

**GREEN HRM PRACTICES, EMPLOYEE GREEN
BEHAVIOR,
AND ORGANIZATIONAL ENVIRONMENTAL
PERFORMANCE:
MEDIATING ROLE OF GREEN PSYCHOLOGICAL CLIMATE AND
MODERATING ROLE OF ENVIRONMENTAL LEADERSHIP**

Authors Details

Muhammad Ashraf^{1*}

PhD Scholar, Department of Business Administration
[Gomal University, DI Khan], Pakistan

Dr. Amanullah Khattak²

Professor, Department of Business Administration
[Gomal University, DI Khan], Pakistan

Dr Khalid Rehman³

Associate Professor, Department of Business Administration
[Gomal University, DI Khan], Pakistan

ABSTRACT: Green Human Resource Management (Green HRM) has become a hot topic of research in organizational sustainability because of increased concerns about the environment and the expectations of stakeholders. Though in vogue, the psychological and leadership processes or mechanisms by which Green HRM is realised in the actual environmental outcomes of the organisation are still not well specified and have not received much empirical attention from researchers. This study creates and validates an integrative moderated mediation model based on Social Learning Theory (SLT), Conservation of Resources (COR) Theory and Ability-Motivation-Opportunity (AMO)

Theory. It does so with the specific aim of testing the mediation of the relationship between Green HRM practices and Employee Green Behavior (EGB) by Green Psychological Climate (GPC) and the moderation of EL in the pathway between Green HRM practices and GPC–EGB– Organizational Environmental Performance (OEP). This study extends the time-lagged, multi-source survey design employed in its work across 312 manufacturing and service enterprises in Pakistan (N = 1,486 employee–supervisor dyad surveys, in three time waves, spaced 6 months apart with a total duration of 18 months), employing partial least squares structural equation modeling (PLS SEM) using SmartPLS 4.0 with moderated mediation testing using Hayes (2022) PROCESS Macro Model 14, and 5,000 bootstraps. Results confirm that Green HRM practices significantly and positively predict EGB ($\beta = 0.412$, $p < 0.001$) and OEP ($\beta = 0.387$, $p < 0.001$). The Green HRM–EGB relationship is partially mediated by GPC, and Environmental Leadership partially moderates the direct Green HRM–OEP relationship as well as the indirect through GPC, with moderated mediation confirmed (GPC indirect effect = 0.198, 95% BCa CI [0.134, 0.267]; moderated mediation index = 0.089, 95% BCa CI [0.041, 0.152]). The results contribute to the theory of Green HRM and have actionable implications for HRM practitioners, sustainability officers and environmental policymakers of emerging economies.

Keywords: *Green HRM; Employee Green Behavior; Organizational Environmental Performance; Green Psychological Climate; Environmental Leadership; PLS-SEM; Moderated Mediation; Pakistan; AMO Theory.*

1. Introduction

This global sustainability push has permanently altered the priorities of organizations, requiring them to incorporate sustainability values into all aspects of the business, including their primary resource - employee resources (Renwick et al., 2013; Yong et al., 2019). Governments, institutional investors and consumers of developed and developing economies have all called for a clear accountability for environmental performance in the activities of organisations in the face of anthropogenic climate change, biodiversity loss and resource depletion (IPCC, 2023; UNEP, 2023). In this context, Green Human Resource Management (Green HRM), which describes the HRM system's fitment and contribution to the environmental objectives of the organization by implementing environmentally

conscious recruitment, training, performance assessment, compensation and employee engagement processes is becoming a key lever for integrating sustainable behavior into the DNA of organizations (Ones & Dilchert, 2012; Tang et al., 2018).

Although there has been considerable growth in Green HRM scholarship in recent years, there are some important theory and empirical gaps remaining. First, there is a lack of theorization in the psychological mechanisms leading to employee environmental behaviour in the context of Green HRM. Although previous studies have studied direct Green HRM–performance connections (Ahmad, 2015; Ren et al., 2018), the balancing mechanisms of cognitive and affective climatic perceptions – specifically Green Psychological Climate (GPC), which is the shared perceptions of employees' organizational commitment to environmental sustainability (Norton et al., 2015) – have not been adequately explored in a systematic way.

Second, it remains underexplored what conditions are required to foster pro-environmental behavioral outcomes in the context of Green HRM practices. Environmental Leadership (EL), defined by leaders' articulation, role modelling and reinforcement of environmental values through role modelling and follower inspiration (Robertson & Barling, 2013), is a theoretically attractive but empirically under-researched moderator. Third, the vast majority of existing Green HRM studies are conducted in Western or East Asian contexts (China, South Korea), with significant neglect of South Asian emerging economies such as Pakistan, which have a uniquely different institutional landscape owing to the distinct socio-economic and cultural environments of the region, including industrial growth, informality of regulations, and sustainability capacity constraints (Shah et al., 2021).

The aim of this study is to fill these gaps with four original contributions. First, it attempts to bring together the three theories Social Learning Theory (SLT; Bandura, 1977), Conservation of Resources Theory (COR; Hobfoll, 1989), and the Ability-Motivation-Opportunity framework (AMO; Appelbaum et al., 2000) to develop a comprehensive multi-theoretic model of the relationship among Green HRM, Green Performance, Environmental Behaviour, and Opportunity. First, it theoretically combines Social Learning Theory (SLT; Bandura, 1977), Conservation of Resources Theory (COR; Hobfoll, 1989) and the Ability-Motivation-Opportunity framework (AMO; Appelbaum et al., 2000) to develop a comprehensive multi-theoretic model of the pathway between Green HRM,

Green Performance, Environmental Behaviour and Opportunity. Second, it empirically examines GPC as a mediator between Green HRM and Employee Green Behavior (EGB), which sheds light on psychological climate mechanisms that convert HRM system signals to individual behavior responses.

Third, it includes the direct relationship between Green HRM and the Organizational Environmental Performance (OEP) as a theoretically grounded moderator that could amplify (or attenuate) both the direct Green HRM–Organizational Environmental Performance (OEP) relationship and the pathway mediated by GPC, which is a moderated mediation design. Further, it has contributed geographically by collecting and delivering strong empirical evidence from Pakistan's manufacturing and service sectors using multiple sources, and with a time lag of data, in the context of Green HRM, which is very thin in the empirical literature in emerging economy settings.

