, reducing waste, and using public transportations, etc. This form of behavior is necessary because it not only reduces an organization's monetary cost (e.g., the cost of energy and paper) but also preserves natural resources and the environment. Pro-EB facilitates corporate social responsibility, environmental sustainability (Steg et al., 2014), benefits the natural environment, improves environmental quality (Larson et al., 2015), and reduces carbon emission, cutting of trees, and burning of fossil fuels. Besides, Pro-EB is essential for firms' financial and non-financial performance (Boiral and Paillé, 2012; Yusoff, 2019).

Keeping in view the significance of Pro-EB, prior studies from the Western context have investigated a wide range of predictors of Pro-EB in various industries, including pro-environmental attitude, normative and hedonic motives (Bissing-Olson et al., 2013), moral norms, values (Lu et al., 2002), and corporate social responsibilities (Cheema et al., 2020). Hicklenton et al. (2019) reported that employees' perceptions of autonomy and pro-environmental climate determine their's Pro-EB. Robertson and Barling (2017) revealed that organizational citizenship behavior towards the environment (OCBE) positively affected employees' Pro-EB. Graves et al. (2019) investigated the impact of transformational leadership, contingent rewards, employee motivation, and top management commitment on Pro-EB and found that such factors were significant predictors of Pro-EB among Russian employees. Mishra (2017) indicated that Pro-EB can be promoted with top management support and mutual learning. Similarly, Graves and Sarkis (2018) suggested that Pro-EB is predicted by environmental values, leadership, and employees' internal and external motivation.

One of the organizational factors that is viewed positively by key stakeholders and has a significant role in promoting Pro-EB is Green Human Resource Management Practices (HRMPs; Anwar et al., 2020; Chaudhary, 2018). Green HRMPs are "human resource management aspects of environmental management" (Renwick et al., 2013, p.1) that are designed to enhance the firm's environmental performance and encourage the sustainable use of organizational resources. Limited research has shown the impact of Green HRMPs on environment-related outcomes such as Green recovery performance (Luu, 2018), environmental commitment and citizenship behavior (Pham et al., 2019b; Anwar et al., 2020), environmental performance (Gilal et al., 2019; Pham et al., 2019a; Mousa and Othman, 2020; Haldorai et al., 2022), and employees Green behavior (Mishra, 2017). Prior research also shows that Green HRMPs inspire and motivate employees to participate in pro-environmental activities (Mishra, 2017; Anwar et al., 2020).

Although attempts have been made to explore the implications of Green HRM in various industries, such as manufacturing industry (Mishra, 2017), hospitality industry (Luu, 2018; Pham et al., 2019b, 2019a), and healthcare industry (Mousa and Othman, 2020). However, to the best of our

knowledge, research on the effects of Green HRMPs on Pro-EB, especially in the higher education context is scarce (Yong et al., 2019; Anwar et al., 2020). Besides, existing research has largely focused on individual Green HRMPs (Anwar et al., 2020), and to the best of our understanding, no study exists on Green HRMPs bundles. HRMPs Bundles or system refers to a set of integrated individual practices that are found to have a greater impact than the individual or isolated HRMPs (Singh et al., 2012). Furthermore, the available research on Green HRMPs is subject to measurement issues (Ren et al., 2018; Tang et al., 2018). Besides, scholarly work on Pro-EB is in the infancy stage (Robertson and Barling, 2017; Cheema et al., 2020), and there is still room for further investigation (Bissing-Olson et al., 2013). Moreover, current research on Green HRMPs and pro-environmental behaviors mainly focuses on Western and Middle Eastern countries and needs to be studied in different contextual settings (Fawehinmi et al., 2020), such as Pakistan. Lastly, there is a need to understand the underlying mechanism between Green HRMPs and Pro-EB (Anwar et al., 2020; Fawehinmi et al., 2020), such as OCBE.

Though the relationships between Green individual HRMPs and employees' Pro-EB have been explored (Yusoff, 2019; Anwar et al., 2020), however, limited attention has been paid to the underlying psychological mechanism through which Green HRMPs influence employees' behavior (Chaudhary, 2018; Graves and Sarkis, 2018). The limited available research has mainly linked Green HRMPs to organizational outcomes. For instance, Fawehinmi et al. (2020) found that Green HRMPs affect employees' Green behavior through environmental knowledge. Zaid et al. (2018) noted that the effect of Green HRMPs on sustainable performance was mediated by Green supply chain management. However, studies on the mediating role of attitudinal outcomes such as OCBE between Green HRMPs system and employees' Pro-EB are rare. Anwar et al. (2020) examined the mediating role of OCBE between individual Green HRMPs and environmental performance. This study contributes to the body of knowledge by examining the direct influence of Green HRMPs bundles on employees OCBE and Pro-EB. Besides, this study advances the understanding of the psychological mechanism through which Green HRMPs bundles are linked to Pro-EB. Within the context of this study, the social exchange theory proposed by Emerson (1976) provides theoretical support for the proposed model in this study.

In doing so, this study makes several important contributions. Firstly, this study adds to the limited Green HRM literature by investigating its effect on Pro-EB and OCBE of the employees working in higher education institutions of Pakistan. Secondly, by studying OCBE as a mediator, this research offers novel insights into the mediating mechanism that may be involved between Green HRMPs system and Pro-EB. Thirdly, the study also illuminates the influence of OCBE on Pro-EB. Finally, by providing evidence of the direct and indirect association between Green HRMPs system and Pro-EB from the context of Pakistan, this study extends the Green HRM and Pro-EB literature, which is heavily dominated by studies from the Middle East and West (e.g., Pham et al., 2019; Anwar et al., 2020). As well, this is one of the pioneering studies that empirically test the influence of Green HRMPs bundles (measured as a multi-dimensional construct) on OCBE and Pro-EB.