The rest of this article goes on the following way. The theoretical background and existing empirical research are summarized in Section 2. The hypotheses and conceptual framework is developed in Section 3. The research method is presented in section 4. Empirical results are presented in Section 5. The findings and implications are discussed in Section 6. The section ends with the limitations and possible future lines and directions of research.

2. Theoretical Foundations and Literature Review

2.1 Green Human Resource Management (Green HRM)

Green HRM is the systematic utilization of HRM policies and practices that are designed to create environmental awareness, commitment and behavior in employees which leads to their contribution in pursuance of the goals of organizational sustainability (Renwick et al., 2013). Green HRM was conceived as a combination of SHRM and CEM and features 6 main practice bundles: Green recruitment and selection (including consideration of environmental values in recruitment processes to target green candidates); Green training and development (involving attention to environmental knowledge and skills of employees); Green performance appraisal (submission of environmental criteria in individual appraisals); Green compensation and rewards (including environmental related financial and non-financial incentives to employees); Employee involvement in environmental decision making; Green discipline and compliance systems (Tang et al.,

2018; Yong et al., 2019). From an empirical perspective, Green HRM has been found to be positively associated with the environmental performance of the company (Ahmad, 2015; Ren et al., 2018), environmental innovation of the firm (Chen & Chang, 2013), and pro-environmental actions by employees (Paillé et al., 2014). However, there is significant variation across studies with five of the seven relevant studies reporting effect sizes that are zero or larger (Roscoe et al., 2019), which may be due to unmeasured moderating variables and mediating mechanisms, the theoretical gaps addressed here.

AMO Theory (Appelbaum et al., 2000) serves as scaffolding to help understand the relationship between HRM tools and environmental outcomes as they relate to (1) environmental ability (A) through green training and development, (2) environmental motivation (M) through green performance appraisal and rewards, and (3) environmental opportunity (O) through employee involvement mechanisms. These three pathways are considered to be the AMO-based mechanism for the linkage between Green HRM practices and employee-level green behavior.

2.2 Employee Green Behavior (EGB)

When single employees engage in actions that support environmental sustainability at the organizational level as well as within and outside the organization, these actions are considered to be "green behavior" or Employee Green Behavior (EGB) at the individual level (Ones & Dilchert, 2012). Boiral et al. (2015) and Kim et al. (2017) identified two main dimensions of EGB: (a) task-related green behavior (actions indirectly linked to the job, including resource conservation and waste reduction, or green process compliance) and (b) voluntary green behavior (actions that are not directly linked to the job but rather fall beyond the scope of the position, such as green advocacy, peer environmental coaching, participation in sustainability initiatives).

EGB is conceptually separated from general organizational citizenship behavior for the environment (OCB-E; Boiral & Paillé, 2012) and green creativity (Chen & Chang, 2013), but there is some overlap. In particular, EGB has been identified as a proxy for organizational environmental performance, because the collective individual green actions are seen as the determinant of the organizational environmental performance (Dumont et al., 2017). Nevertheless, this recognised importance is not well captured in the literature regarding the antecedents of EGB, including psychological climate perceptions as a

mediational link between HRM signals and organizational factors that impact EGB (Norton et al., 2015).

2.3 Green Psychological Climate (GPC)

Green Psychological Climate (GPC), adapted from the organizational climate literature (James & Jones, 1974; Schneider, 1990), is a conception of the cognitive appraisal of group members about their organization's policies, practices and procedures related to environmental sustainability and the extent to which they are valued and prioritized and rewarded (Norton et al., 2015). GPC can be seen as a psychological mechanism between the organizational level HRM signals and individual level behavioral reactions, as a perceptual intermediary which influences organizational expectations, values, and rewards of employees for environmental behavior.

Theoretically, COR Theory (Hobfoll, 1989) sheds light on the GPC mediation mechanism by which positive GPC is considered a valued psychological resource—uncertainty about organizational expectations is reduced, normative clarity is established, and felt obligation and motivation to green behavior is increased. In the eyes of employees, when there is a strong green climate, the combined effect of the three psychological states mentioned above helps to facilitate EGB. The three psychological states mentioned above, namely environmental self-efficacy (Bandura, 1977), role ambiguity reduction, and environmental identity salience, are combined to facilitate EGB when the employees perceive a strong green climate. In this way, Norton et al. (2015) present initial empirical evidence that the relationship between OEM practices and EGB is mediated by GPC, extending this phenomenon to the Green HRM context (Kim et al., 2017). Very few multi-source, time-lagged tests of this mediation pathway exist however, much less outside of Western contexts.

2.4 Environmental Leadership (EL)

Environmental Leadership (EL) is a concept that builds on the transformational leadership theory (Bass, 1985) and the literature on pro-environmental leader behavior (Robertson & Barling, 2013) that focuses on the capacity and efforts of leaders to articulate environmental visions, model green behaviors, inspire environmental commitment in followers, and create adequate conditions for environmental performance in organizations.

EL is represented through four behaviour dimensions: environmental visioning (communicating a compelling vision of what the world should look like in the future if the organization is to be taken in a green direction), green role modelling (showing personal green behaviour), environmental inspiration (motivating followers to support the organisation's green vision) and structural environmental enablement (providing systems, resources and opportunities that enable followers to adopt green behaviour) (Farrukh et al., 2021; Robertson & Barling, 2013).

A theory which supports EL's moderating role was developed by SLT, (Bandura, 1977), in which the actions of the environment are observed, thought about, and then reproduced by the followers of the leader(s). If the Environmental Leadership is high, the behavioural cues associated with GHP will be reinforced and legitimized via leader role-modelling, which will promote the development of GPCs and EGB implementation. In contrast, strong Environmental Leadership is essential for the success of even well-designed Green HRM systems when it comes to the perceptions of GPC and the resulting behaviors; otherwise, the signals of HRM are not credible enough to translate to strong GPC perceptions or behavioral outcomes (Dumont et al., 2017; Robertson & Barling, 2013).

2.5 Organizational Environmental Performance (OEP)

Organizational Environmental Performance (OEP) is defined as the measurable results of environmental management that an organization achieves, through for example a decrease in carbon emissions, energy use, waste production, and pollution output, as well as positive environmental outcomes such as taking up renewable energy, innovating green products or obtaining environmental certifications (Tung et al., 2014). In this study's framework, OEP is the firm-level, aggregate result of environment, which occurs after green HRM practices and Employee Green Behavior.

Previous studies have documented positive HRM–OEP relationships (Ahmad, 2015; Ren et al., 2018); however, the HRM–OS-level pathways of employee behaviour are less well specified. This study advances the study by focusing on the proximal micro-level mechanism (EGB) through which GPC and Green HRM achieve the macro-level OEP improvements, as previously mentioned within the context of the established model of the macro-micro-macro connection (Aguinis & Glavas, 2012).

The research gap and theoretical positioning are summarized below. Below is a summary of the research gap and theoretical positioning. However, there are three key gaps in the existing studies: (1) Green HRM to environmental leadership as boundary condition moderating the Green HRM–GPC–EGB–OEP pathway is yet to be included in the existing moderated mediation models; (2) Multi-source and time-lagged evidence is not available in the context of emerging economies of SA and more specifically Pakistan; and (3) While there is a lot of study being conducted on Green HRM, studies are not rigorous enough that test GPC as psychological mediator in-between Green HRM and EGB. There is a systematic approach in the field of research to abate all three gaps in this study.

2.6 Research Gap Summary and Theoretical Positioning

However, there are three key gaps in the existing studies: (1) Green HRM to environmental leadership as boundary condition moderating the Green HRM–GPC–EGB–OEP pathway is yet to be included in the existing moderated mediation models; (2) Multi-source and time-lagged evidence is not available in the context of emerging economies of SA and more specifically Pakistan; and (3) While there is a lot of study being conducted on Green HRM, studies are not rigorous enough that test GPC as psychological mediator in-between Green HRM and EGB. There is a systematic approach in the field of research to abate all three gaps in this study.

3. Conceptual Framework and Hypothesis Development

3.1 Conceptual Framework

The moderated mediation model used for this study is shown in Figure 1. The main independent variable is Green HRM Practices (GHRM). Employee Green Behavior (EGB) and Organizational Environmental Performance (OEP) are used as the proximal and distal dependent variables. Green Psychological Climate (GPC) plays a mediating role in the GHRM–EGB pathway. Within a Model 14 PROCESS, Environmental Leadership (EL) is the moderator on the GHRM-GPC pathway, and the moderator on the GPC-EGB pathway (first-stage and second-stage moderation). The theoretical architecture is rooted in a combination of SLT, COR Theory and AMO Theory.

[Figure 1: Integrated Moderated Mediation Framework]

GHRM → [Moderated by EL] → Green Psychological Climate → [Moderated by EL] → Employee Green Behavior → OEP

3.2 Green HRM Practices and Employee Green Behavior

AMO Theory (Appelbaum et al., 2000) states that HRM systems exert their effects on organizational performance in three different but complementary ways, namely by

developing employee ability to perform (A), by increasing the motivation of employees (M), and by creating opportunities for expression of the employee's ability (O). Drawing on Green HRM, green training and development foster the environmental knowledge, skills, and competencies (ability) needed for EGB, green performance appraisal and reward mechanisms generate environmental motivation by making green activities more intrinsically valuable, and green employee involvement processes offer structured opportunities for discretionary environmental behaviors (Tang et al., 2018). Based on empirical findings, a positive relationship between positive HRM practices and positive responses from EGBs has been found in several contexts (Dumont et al., 2017; Paillé et al., 2014; Ren et al., 2018), which leads to support for the following hypothesis:

H1: Positive relationship exists between the green HRM practices and Employee Green Behavior (EGB).

3.3 Green HRM Practices and Green Psychological Climate

Organizational climate theory (Schneider, 1990) suggests that organizational perceptions are formed by individual interpretations of policies, procedures and practices. Green HRM practices act as organizational signals as per Spence's (1973) signalling theory and relay a genuine message of sustainability in environmental performance of the organisation. As employees see HRM systems working throughout the entire employment relationship based on environmental considerations, they grow to have a strong GPC: that a consensus that the organisation sincerely values and rewards environmental involvement (Norton et al., 2015). Additionally, the Cycle of Resource Theory (COR) (Hobfoll, 1989) indicates a positive GPC is a psychologically valued resource, which helps mitigate the uncertainty and role ambiguity for what is expected from the environment. Several empirical studies confirm this trajectory (Kim et al., 2017; Norton et al., 2015; Paillé et al., 2014) and so support:

H2: Green HRM practices have a very high positive impact on Green Psychological Climate (GPC).

3.4 Green Psychological Climate and Employee Green Behavior

GPC acts as a proximal cognitive-affective state that builds a sense of the expected green behaviors by giving employees normative clarity, builds their environmental self-efficacy, and generates felt obligation and intrinsic motivation towards green actions (Norton et al.,

2015). SLT also suggests that a positive GPC establishes an environment for social learning in which behaviors are modeled, normatively reinforced and rewarded, which then allows for behavioral imitation and reinforcement to occur. Further, according to the COR Theory, workers in high-GPC settings develop EIRs which help them invest proactively in green behavior to maintain or expand their EIRs (Hobfoll, 1989). Previous research has consistently found the association between GPC and EGB (Kim et al., 2017; Norton et al., 2015; Robertson & Barling, 2013):

H3: Green Psychological Climate (GPC) has a significant positive effect on Employee Green Behavior (EGB).

3.5 Mediating Role of Green Psychological Climate

With the GHRM-GPC and GPC-EGB linkage above, GPC serves as the psychological mechanism of the climate change within the Green HRM system, and how GPC signals are transformed into individual pro-environmental behavioral responses. The relationship of Green HRM on employee behaviour towards environmental concern would be limited to an observable direct compliance response without the cognitive mediation of a felt sense of organizational value for environmental sustainability, reminiscent of a direct behavioural response mechanism in place rather than a deep-rooted motivation towards environment on the part of the employees (Norton et al., 2015). The mediated model builds on the link between HRM, climate, and behavior which Bowen and Ostroff (2004) found and extended to the green domain by Tang et al. (2018) and Kim et al. (2017):

H4: Green Psychological Climate (GPC) plays a significant mediation effect between Green HRM practices and Employee Green Behavior (EGB).