In addition to the theoretical contributions, this study helps policymakers and management practitioners in designing strategies that not only encourage green citizenship behaviors but also improve Pro-EB among faculty members. Furthermore, this study is useful for policymakers to initiate green practices in the organization through major emphasis on Green HRMPs. For instance, with green initiatives among educational institutions, the management can create awareness among faculty members about the importance of Pro-EB and green citizenship behaviors. Such awareness will

encourage Pro-EB and discourage the unnecessary consumption of resources such as paper, electricity, and fossil fuels. As a result, on the one hand, the management will keep a neat and clean working environment, on the other hand, the management will reduce the monetary cost of resources such as fossil fuels, paper and electricity.

2. Literature review

2.1. *Pro-Environmental behaviors*

Various conceptualizations and definitions of Pro-EB exist in the literature. For instance, Steg and Vlek (2009) describe Pro-EB as a behavior that is used to protect the natural environment and reduce environmental harm, whereas Yuriev et al. (2018) view it as an action by an individual or group aimed at promoting the natural resources' sustainable use. According to another conceptualization, Pro-EB is a "behavior that consciously seeks to minimize the negative impact of one's actions on the natural and built environment" (Kollmuss & Agyeman, 2002, p. 240). In fact, Pro-EB mirrors employees' willingness and voluntary actions to carry out a job-related task in a way that is advantageous for the environment (Bissing-Olson et al., 2013). Hence, based on the premise of these studies, we conceptualize Pro-EB as faculty members' voluntary action to engage in environmentally friendly behavior.

Moreover, Pro-EB is a multi-dimensional construct consist of:

1. Conservative lifestyle (discretionary behaviors such as recycling, energy, and water conservation)
2. Land stewardship (using private land for the preservation of wildlife and ecosystem)
3. Social environmentalism (informing others about the importance of conservation of nature)
4. Environmental citizenship (donating money for environmental causes; Larson et al., 2015).

2.2. *Green Human Resource Management Practices (Green HRMPs) system*

HRMPs are designed to inspire, motivate, and develop employees, and to ensure that organization's HRM strategy is well implemented. Green HRMPs, on the other hand, refer to a set of "environment-friendly HR activities that contribute to improved efficiencies, cost reduction, and superior environmental performance" (Haldorai et al., 2022, p. 3). Besides, Green HRMPs aim to build environmental knowledge (Fawehinmi et al., 2020), enhance employees' citizenship behavior and commitment toward the environment (Pham et al., 2019), environmental performance (Haldorai et al., 2022) and promote Green values, skills, and knowledge related to Green activities (Amrutha and Geetha, 2020; Fawehinmi et al., 2020). Green HRMPs consist of Green employee acquisition and training, Green rewards, Green involvement, and Green performance appraisal (Amrutha and Geetha, 2020). Green employees' acquisition involves the recruitment and selection of applicants that are familiar with Green values and positive about issues related to the environment (Bowen et al., 2018; Tang et al., 2018). Green training is designed to enhance employees' abilities to protect the environment and strengthen their skills, awareness, and knowledge of Green activities (Tang et al., 2018; Amrutha and Geetha, 2020). Green rewards are monetary and non-monetary benefits provided by the organization based on employees' Green performance (Jabbour, 2011). On the other hand,

organizational practices that encourage and empower workers to participate in Green activities are termed as Green employee involvement (Amrutha and Geetha, 2020), while Green performance appraisal practices monitor and provide feedback on employees' Green performance (Jabbour, 2011; Zibarras and Coan, 2015). These performance practices are necessary because they not only monitor employees' performance but also provide a check on the organization's success toward the achievement of desired pro-environmental goals and objectives (Jabbour, 2011; Zibarras and Coan, 2015).

Although Green HRMPs have been the focus of research for decades, there is an ongoing criticism over their measurement. For instance, prior studies have focused on individual Green HRMP (e.g., Green training, Green rewards and pay, etc.) (Jabbour, 2011; Zibarras and Coan, 2015; Dumont et al., 2017; Mishra, 2017; Anwar et al., 2020). However, general HRM literature suggests that the HRMPs system is more effective than individual HRMPs (Singh et al., 2012). For instance, recruiting and selecting good employees without training them may have minimal effects than providing employees with all these three practices (Wall and Wood, 2005). Moreover, Tang et al. (2018) argue that individual Green HRMPs (e.g., Green training, rewards and pay, etc.) are the dimensions of Green HRMPs, and Green HRMPs should be conceptualized as a multi-dimensional higher-order construct. They furthered that the multi-dimensional nature of Green HRMPs provides a more comprehensive conceptual understanding than the former. Surprisingly, there is not a single study that has validated Tang et al. (2018) measures of Green HRMPs. Hence, premised on Tang et al. (2018) conceptualization and operationalization, this study uses and treats bundles of Green HRMPs as a higher-order multi-dimensional construct.

2.3. Organization citizenship behaviors towards the environment (OCBE)

OCBE is defined as the "discretionary acts by employees within the organization not rewarded or required that are directed toward environmental improvement" (Daily et al., 2009). Though somewhat related to organizational citizenship behavior (OCB), OCBE mirrors employees' voluntary actions that are not "explicitly recognized by the formal reward system and contribute to more effective environmental management by the organization" (Boiral and Paillé, 2012). Unlike OCB, which concerns employees' voluntary actions for the benefit of the organization, OCBE describes employees' willingness to collaborate with their organization for the benefit of the environment. For instance, the examples of OCB could be talking in favour of the organization, arriving on time, and supporting colleagues. In contrast, the examples of the OCBE include activities (e.g., switching off the light) that lessen the negative influence of the organization's operations on the environment. Hence, OCB is organization centered while OCBE is environment centered. Lamm et al. (2013) have also provided empirical evidence that both OCB and OCBE are distinct concepts and should be measured separately.

OCBE has been conceptualized as a multi-dimensional construct consisting of eco-helping, eco-civic engagement, and eco-initiatives behaviors (Boiral and Paillé, 2012). Eco-initiatives refer to activities (e.g., recycling, pollution prevention) that might help improve organization performance in environment-related issues. Eco-civic engagement refers to employees' voluntary engagement in existing environmentally friendly activities such as engaging in environmental events or activities or joining the environmental committee (Boiral and Paillé, 2012; Terrier et al., 2016). On the other hand, eco-helping behavior reflects employees' "voluntarily helping colleagues to better integrate

environmental concerns in the workplace" (Boiral & Paillé, 2012). Although each dimension of the OCBE is equally crucial in terms of essential outcomes (Terrier et al., 2016), they have not received equal attention in the literature. For instance, most of the research has focused on the eco-initiative aspect of the OCBE (Hanna et al., 2000; Zientara et al., 2019), while the eco-civic engagement and eco-helping aspects of OCBE are largely ignored (Boiral and Paillé, 2012). This research addresses this gap by conceptualizing and measuring OCBE as a multi-dimensional construct.

3. Hypotheses development

3.1. Relationship among Green HRMPs, Pro-EB, and OCBE

In this study, we expect positive effects of Green HRMPs on Pro-EB and OCBE. To explain such effects, we draw on Emerson's (1976) social exchange theory (SET) and Appelbaum et al.'s (2000) ability-motivation-opportunity (AMO) theory. The SET posits that when employees perceive support and benefits from their organizations in the form of HRMPs, they feel obliged to reciprocate with positive work outcomes, including increased OCB, job engagement, and organizational commitment (Kuvaas, 2008; Kooij and Boon, 2018). Similarly, from the environmental perspective, employees' will reciprocate organization support and benefits provided in the form of Green HRMPs with Pro-EB and OCBE (Pham et al., 2019a; Anwar et al., 2020). From the AMO theory perspective, HRMPs affect individual performance and OCB by enhancing their abilities, motivation to do work, and opportunities to perform (Anwar et al., 2020; Appelbaum et al., 2000). Individual abilities are enhanced through a set of practices (e.g., employees' acquisition, training, and development) that ensured that an individual has sufficient knowledge and skills to complete the task (Huselid, 1995; Anwar et al., 2020), while motivation related practices (e.g., performance appraisal, compensation, and rewards) inspire and encourage individuals to engage in a particular behavior. Finally, opportunity-related practices (e.g., involvement, knowledge sharing) increases individual participation in organizational activities (Appelbaum et al., 2000). Thus, from the environmental perspective and in line with AMO theory, Green HRMPs increase individual abilities, motivation, and participation in environmental activities, which, in turn, results in desirable outcomes such as OCBE (Pinzone et al., 2016; Anwar et al., 2020), organization commitment for the environment, environmental performance (Pinzone et al., 2016; Pham et al., 2019a), and employees Green behavior (Fawehinmi et al., 2020).

Thus, the integration of social exchange theory and AMO theories suggest a probable link between Green HRMPs, Pro-EB, and OCBE. However, empirical research on the relationships between Green HRMPs and Pro-EB is scant. Though not explicitly focusing on Pro-EB, limited studies are available on the relationship between Green HRMPs and environment-related outcomes. For example, Fawehinmi et al. (2020) in a cross-sectional study among Malaysian employees, found a significant and positive impact of Green HRMPs on employees' environmental knowledge. Pham et al. (2019) in an empirical study among hotel employees in Vietnam, established the positive influence of Green training and rewards on employees' environmental commitment. Further, Saeed et al. (2019) demonstrated a positive association between Green HRMPs and Green behavior among employees working in the food, chemical, and pharmaceutical industries. Similarly, Ragas et al. (2017) reported that Green HRMPs are positively related to employees' performance and Green lifestyle. On the same line, Dumont et al. (2017) conducted a study among employees working in a Chinese manufacturing

company and found that Green HRMPs positively affected their in-role and extra-role performance. Also, Yusoff (2019) in a study among Hotel employees in Malaysia, found that the hotel environmental performance was positively affected by Green HRMPs. Thus, based on the aforementioned theoretical arguments and empirical evidence, we predict that:

H1: Green HRMPs relate positively to academics' Pro-EB.

Scholars have also studied the impact of Green HRMPs on OCBE (Luu, 2019; Niyomdecha and Yahya, 2019; Anwar et al., 2020). But, most of the available research has focused on individual Green HRMPs (Pham et al., 2018; Luu, 2019; Anwar et al., 2020), and has ignored the multidimensionality of Green HRMPs proposed by Tang et al. (2018). In addition, prior research on Green HRMPs is also confined to measurement and conceptualization issues (Larson et al., 2015; Tang et al., 2018). This study adds new insights by examining the influence of Green HRMPs (measured as a multi-dimensional construct) on OCBE. This study proposes that:

H2: Green HRMPs relate positively to OCBE.