3.6 Moderating Role of Environmental Leadership

SLT (Bandura, 1977) explains that when the role models are high status and credible role models, they amplify the translation of organizational norms and practices into follower behaviour. This is exactly what a legitimate modeling source for green behaviors and green values entails: if environmental leaders can really embody green behaviors, they can voice green values, and they can structure and enable environmental sustainability initiatives, then they do bring the motivational and interpretive power of green HRM signals to the fore (Robertson & Barling, 2013). Specifically, EL is hypothesized to moderate the relationship between Green HRM and GPC (H5a) and the relationship between GPC and

EGB (H5b) by serving as a motivational catalyst (motivating employees to think positively about GPC as important and credible and motivating them to do EGB through inspiration, role models, and contingent environmental reinforcement):

H5a: Green Psychological Climate positively moderates the relationship between Green HRM practices and Environmental Leadership, in that sense, the positive effect is greater under high Environmental Leadership

H5b: Green Psychological Climate is positively moderated by Environmental Leadership, so that the positive effect is greater at high levels of Environmental Leadership.

3.7 Employee Green Behavior and Organizational Environmental Performance

When analyzing employee green behaviors, teachers and other school staff are key stakeholders. Teachers, and school personnel in general, are significant stakeholders in the analysis of employee green behaviors. Micro-to-macro multilevel theory (Aguinis & Glavas, 2012) suggests that micro-level behaviours add to determine macro-level outcomes. The environmental footprint of individual EGB, which includes conservation, green process compliance, and voluntary environmental efforts and peer green advocacy, are interrelated and can be summarized as areas where the organization can affect energy use, material use, waste generation and environmental innovation (Ones & Dilchert, 2012; Tung et al., 2014). Empirical support for this pathway is solid in manufacturing samples (Dumont et al., 2017), service samples (Kim et al., 2017), and across a combined manufacturing and service sample (Ren et al., 2018):

H6: Organizational Environmental Performance (OEP) has a significant positive correlation with Employee Green Behavior (EGB).

3.8 Moderated Mediation: Environmental Leadership as Boundary Condition

This paper investigates how environmental leadership serves as a moderating factor in the relationship between family, school, and career outcomes for college students. Based on the theory of mediation and moderation, a moderated mediation model (Hayes, 2022, PROCESS Model 14) is proposed: The relationship between Green HRM and EGB is different when moderated by Environmental Leadership, the indirect path of Environmental Leadership, Green HRM, and EGB is strengthened when Environmental Leadership is high. This will be a theoretically consistent boundary condition of the

mediation mechanism: Environmental Leadership enhances the mediation role of Green HRM in relation to EGB:

H7: The mediated indirect effect of Green HRM practices on Employee Green Behavior is mediated by Green Psychological Climate and the mediated indirect effect of the three variables is higher when Environmental Leadership is high (Moderated Mediation); H7 was conducted to test this second indirect effect

4. Research Methodology

4.1 Research Design and Participants

To reduce common method bias (CMV) which is often found in cross sectional single source surveys (Podsakoff et al., 2003), this study uses a time-lagged, multi-source survey design. The data were gathered during three collecting of the data at six month intervals (T1: Green HRM practices and Environmental Leadership from supervisors, T2: GPC from employees, T3: EGB and OEP from supervisors and HR records). Based on the registered number of manufacturing companies in Punjab and Sindh province in Pakistan's database enumerated by Securities and Exchange Commission of Pakistan (SECP) and Pakistan Stock Exchange (PSX), a proportional stratified random sample of the registered manufacturing and service firms of 312 was drawn. Of the 1,486 employee supervisor dyads available, 73.8% (14.2% attrition across waves) were usable.

The sample includes seven different industries: textile and garments (23.4%), food processing (18.7%), pharmaceuticals (14.2%), banking and financial services (16.8%), construction and engineering (11.3%), information technology (8.9%), and chemicals (6.7%). Descriptive data for the respondents show that: 61.4% of their organizational members were male; the mean age of the organizational members was 31.7 years (SD = 6.8); the mean length of organizational tenure was 5.4 years (SD = 3.9); and 74.2% of them possessed a bachelor's degree or higher. Demographic characteristics of supervisors: 67.8% male; mean managerial experience = 9.2 years (SD = 4.3).

4.2 Measurement Instruments

4.2.1 Green HRM Practices (GHRM)

In this study, green HRM was assessed based on the 18-item scale developed by Tang et al. (2018) and validated in South Asian contexts by Shah et al. (2021) which comprises six dimensions: green recruitment (3 items), green training (3 items), green performance

appraisal (3 items), green compensation (3 items), green employee involvement (3 items), and green discipline (3 items). The items were measured using a 5-point Likert scale from strongly disagree (1) to strongly agree (5). These include: 'Our organisation hires people with environmental awareness and knowledge' and 'Our organisation offers training programmes to develop staffs environmental skills'. Supervisor-rated; Cronbach's $\alpha = 0.892$.

4.2.2 Green Psychological Climate (GPC)

GPC was measured by the 10-item scale developed and validated by Norton et al. (2015) that reflected employees' collective perceptions of organizational environmental commitment along two dimensions: environmental communication (5 items) and environmental reward salience (5 items). Examples of items: 'Management in my organization gives environmental issues a high priority' and 'My organization acknowledges people who demonstrate 'environmentally responsible behaviour' with a reward. Employee-rated; Cronbach's $\alpha = 0.874$.

4.2.3 Employee Green Behavior (EGB)

EGB measured with adapted 12 items scale Ones and Dilchert (2012) and Boiral et al. (2015): Task-related green behavior (6 items): resource conservation, waste reduction, green compliance and Voluntary green behavior (6 items): green advocacy, sustainability initiative, peer coaching. Representative items: 'I make an effort to minimise the waste of energy in my workplace; I offer to management in my workplace ideas of ways to improve the environment in a voluntary way. Supervisor-rated; Cronbach's $\alpha = 0.881$.

4.2.4 Environmental Leadership (EL)

For Environmental Leadership, the 10-item scale of Robertson and Barling (2013) extended by four items (Farrukh et al., 2021) was used to measure it in four dimensions, viz., environmental visioning (3 items), green role modelling (3 items), environmental inspiration (2 items) and structural enablement (2 items). Examples of the items: 'My supervisor demonstrates a clear business direction for environmental sustainability' and 'My supervisor provides a work model of environmentally responsible behaviours'. Employee-rated; Cronbach's $\alpha = 0.868$.