3.2. Relationship between OCBE and Pro-EB

OCBE, which reflects employees' discretionary acts, not rewarded by the organization, has been found to have a significant influence on environment-related outcomes. For example, Paillé et al. (2014) found a significant and positive effect of OCBE on the environmental performance of the manufacturing firm. Anwar et al. (2020) in a study among academics, reported that OCBE strengthens employees' environmental performance. OCBE improves environmental performance by encouraging employees' voluntary eco-helping behavior, participation in environment-related activities, and Green eco-initiatives (Boiral et al., 2015). Besides, when employees' attitude toward OCBE is positive, they are more likely to participate in Pro-EB (Lülf and Hahn, 2013). Considering these findings, it is plausible to propose that an individual who exhibits higher citizenship behavior towards the environment is more likely to participate in activities that are beneficial for the environment. Hence, it is proposed that:

H3: OCBE relates positively to Pro-EB of the academics.

3.3. OCBE as a mediator

Although previous literature supports the assumption that Green HRMPs promote pro-environmental Green behavior and environmental performance, research on the underlying psychological mechanism that explains the associations between Green HRMPs and employee's Green attitude and behavior is still evasive (Chaudhary, 2018; Graves and Sarkis, 2018). Furthermore, contemporary HRM literature acknowledges that HRMPs do not result directly in employees' behaviors; instead, HRMPs' influence is transmitted through various mediating mechanisms (Boxall et al., 2016). Hence, researchers such as Anwar et al. (2020), Chaudhary (2018), Luu (2019), and Saeed et al. (2019) called for further studies on Green HRMPs and on the underlying psychological mechanism that may explain the process through which Green HRMPs are related to environmental outcomes.

In this study, we expect OCBE to mediate the influence of Green HRMPs on Pro-EB for the following reasons. First, previous studies have identified OCBE as an essential antecedent of desirable outcomes such as environmental performance (Daily, Bishop and Govindarajulu, 2009; Boiral et al.,

2015; Anwar *et al.*, 2020), Green and Pro-EB (Lülf and Hahn, 2013). Second, OCBE has been reported as an outcome of Green individual HRMPs (Pham *et al.*, 2018; Luu, 2019; Niyomdecha and Yahya, 2019). Other studies have also confirmed that OCBE is a potential mediator between Green HRMPs and environmental outcomes. For example, Anwar *et al.* (2020) demonstrated that the effect of Green HRMPs (e.g., recruitment, training, and compensation) are transformed into improved environmental performance through the manifestation of OCBE. Paillé *et al.* (2014) also reported that environmental performance and strategic HRM relationship was mediated by OCBE. Hence, OCBE is a psychological mechanism that may translate the effect of Green HRMPs on employees' Pro-EB. To add new insight to the Green HRM, we predict that:

H4: OCBE mediates the relationship between Green HRMPs and Pro-EB.

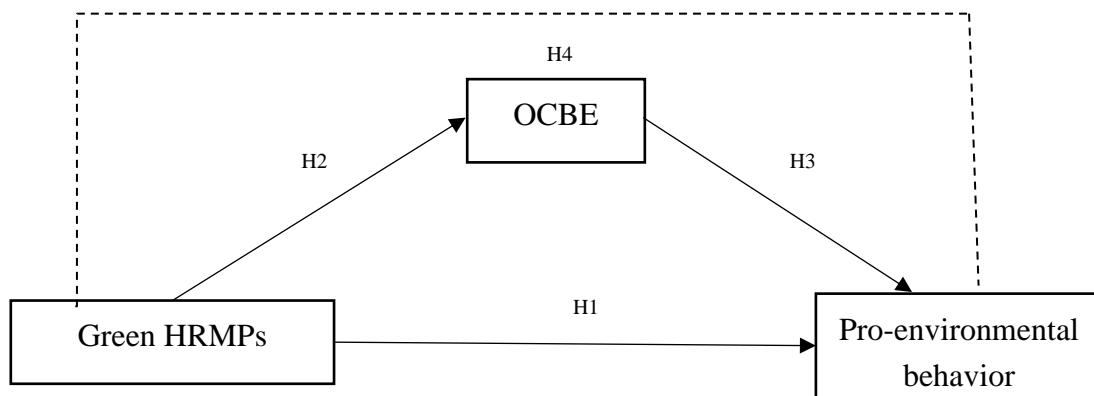


Figure 1. Conceptual model; the dashed line indicates an indirect effect.

4. Methodology

4.1. Sample and data collection

The target population of this study was full-time faculty members for the following reasons. First, the study aims to examine the effect of bundles of Green HRMPs on Pro-EB and OCBE of employees working in higher education institutions of Balochistan, Pakistan. Second, studies have shown that environmental issues are one of the most pressing challenges in Pakistan (Malik *et al.*, 2020), especially in higher education institutions, and have been the subject of inquiry recently. Third, scholars have also called for further studies to understand environmental issues in higher education (Anwar *et al.*, 2020). Fourth, to the authors' knowledge, there is not a single study on Green HRM system and Pro-EB in Balochistan, Pakistan.

To achieve the study's objectives, a cross-sectional and non-experimental self-administered survey was conducted among academics of public sector colleges. We used convenience sampling techniques for collecting data. The data were collected from the faculty members that were conveniently and readily available for participation in the study.

The study's sample size was calculated using Faul *et al.* (2007) recommended power analysis in G*Power 3.1. According to Hair *et al.* (2017), power analysis is commonly used for sample size detection in PLS-SEM literature. Using Hair *et al.* (2016) recommended 80% statistical power, 0.05

significance level, and a minimum 0.10 R^2 value, we calculated that the minimum sample size for the study is 84.

Initially, 339 questionnaires were distributed personally to the faculty members, of which 267 were returned, indicating an initial response rate of 78.76%. Out of 267, a total of 21 cases were deleted based on suspicious responses and missing values. The elimination of 21 cases resulted in a usable response of 246 cases, representing an effective response rate of 76.56%. Out of 246 participants, 69.51% (n = 171) were lecturers, 8.10% (n = 20) were assistant professors, 13% (n = 32) were associate professors, and the remaining 9.34% (23%) were professors. In terms of gender, 63.83% (n = 157) of the participants were male, while female participants constitute 36.17% (n = 89) of the survey. It is worth noting that the majority (44.71%, n = 110) of the participants were older than 40 years. Out of the total participants, 40.24% (n = 99) had work experience of 1 to 5 years, 22.35% (n = 55) had a working tenure of 6 to 10 years, 14.63% (n = 36) had worked for their organization from 11 to 15, and the remaining 26.8% (n = 66) had a working experience of more than 16 years. In terms of education, 76.82% (n = 189) participants had attended postgraduate education, 17.57% (n = 45) had master of philosophy, while the remaining 4.87% (n = 12) had doctorate degree.

4.2. Instruments

Research instruments for the present study were adopted from the literature. The instruments were scaled on a Five points Likert scale ranging from “Strongly Disagree” = 1 to “Strongly Agree” = 5.

For the present study, second-order reflective constructs (i.e., Green HRMPs, OCBE, and Pro-EB) and first-order constructs (i.e., the dimensions of Green HRMPs, OCBE, and Pro-EB) are used. First-order constructs are directly measured by the observable indicators while second-order construct is manifested by the latent score of the first-order constructs (Jravis et al., 2003). For instance, OCBE is operationalised as second-order reflective constructs with three reflective first-order sub-constructs. Boiral and Paillé (2012) twelve items scale was utilized for the measurement of OCBE. An example item is, “I encourage my colleagues to adopt more environmentally conscious behavior”.

As discussed above, Green HRMPs is a multidimensional construct consisting of Green recruitment and selection, Green involvement, pay and reward, Green training, and Green performance management. Thus, we treated Green HRMPs as a second-order construct manifested by unique first-order factors. For the measurement of Green HRMPs, Nineteen questions were adapted from the study of Tang et al. (2018). However, a slight modification was made to the items of Green HRMPs to make them fit the context of the study. The sample item includes “Our institution recruits employees who have Green awareness.”

The Pro-EB was also used as a second-order reflective construct with four reflective first-order dimensions, including conservative lifestyle, environmental citizenship, land stewardship, and social environmentalism. A scale of thirteen items developed by Larson et al. (2015) was used for the measurement of Pro-EB. An example of these items is, “I have recycled paper, plastic, and metal.” A list of all the measurement items along with their constructs is given in the appendix (Table 6).

5. Results

5.1. Research method

Since this study aimed to examine a complicated model, which contains both first-order and second-order constructs, therefore; PLS-SEM was an appropriate choice. Similar related studies have also used PLS-SEM (Daniyal & Khan, 2020; Haldorai et al., 2022; Khan et al., 2020; Khan et al., 2022). Besides, since the objective of the study is to explain variance in Pro-EB; therefore, PLS-SEM was particularly suitable for analyzing variance in endogenous constructs (Hair et al., 2017). Moreover, other advantages of PLS-SEM are that this method; 1) can be used in small sample size, 2) does not need data normality assumption, and 3) avoids parameter estimation biases in regression analysis (Hair et al., 2017). Thus, PLS-SEM was utilized through SmartPLS 3.2.8 statistical software.

One of the issues with this study was common method variance (CMV), due to data collection from a single source. This issue was addressed by using Podsakoff et al. (2003) procedural remedies and Harman's single-factor test. Harman's single factor test resulted in 5 factors, and the first factor explained 37.35% variance. Since this variance is less than the 50% threshold, therefore, CMV was not an issue.

5.2. Path model assessment

The conceptual framework of the study was assessed in two stages, following Hair et al. (2017) recommendations. In stage one, the reliability and validity of the research instruments were established through the assessment of the measurement model. In stage two, the hypothesized relationships were tested through structural model evaluation.

5.2.1. Stage One: Measurement Model Valuation

The assessment of the measurement model includes the estimation of factor loadings (FLs), latent constructs internal consistency (Cronbach Alpha, CA and composite reliability, CR), average variance extracted (AVE), and multi-collinearity. For a reflective construct to be reliable, the values of FLs, CA, and CR should be ≥ 0.70 (Hair et al., 2011). The AVE of the constructs shall also exceed 0.50 (Hair et al., 2011; Hair et al., 2017). The results (Table 1) show that the FLs, CA, and CRs are higher than 0.70, and the AVEs also surpass the minimum threshold of 0.50 (Hair et al., 2011). The values of variance inflation factor (VIF) for all constructs were also less than recommended 5 (Hair et al., 2011); therefore, multi-collinearity was not an issue.

Discriminant validity, which represents the distinctiveness of a variable from all other variables of the model, was assessed through Heterotrait-Monotrait Ratio (HTMT) and Fornell and Larcker (1981) criterion. According to Henseler et al. (2015), for a construct to be distinct from the rest of the model, the value of HTMT should be less than 0.90. Table 2 shows that the values of HTMT are less than 0.90. Besides, the square root of AVE of all measures was higher than the inter-constructs correlations; therefore, the results presented in Table 3 meet the Fornell and Larcker (1981) criterion of discriminant validity.