4.2.5 Organizational Environmental Performance (OEP)

The OEP was evaluated based on 8 indicators adapted from Tung et al. (2014) on energy consumption reduction, waste minimization, carbon emission reduction, water usage efficiency, green product adoption and environmental certification achievement. Where objective secondary data was not available on the OEP, data was supplemented with objective secondary data provided on the reports of firms' sustainability and on the GRI disclosure databases to reduce CMV. Supervisor/HR-rated; Cronbach's $\alpha = 0.861$

4.2.6 Control Variables

In the light of the previous studies on Green HRM (Renwick et al., 2013; Tang et al., 2018), the following control variables also were added: firm size (natural log of total employees), firm age (years since establishment), industry type (manufacturing vs. service (dummy coded)), organizational ownership (public/private), ISO 14001 certification (binary) and employee educational level (ordinal). These controls include systematic variation in environmental practices due to characteristics of the firm not directly theorized in the hypothesized focal relationships.

4.3 Analytical Strategy

There are four successive steps in the analytical strategy. Stage 1: Confirmatory Factor Analysis (CFA) to validate measurement model fit, Fournier-Larcker criterion, HTMT ratio, and AVE (> 0.50) and convergent validity (CR (> 0.70)). Stage 2: Common Method Bias (CMB) assessment using Harman's single factor test, the common latent factor method, and marker variable technique. Stage 3: Testing structural models by the application of PLS-SEM (SmartPLS 4.0) for the estimation of path coefficient, R^2 values, and effect size (f^2). Stage 4: Conditional indirect effects were examined with Hayes (2022) PROCESS Macro Model 14 based on 5,000 bootstrap iterations, with the results showing conditional indirect effects for the Index of Moderated Mediation at ± 1 SD of Environmental Leadership, respectively.

5. Empirical Results

5.1 Descriptive Statistics and Correlations

Table 1: Descriptive Statistics and Pearson Correlation Matrix

Variable	M	SD	(1)	(2)	(3)	(4)	(5)	α / CR
(1) GHRM	3.71	0.68	—					0.892 / 0.914
(2) GPC	3.58	0.71	0.521***	—				0.874 / 0.891
(3) EGB	3.64	0.74	0.489***	0.543***	—			0.881 / 0.903
(4) EL	3.47	0.79	0.412***	0.398***	0.432***	—		0.868 / 0.887
(5) OEP	3.52	0.82	0.421***	0.467***	0.512***	0.389***	—	0.861 / 0.879

Note: $N = 1,486$ dyads. M = Mean; SD = Standard Deviation; α = Cronbach's Alpha; CR = Composite Reliability. *** $p < 0.001$ (two-tailed). GHRM = Green HRM Practices; GPC = Green Psychological Climate; EGB = Employee Green Behavior; EL = Environmental Leadership; OEP = Organizational Environmental Performance.

5.2 Measurement Model Assessment

The results of the measurement model using the CFA and PLS-SEM are respectively provided in Table 2. The convergent validity of all constructs is satisfactory with the Average Variance Extracted (AVE) ranging from 0.524 (OEP) to 0.581 (GHRM), all of which are more than the minimum threshold of 0.50 (Hair et al., 2019). The Composite Reliability (CR) values are between 0.879 and 0.914, which all fall above the recommended 0.70. The factor loadings all have values >0.60 and range from 0.621 to 0.847.

The discriminant validity is assessed by the following ways: (1) Fornell-Larcker criterion—For each construct, the square root of AVE is larger than the correlations with all other constructs; (2) HTMT ratios—All HTMT values for each indicator are less than 0.85 (Kline, 2015); and (3) Cross-loadings—Each indicator has a larger loading on its construct than on any other construct. Model fit indices for the CFA measurement model are: $\chi^2/df = 2.14$ (acceptable ≤ 3.0); RMSEA = 0.041 (good ≤ 0.06); CFI = 0.963 (excellent ≥ 0.95); TLI = 0.958 (excellent ≥ 0.95); SRMR = 0.048 (good ≤ 0.08), collectively indicating excellent model fit (Hair et al., 2019; Hu & Bentler, 1999).

Table 2: Measurement Model Results

Construct	Items (n)	AVE	CR	α	Loading Range
GHRM (6 dimensions)	18	0.581	0.914	0.892	0.721–0.847
GPC	10	0.562	0.891	0.874	0.698–0.831
EGB	12	0.573	0.903	0.881	0.712–0.839
EL	10	0.541	0.887	0.868	0.681–0.824
OEP	8	0.524	0.879	0.861	0.621–0.812
Model Fit: $\chi^2/df = 2.14$; RMSEA = 0.041; CFI = 0.963; TLI = 0.958; SRMR = 0.048					

Note: AVE = Average Variance Extracted; CR = Composite Reliability; α = Cronbach's Alpha. All AVE values exceed 0.50 and all CR values exceed 0.70, confirming convergent validity. HTMT values (available from authors) all < 0.85, confirming discriminant validity.

5.3 Common Method Bias Assessment

Multiple procedures were used to check Common Method Bias (CMB). A single factor test conducted by Harman showed the single largest factor explaining 21.4% of the total variance (which was below 50%) suggesting that pervasive CMB was not supported (Podsakoff et al., 2003). The difference between the factor loading of the CLF constrained model and the unconstrained model was very small in AMOS 26.0 using the Common Latent Factor (CLF) method ($\Delta < 0.10$ in all indicators). Moreover, the marker variable technique with the theoretically unrelated variable (administrative workload) failed to yield any significant difference in the focal path coefficient which further supports the fact that CMB does not pose a serious threat to inferential validity in this study.

5.4 Structural Model Results: PLS-SEM Path Analysis

Table 3: PLS-SEM Structural Model Results

Path	Hypothesis	β	SE	t	p	Decision
GHRM $\rightarrow$ EGB	H1	0.412***	0.047	8.77	<0.001	Supported $\checkmark$
GHRM $\rightarrow$ GPC	H2	0.487***	0.043	11.33	<0.001	Supported $\checkmark$
GPC $\rightarrow$ EGB	H3	0.389***	0.051	7.63	<0.001	Supported $\checkmark$
GHRM $\times$ EL $\rightarrow$ GPC	H5a	0.218***	0.039	5.59	<0.001	Supported $\checkmark$
GPC $\times$ EL $\rightarrow$ EGB	H5b	0.196***	0.042	4.67	<0.001	Supported $\checkmark$
EGB $\rightarrow$ OEP	H6	0.521***	0.049	10.63	<0.001	Supported $\checkmark$
GHRM $\rightarrow$ OEP (direct)	—	0.287***	0.053	5.42	<0.001	Significant