Table 1. Measurement model for the first order constructs.

First Order Constructs	Items	Loadings	CA	CRs	AVE
Eco-civic behavior (EC)	EC1	0.912	0.930	0.950	0.827
	EC2	0.898			
	EC3	0.911			
	EC4	0.917			
Eco-helping behavior (EH)	EH1	0.889	0.886	0.922	0.747
	EH2	0.865			
	EH3	0.895			
	EH4	0.897			
Eco-initiative behavior (EI)	EI1	0.865	0.870	0.911	0.719
	EI2	0.857			
	EI3	0.851			
	EI4	0.819			
Green recruitment and selection (GRS)	GRS1	0.850	0.786	0.876	0.702
	GRS2	0.879			
	GRS3	0.781			
Green training (GT)	GT1	0.835	0.756	0.860	0.672
	GT2	0.792			
	GT3	0.832			
Green involvement (GI)	GI1	0.864	0.918	0.936	0.710
	GI2	0.887			
	GI3	0.803			
	GI4	0.840			
	GI5	0.832			
	GI6	0.829			
Green performance management (GPM)	GPM1	0.815		0.872	0.630
			0.808		
	GPM2	0.775			
	GPM3	0.764			
Green Pay and Reward (GPR)	GPM4	0.819			
	GPR1	0.851	0.740	0.855	0.666
	GPR2	0.880			
	GPR3	0.886			
Conservative lifestyle (CL)	CL1	0.876	0.844	0.906	0.762
	CL2	0.884			
	CL3	0.908			
Land stewardship (LS)	LS1	0.914	0.860	0.914	0.780
	LS2	0.802			
	LS3	0.928			
Social environmentalism (SE)	SE1	0.797	0.822	0.894	0.739
	SE2	0.910			
	SE3	0.868			
Environmental citizenship (ECZ)	ECZ1	0.880	0.752	0.843	0.574
	ECZ2	0.883			
	ECZ3	0.884			
	ECZ4	0.880			

Note: Cronbach Alpha (CA); Composite Reliabilities (CRs); Average variance extracted (AVE)

Table 2: Heterotrait-Monotrait ratio (HTMT).

Constructs	CL	EC	EC Z	EH	EI	G1	GP M	GP R	GR S	GT	LS	S E
Conservative lifestyle (CL)	-											
Eco-civic (EC)	0.59	-										
		1										
environmental Citizenship (ECZ)	0.45	0.57	-									
		3	6									
Eco-helping (EH)	0.43	0.65	0.72	-								
	8	8	7									
Eco-initiative (EI)	0.54	0.76	0.68	0.76	-							
	2	6	0	0								
Green involvement (GI)	0.39	0.64	0.72	0.77	0.68	-						
	8	1	0	6	6							
Green performance management (GPM)	0.43	0.58	0.57	0.72	0.64	0.61	-					
	1	5	8	7	6	1						
Green pay and rewards (GPR)	0.41	0.58	0.75	0.65	0.65	0.73	0.38	-				
	8	7	3	2	6	2	1					
Green recruitment and selection (GRS)	0.41	0.51	0.83	0.61	0.60	0.58	0.56	0.42	-			
	3	4	2	1	0	3	3	2				
Green training (GT)	0.46	0.56	0.89	0.68	0.66	0.63	0.48	0.51	0.80	-		
	8	4	2	4	4	4	4	2	7			
Land stewardship (LS)	0.75	0.46	0.36	0.23	0.43	0.28	0.25	0.37	0.23	0.29	-	
	0	4	8	1	1	4	5	2	9	9		
Social environmentalism (SE)	0.46	0.78	0.54	0.63	0.80	0.62	0.60	0.46	0.56	0.49	0.31	-
	2	9	2	1	5	2	8	4	5	6	6	

Since the present model had second-order constructs (Green HRMPs, OCBE, and Pro-EB), their reliability and validity were assessed using Hair et al. (2017) two-stage approach. During the first approach, all first-order constructs (i.e., dimensions of Green HRMPs and OCBE, and Pro-EB) were taken out together as a reflective measure of second-order constructs in the PLS model (Becker et al., 2012). In the second stage, latent variables scores of all first-order constructs were obtained and then used as a proxy of the second-order construct (i.e., Green HRMPs, OCBE, and Pro-EB). In simple words, second-order constructs were measured directly from the latent scores of the first-order constructs.

The second order-constructs reliability and validity were assessed via standardized FLs, AVE, and CRs. Table 4 shows that construct FLs and CRs were higher than 0.70. The values of constructs AVE also exceeded .50 thresholds. In sum, the assessment of the measurement model (Tables 1,2,3, and 4) ensured adequate convergent and discriminant validity of all first-order and second-order constructs.

Table 3. Fornell-Larcker Criterion.