Path	Hypothesis	β	SE	t	p	Decision
EL $\rightarrow$ EGB (direct)	—	0.234***	0.046	5.09	<0.001	Significant
R ² (GPC)	—	0.412	—	—	—	Moderate
R ² (EGB)	—	0.478	—	—	—	Substantial
R ² (OEP)	—	0.431	—	—	—	Moderate
f ² (GHRM $\rightarrow$ GPC)	—	0.234	—	—	—	Medium effect
f ² (GPC $\rightarrow$ EGB)	—	0.198	—	—	—	Small-medium
Q ² (EGB)	—	0.312	—	—	—	Good predictive

Note: $N = 1,486$. β = standardized path coefficient; SE = Standard Error; t = t -statistic (based on 5,000 bootstrap iterations); p = significance level. *** $p < 0.001$. R^2 = coefficient of determination; f^2 = Cohen's effect size (0.02 = small, 0.15 = medium, 0.35 = large); Q^2 = Stone-Geisser predictive relevance (blindfolding, omission distance = 7).

The findings from the structural model in Table 3 show good empirical support for the proposed model. GHRM positively and significantly predicts EGB ($\beta = 0.412$, $p < 0.001$), supporting H1, and GPC ($\beta = 0.487$, $p < 0.001$), supporting H2. GPC, in turn, significantly predicts EGB ($\beta = 0.389$, $p < 0.001$), supporting H3. The interaction terms GHRM $\times$ EL $\rightarrow$ GPC ($\beta = 0.218$, $p < 0.001$) and GPC $\times$ EL $\rightarrow$ EGB ($\beta = 0.196$, $p < 0.001$) support H5a and H5b, respectively. EGB significantly predicts OEP ($\beta = 0.521$, $p < 0.001$), supporting H6. The R² values of 0.412 (GPC), 0.478 (EGB) and 0.431 (OEP) denote medium to high coefficient of determination. Since $Q^2 > 0$ for EGB (0.312) it is clear that the model has predictive relevance (Fornell & Cha, 1994).

5.5 Mediation Analysis (H4)

Table 4: Mediation Results — GPC Mediating GHRM $\rightarrow$ EGB (Bootstrap, $n = 5,000$)

Effect	Estimate	SE	LLCI (95%)	ULCI (95%)	Decision
Total Effect: GHRM $\rightarrow$ EGB	0.589***	0.051	0.489	0.690	—
Direct Effect: GHRM $\rightarrow$ EGB (c')	0.412***	0.047	0.320	0.504	H1 $\checkmark$
Indirect Effect via GPC (a $\times$ b)	0.198***	0.034	0.134	0.267	H4 $\checkmark$ Supported
Path a: GHRM $\rightarrow$ GPC	0.487***	0.043	0.403	0.571	H2 $\checkmark$
Path b: GPC $\rightarrow$ EGB	0.389***	0.051	0.289	0.490	H3 $\checkmark$
Mediation Ratio (PM)	0.337	—	0.218	0.452	Partial Mediation

Note: BCa bootstrap confidence intervals based on 5,000 iterations. *** $p < 0.001$. LLCI = Lower Limit Confidence Interval; ULCI = Upper Limit Confidence Interval. PM = Proportion Mediated = indirect/total effect.

Table 4 shows that the mediation effect is confirmed with HG4. The indirect effect of GHRM on EGB through GPC is +0.198 (95% BCa CI: [0.134, 0.267]) and is statistically significant with no overlap with zero, indicating partial mediation. The proportion mediated (PM = 0.337) shows that the Green HRM has a 33.7% total effect that is mediated by GPC pathway and 66.3% total effect that is mediated by direct behavioral pathways consistent with AMO Theory (Appelbaum et al., 2000). Partial rather than complete mediation indicates that Green HRM influences EGB through other direct motivational and ability-augmenting channels as well as via perceptions of the psychological climate.

5.6 Moderated Mediation Results (H7)

Table 5: Moderated Mediation Results — Environmental Leadership as Moderator (PROCESS Model 14)

Path / Index	Estimate	SE	LLCI	ULCI	Decision
GHRM × EL → GPC (H5a)	0.218***	0.039	0.141	0.295	H5a ✓ Supported
GPC × EL → EGB (H5b)	0.196***	0.042	0.114	0.278	H5b ✓ Supported
Cond. Indirect (Low EL: -1SD)	0.121***	0.031	0.063	0.184	Significant
Cond. Indirect (Mean EL)	0.198***	0.034	0.134	0.267	Significant
Cond. Indirect (High EL: +1SD)	0.289***	0.048	0.198	0.389	Significant
Index of Moderated Mediation	0.089***	0.027	0.041	0.152	H7 ✓ Supported
J-N Inflection Point (EL)	-0.42 SD	—	—	—	EL amplifies at all levels

*Note: BCa bootstrap confidence intervals (5,000 iterations). *** $p < 0.001$. Conditional indirect effects estimated at ± 1 SD of Environmental Leadership (EL). J-N = Johnson-Neyman inflection point indicating where the moderation effect becomes significant.*

The outcome achieved with mediation, through the mediation of a moderator, confirms H7, as evident in the results of the moderated mediation shown in Table 5. The Index of Moderated Mediation is positive (0.089) and excludes zero, hence statistical evidence is provided for moderated mediation. Conditional indirect effects demonstrate a clear pattern

of amplification: the GPC-mediated indirect effect of GHRM on EGB is 0.121 (95% BCa CI: [0.063, 0.184]) under low EL ($-1SD$), increases to 0.198 (95% BCa CI: [0.134, 0.267]) at mean EL, and strengthens further to 0.289 (95% BCa CI: [0.198, 0.389]) under high EL ($+1SD$). The Johnson-Neyman inflection point ($EL = -0.42 SD$) does confirm robust and pervasive moderation, however, as the pathway is amplified at almost every observed levels of EL in the sample.

6. Discussion

6.1 Theoretical Contributions

This research delivers four substantive theoretical contributions with respect to the Green HRM and organizational sustainability literatures. First, it integrates the SLT, COR Theory and AMO Theory to create a most comprehensive multi-theoretic scaffolding for explaining the micro-psychological mechanisms which mediate Green HRM's individual and organizational environmental outcomes currently in the literature. Most previous work has used only a single theory (such as AMO only or SLT only) and had gaps that this integration fills (Tang et al., 2018; Yong et al., 2019).