Constructs	CL	EC	EC Z	EH	EI	G1	GP M	GP R	GR S	GT	LS	SE
Conservative lifestyle (CL)	0.87	-										
		3										
Eco-civic (EC)	0.52	0.91	-									
		4	0									
environmental (ECZ)	Citizenship	0.36	0.48	0.75	-							
		3	6	7								
Eco-helping (EH)		0.37	0.59	0.59	0.86	-						
		8	8	2	4							
Eco-initiative (EI)		0.46	0.69	0.55	0.66	0.84	-					
		6	0	6	7	8						
Green involvement (GI)		0.35	0.59	0.60	0.70	0.61	0.84	-				
		1	3	1	2	4	3					
Green performance management (GPM)		0.35	0.51	0.45	0.61	0.54	0.53	0.79	-			
		4	1	3	8	3	5	4				
Green pay and rewards (GPR)		0.35	0.52	0.60	0.56	0.56	0.64	0.32	0.87	-		
		2	0	6	3	3	4	2	2			
Green recruitment and selection (GRS)		0.33	0.44	0.64	0.51	0.49	0.49	0.44	0.34	0.83	-	
		8	0	0	1	7	6	8	4	8		
Green training (GT)		0.37	0.47	0.67	0.56	0.54	0.53	0.38	0.40	0.70	0.82	-
		5	3	4	1	0	0	0	9	2	0	
Land stewardship (LS)		0.65	0.42	0.30	0.21	0.38	0.25	0.22	0.31	0.19	0.24	0.88
		3	5	3	0	2	8	2	7	4	9	3
Social environmentalism (SE)		0.38	0.69	0.42	0.54	0.67	0.54	0.49	0.38	0.45	0.39	0.27
		7	8	9	1	6	1	4	7	3	3	0.86

Table 4. Measurement model for the second-order constructs.

Second-Order Constructs	Indicators	Loadings	CA	CRs	AVE
Pro-EB	Conservative lifestyle (CL)	0.752	0.729	0.825	0.541
	Environmental Citizenship (ECZ)	0.767			
	Land stewardship (LS)	0.655			
	Social environmentalism (SE)	0.763			
Green HRM Practices	Green involvement (GI)	0.850	0.822	0.876	0.587
	Green performance management (GPM)	0.699			
	Green pay and rewards (GPR)	0.717			
	Green recruitment and selection (GRS)	0.772			
	Green training (GT)	0.785			
OCBE	Eco-civic (EC)	0.869	0.849	0.908	0.768
	Eco-helping (EH)	0.860			
	Eco-initiative (EI)	0.899			

5.2.2. Stage two: structural model assessment

In the second stage of the path model assessment, the structural portion of the model depicted in Figure 1 was examined. The structural model proposes that Green HRMPS are directly and indirectly, through OCBE, associated with Pro-EB. The model's goodness of fit was estimated using the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2).

R-square (R^2) represents the explanatory power of the structural model, and R^2 values closer to 1 indicate that other exogenous variables of the study explain significant variance in the endogenous constructs. In this study, 68% variance was explained in the endogenous construct (i.e., Pro-EB; $R^2 = .680$) by exogenous constructs (Green HRMPs and OCBE). Similarly, Green HRMPs predicted a 67.7% variance in OCBE ($R^2 = .677$). The effect size (f^2), which represents the incremental power of exogenous constructs was weak between Green HRMPs and Pro-EB ($f^2 = .138$), and strong between Green HRMPs and OCBE ($f^2 = .2.09$). The model also possessed predictive relevance since the values of Q^2 were greater than zero.

Hypotheses testing

Hypotheses were tested using the bootstrapping procedure via SmartPLS 3.2.8. The bootstrapping procedure is a commonly used nonparametric test that randomly draws several subsamples with replacements from the original data set. For this study, bootstrapping with 5,000 subsamples was used to obtain the results of the path coefficients. The results of the path coefficients showed that Green HRMPs has a significant and positive relationship with Pro-EB ($\beta = .370$, $t = 4.615$, $p < 0.005$) and OCBE ($\beta = .823$, $t = 36.058$, $p < 0.005$), thus, providing support for H1 and H2. The results also provided support for the positive and significant impact of OCBE on Pro-EB ($\beta = .492$, $t = 6.333$, $p < 0.00$), thus H3 is supported.

Table 5. Direct path coefficients

Hypotheses	β	t-values	p-values	f^2
Green HRM practices -> OCBE	0.823	36.058	0.000	2.094
Green HRM practices -> Pro-environmental behavior	0.370	4.615	0.000	0.138
OCBE -> Pro-environmental behavior	0.493	6.333	0.000	0.245

Note: A 95% confidence interval with a bootstrapping of 5,000 was used.

Table 6. Indirect path coefficients

Mediation Analysis	B	t-values	p-values	BCI LL	BCI LL
Green HRM practices -> OCBE -> Pro-environmental behavior	0.406	5.833	0.000	0.281	0.555

Note: A 95% confidence interval with a bootstrapping of 5,000 was used.

Furthermore, we used Preacher and Hayes (2004, 2008) recommended bootstrapping technique to test OCBE as a mediator between Green HRMPs and Pro-EB. If the confidence interval (i.e., upper and lower) does not include a 0, then OCBE acts as a significant mediator between the said constructs. As presented in Table 6, the indirect path coefficient of Green HRMPs on Pro-EB through OCBE was

significant and positive ($\beta = .406$, $t = 5.833$, $p < 0.00$). Besides, there was no 0 between the upper and lower confidence intervals, bias-corrected at 95%. Thus, H4 is supported.

6. Discussion and conclusions

This study aimed to examine the relationship between Green HRMPs, OCBE, and Pro-EB and to specify the underlying mechanism through which this relationship works. We hypothesized that Green HRMPs would be positively related to Pro-EB and OCBE of the academics. The initial results revealed that Green HRMPs significantly predicted Pro-EB and OCBE. This result implies that organizations' investment in Green HRMPs is profitable and leads to environment-friendly behavior among faculty members. These findings are aligned with the social exchange theory that employees reciprocate good treatments on the part of the organization with positive behavior (Emerson, 1976). Besides, the findings concur with Appelbaum et al. (2000) assertions that HRMPs are important mechanisms that inspire and motivate employees and strengthen their knowledge and skills. These findings also suggest that when employees believe that organizations are providing Green training, rewarding Pro-EB, inspiring and motivating employees, and appraising their performance, then they are more likely to participate in Pro-EB, inform friends about the importance of the environment, use their private land and property for the preservation of wildlife, and participate in environment-related conferences and meetings. These results are also in agreement with Anwar et al. (2020) and Pinzone et al. (2016) work which found that Green HRMPs are the mechanism that not only inspires and motivates employees but also increases their OCBE and encourages Pro-EB.

One finding of the study was the positive and significant influence of OCBE on Pro-EB. This finding is aligned with the work of Paillé et al. (2014), who found that OCBE and pro-environment behavior are positively related. This result also provides empirical support to the theoretical arguments of Daily et al. (2009) that OCBE is an essential predictor of environmental performance. In simple words, the positive relationship between OCBE and Pro-EB suggests that employees' motivation to engage in Pro-EB is subject to employees' voluntarily environmentally friendly behavior and the availability of opportunities to participate in environment-related activities (Boiral, 2009; Daily et al., 2009; Anwar et al., 2020). When employees voluntarily take action, share their tacit knowledge with co-workers, and communicate suggestions, concerns, and information about the importance of nature and the environment, then they are more likely to participate in Pro-EB. Previous researchers have also found that employees' voluntary actions, support for colleagues, and involvement in environment-related programs promote Pro-EB (Daily et al., 2009; Lülfis and Hahn, 2013; Boiral et al., 2015; Anwar et al., 2020).

One significant contribution of this study is specifying OCBE as an underlying mechanism through which Green HRMPs are linked to Pro-EB. This finding is consistent with the work of Dumont et al., 2017, Saeed et al.(2019), Anwar et al. (2020), and Singh et al. (2020) that Green HRMPs are indirectly related to important work outcomes. This finding suggests that Green HRMPs are the means through which institutions can inspire and motivate employees and enhance their environment-related abilities, knowledge, and skills. The finding also suggests that when employees are motivated and knowledgeable about the importance of the environment, they are more likely to carry out activities that are not harmful to nature. Besides, this result is parallel with the work of Appelbaum et al. (2000) that organization investment in HRMPs motivates employees and enhances their abilities, which, in turn, leads to organization performance. From the environmental perspective, when employees believe

that organizations are investing in Green HRMPs, rewarding and supporting their environmental responsibilities, and providing environment-related training and opportunities, they feel more obliged to engage in Pro-EP (Anwar et al., 2020).

Another important theoretical contribution of this study is conceptualizing and operationalising Green HRMPs, OCBE, and Pro-EB as second-order constructs. Most of the prior studies (e.g., Anwar et al., 2020; Mishra, 2017) have treated HRMPs and OCBE as first-order constructs (for an exception see Haldorai et al., 2022). Using second-order constructs not only reduces model complexity but also enhances its explanatory power.

6.1. Practical implications

This study provides certain implications for the management and policymakers of HEIs. First, with the provisions of Green HRMP, HEIs may attract and recruit candidates that are pro-environmentalist, creates environmental awareness and knowledge, inspires and motivates employees through rewards and benefits, and encourage them to engage in pro-environmental activities that are beneficial to the environment. These activities, in return, result in OCBE and Pro-EB among faculty members of the HEIs. Institutions may also reduce harm to the environment by conducting seminars on the environment, observing care-free days, and cleaning campaigns. Therefore, this study suggests that environmental management should be one of the top priorities of HEIs while formulating institutions' policies.

The implications that arose from the relationship between OCBE and Pro-EB is that management alone can not discourage behaviors that are detrimental to the environment. Instead, voluntary faculty participation in pro-environmental activities, eco-initiatives, and eco-civic activities may magnify institutions' efforts in tackling environmental issues and strengthening Pro-EB among academics. The institutions may encourage voluntary faculty participation by rewarding OCBE, conducting training and seminars on the significance of eco-friendly behavior, and the importance of natural resources. These kinds of activities will create awareness among faculty regarding nature and the environment and encourage their voluntary participation in pro-environmental activities.

The results of the indirect effect of Green HRMPs on Pro-EB through OCBE have significant implications for practitioners and policymakers. This finding suggests that the provision of Green HRMPs such as green training, pay and rewards will enhance faculty members' citizenship behaviors toward the environment, which, in return, will encourage faculty participation in environmentally friendly activities. Besides, the provision of Green HRMPs will develop a sense of belief among the faculty that the organization care about the environment. In line with social exchange theory and norms of reciprocity, this good treatment of the environment on the part of the organization will oblige faculty members to reciprocate with positive environmental friendly behaviors such as taking part in pro-environmental activities. Thus, this study is important in terms of protecting the environment.

7. Limitations

Despite significant theoretical and managerial contributions, this study has certain limitations. The cross-sectional nature of the study limits its generalizability. Future researchers are encouraged to test the model with a longitudinal study. Second, data were collected from a single source; hence,

collecting data from different sources such as management will extend the worth of the model. In addition, the study employed a quantitative approach for data analyses; we encourage future scholars to use mixed methods to extend our understanding of the model. Owing to the causal link between Green HRMPs and pro-environmental behavior, we encourage future researchers to test other mediating variables such as employees' satisfaction, commitment, and attitude toward the environment. Besides, future scholars are encouraged to test and replicate the model of the present study in different work settings and countries.

Conflicts of interest

All authors declare no conflicts of interest in this paper.

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