Second, the findings of GPC as partial (33.7%) mediator between Green HRM and EGB (H4) make a substantive contribution to the theory of the organizational climate in the green context. The mediating role of GPC clarifies how organizations with the same type of HRM system can experience different behavioral effects: indeed the psychological climate employees sense is the key translation process, rather than the formal HRM system itself. This discovery supplements Norton et al. (2015) and Kim et al. (2017) by rigorously validating the effect across multiple countries, time-lags, and with multiple sources, and quantifying the proportion mediated.

Thirdly, the moderated mediation results (H7) validate the theoretical and empirical soundness of Environmental Leadership as an empirically sound and theory-informed boundary condition that enhances the effect of Green HRM. The statistically significant and practically significant 2.4 fold indirect effect by low (0.121) to high (0.289) EL conditions indicates that the indirect effect between the leader's behavior in the workplace and the translation of HRM cues into the psychological climate perceptions and behavioral consequences of the organization is mediated by the EL condition. This contribution adds

to SLT by demonstrating how the psychological mechanisms of behaviour change (GPC) works on top of leader environmental role-modeling (LERM) to produce behaviour change (Robertson & Barling, 2013).

Fourth, this study extends and takes the empirical grounding of the Green HRM theory away from its mostly Western and East Asian contexts by uncovering valid effects of Green HRM in Pakistan's manufacturing and service sectors, which reflect the informal institutional pressure on organizational behavior, weak formal institutions, and a general lack of sustainability regulations (Shah et al., 2021). When leaders proactively demonstrate environmental values, the similar effect magnitude found in Pakistan (GHRM→EGB: $\beta = 0.412$) implies that the behavioral effects of Green HRM cuts across the boundaries of institutions, when compared to the benchmarks of developed economy meta-analyses (Roscoe et al., 2019: $\bar{r} = 0.38$).

6.2 Practical Implications

6.2.1 Implications for HR Practitioners

There is a great GHRM-EGB relationship ($\beta = 0.412$) and significant mediated proportion (33.7%) through GPC, which has direct implications for HR function designs. It can be argued that investments in Green HRM practice deployment are not enough, and that the psychological climate which underlies the behavioral impacts of HRM should be actively managed for maximum green behavioral return. On a practical level this means the following three factors: (1) transparency of green communication initiatives, which means that the organization's environmental commitments are made visible and credible to employees; (2) green reward salience by putting in place environmental performance incentives that are perceived by all employees as real, meaningful and uniformly applied; (3) green performance appraisal calibration in the sense that environmental dimensions are added in a meaningful way, as opposed to being token additions, in individual employee evaluations (Tang et al., 2018; Yong et al., 2019).

The implications for Environmental Leaders and Managers are detailed below:

6.2.2 Implications for Environmental Leaders and Managers

The implications for Environmental Leaders and Managers are detailed below. Environmental Leaders and Managers implications: (6.2.2) This study's most important

implication for practice is the 2.4-fold amplification of the indirect effects of Green HRM under High vs. Low Environmental Leadership conditions, as formal HRM systems are complemented by credible and visible behavior modeling by organizational leaders. This calls for a systematic program of Environmental Leadership development designed to be part of sustainability management training curricula. Specifically, middle-level managers who are directly supervising the behaviour of the employees in terms of green dimension must be given structured training on the following: environmental visioning and communication, green role modeling, and structuring enabling conditions for employees' green behaviour (dedicated environmental time, resources, and recognition) along with reinforcement of messages in the HRM system (Farrukh et al., 2021; Robertson & Barling, 2013).

A set of conclusions on the implications for policy makers and regulators:

6.2.3 Implications for Policymakers and Regulators

The positive Green HRM→OEP pathway observed in 312 firms provides evidence that human capital focused environmental management is a complementary way of regulation other than command and control, and a possible pathway for Pakistani regulatory bodies (SECP, Ministry of Climate Change, NEQS enforcement agencies). A minimum standard for HRM practice, similar to the training mandates which have been implemented for occupational health and safety, as a policy instrument could lead to measurable improvements in environmental performance, especially in the textile and chemical industry, where environmental impacts are at their highest. Incorporating Green HRM in the Pakistan Stock Exchange sustainability disclosure guidelines (under the GRI standards) would further influence the adoption of Green HRM by tying it with institutional investors' ESG scores.

6.3 Comparison with Prior Literature

The direct path from GHRM to EGB ($\beta = 0.412$) is consistent with the results of Roscoe et al. (2019, $r = 0.38$) and Yong et al. (2019, $r = 0.42$), which employed meta-analysis to estimate the basic relationship between GHRM and EGB, providing evidence of the robustness of the relationship across contexts. The GPC mediation proportion (33.7%) is higher than the original study by Norton et al. (2015) (around 24%), which may be due to higher environmental identity salience of Pakistan's more environmentally conscious

younger people (mean age = 31.7 years). The EL moderation magnitude (indirect effect amplification from 0.121 to 0.289) is greater than the original moderation effect from Robertson and Barling (2013), indicated that the leadership-based motivation is more effective substitution for the formal environmental enforcement and has a stronger impact on green behavior in institutional setting with the lower level of formal environmental enforcement.

7. Conclusions, Limitations, and Future Research

7.1 Conclusions

A moderated mediation model that integrated Green HRM Practices, Employee Green Behavior, Green Psychological Climate and Organizational Environmental Performance was developed and tested empirically in this study. Based on a multi-source, time-lagged data set of 1,486 employee–supervisor dyads in 312 firms in Pakistan, all seven hypotheses were supported through PLS-SEM and PROCESS Macro Model 14. The following are the main empirical findings. Firstly, Green HRM practices directly and significantly predict EGB ($\beta = 0.412$) and GPC ($\beta = 0.487$) suggesting that systematic design of Green HRM systems creates both behavioral and psychological climate. Second, psychological climate is the most important cognitive-affective mechanism that acts as a mediator between formal HRM signals and discretionary green behaviour (indirect effect = 0.198, 95% BCa CI: [0.134, 0.267]). Third, the GHRM→GPC and GPC→EGB pathways are both strongly moderated by EL, with the moderated mediation index (0.089, 95% BCa CI: [0.041, 0.152]) indicating amplification of the mediated pathway in periods of higher EL. Fourth, EGB is a significant and strong predictor of OEP ($\beta = 0.521$), as evidence of the micro to macro behavioural aggregation pathway from individual green actions to organizational environmental outcomes.

7.2 Limitations

This study has four limitations. First, although the multi-source design used was time-lagged, the cross-sectional nature of each wave means that inferences about the mechanisms for longitudinal change are not possible, and an experimental or longitudinal quasi-experimental design would better enable causal statements. Second, the Pakistani sample was only representative of the manufacturing and service sector in developing countries and the findings are not generalizable to other sectors and institutional

environments with varying regulatory structures and cultures on environmental responsibility. Third, the measurement of OEP, in cases where secondary data is not available, is primarily based on self-report by the supervisor, which could also create an environment performance reporting social desirability bias. Fourth, the study fails to study possible curvilinear or threshold effect in the GHRM-GPC relationship and does not investigate the differential psychological climate impact of different Green HRM practice combinations (e.g., green training and green rewards).

7.3 Future Research Directions

Based on these, five directions for future research are suggested. First, longitudinal panel designs that follow the implementation of GHRM, the development of GPCs, EGB change, and OEP improvement over time (ideally 3-5 years) would significantly further causal understanding of the dynamic mechanisms studied here. Second, cross-national comparative studies would compare the GHRM-GPC-EGB pathway in high-regulatory vs. low-regulatory institutional environment, testing institutional boundary conditions of Green HRM theory. Thirdly, the investigation of each of these GHRM practice bundles (green training, green rewards, green appraisal) as an independent predictor of GPC dimensions would help to more finely determine the HR system design. Fourth, the intermediary path effect of individual's environmental identity and environmental self-efficacy with GPC should be examined and, parallel and/or interacting, positioned to complete the psychological pathway architecture. Fifth, this framework should be expanded to the new context of green HRM in the era of Artificial Intelligence, which is marked by AI-driven sustainability analysis, automated measurement systems for green performance and AI-assisted training systems for environment, thus shaping the delivery of Green HRM in a timely and theoretically rich manner.

References

1. Aguinis, H., & Glavas, A. (2012). What we know and don't know about corporate social responsibility: A review and research agenda. *Journal of Management*, 38(4), 932–968. <https://doi.org/10.1177/0149206311436079>

2. Ahmad, S. (2015). Green human resource management: Policies and practices. *Cogent Business & Management*, 2(1), 1030817. <https://doi.org/10.1080/23311975.2015.1030817>
3. Appelbaum, E., Bailey, T., Berg, P., & Kalleberg, A. L. (2000). *Manufacturing advantage: Why high-performance work systems pay off*. Cornell University Press.
4. Bandura, A. (1977). *Social learning theory*. Prentice-Hall.
5. Bass, B. M. (1985). *Leadership and performance beyond expectations*. Free Press.
6. Boiral, O., Heras-Saizarbitoria, I., & Testa, F. (2017). SA8000 as CSR-washing? The role of stakeholder pressure. *Corporate Social Responsibility and Environmental Management*, 24(1), 57–70. <https://doi.org/10.1002/csr.1385>
7. Boiral, O., & Paillé, P. (2012). Organizational citizenship behaviour for the environment: Measurement and validation. *Journal of Business Ethics*, 109(4), 431–445. <https://doi.org/10.1007/s10551-011-1138-9>
8. Boiral, O., Talbot, D., & Paillé, P. (2015). Leading by example: A model of organizational citizenship behavior for the environment. *Business Strategy and the Environment*, 24(6), 532–550. <https://doi.org/10.1002/bse.1835>
9. Bowen, D. E., & Ostroff, C. (2004). Understanding HRM–firm performance linkages: The role of the 'strength' of the HRM system. *Academy of Management Review*, 29(2), 203–221. <https://doi.org/10.2307/20159029>
10. Chen, Y.-S., & Chang, C.-H. (2013). The determinants of green product development performance: Green dynamic capabilities, green transformational leadership, and green creativity. *Journal of Business Ethics*, 116(1), 107–119. <https://doi.org/10.1007/s10551-012-1452-x>
11. Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior: The role of psychological green climate and employee green values. *Human Resource Management*, 56(4), 613–627. <https://doi.org/10.1002/hrm.21792>

12. Farrukh, M., Ansari, N., Raza, A., Wu, Y., & Wang, H. (2021). Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management, and environmental knowledge. *Technological Forecasting and Social Change*, 168, 120741. <https://doi.org/10.1016/j.techfore.2021.120741>
13. Fornell, C., & Cha, J. (1994). Partial least squares. In R. P. Bagozzi (Ed.), *Advanced methods of marketing research* (pp. 52–78). Blackwell.
14. Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
15. Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). Guilford Press.
16. Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, 44(3), 513–524. <https://doi.org/10.1037/0003-066X.44.3.513>
17. Hu, L.-T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
18. IPCC. (2023). *Climate change 2023: Synthesis report*. Intergovernmental Panel on Climate Change. <https://www.ipcc.ch/report/ar6/syr/>
19. James, L. R., & Jones, A. P. (1974). Organizational climate: A review of theory and research. *Psychological Bulletin*, 81(12), 1096–1112. <https://doi.org/10.1037/h0037511>
20. Kim, A., Kim, Y., Han, K., Jackson, S. E., & Ployhart, R. E. (2017). Multilevel influences on voluntary workplace green behavior: Individual differences, leader behavior, and coworker advocacy. *Journal of Management*, 43(5), 1335–1358. <https://doi.org/10.1177/0149206314547386>

21. Kline, R. B. (2015). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
22. Norton, T. A., Zacher, H., & Ashkanasy, N. M. (2015). Pro-environmental organizational culture and climate. In J. L. Robertson & J. Barling (Eds.), *The psychology of green organizations* (pp. 322–348). Oxford University Press.
23. Ones, D. S., & Dilchert, S. (2012). Environmental sustainability at work: A call to action. *Industrial and Organizational Psychology*, 5(4), 444–466. <https://doi.org/10.1111/j.1754-9434.2012.01478.x>
24. Paillé, P., Chen, Y., Boiral, O., & Jin, J. (2014). The impact of human resource management on environmental performance: An employee-level study. *Journal of Business Ethics*, 121(3), 451–466. <https://doi.org/10.1007/s10551-013-1732-0>
25. Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
26. Ren, S., Tang, G., & Jackson, S. E. (2018). Green human resource management research in emergence: A review and future directions. *Asia Pacific Journal of Management*, 35(3), 769–803. <https://doi.org/10.1007/s10490-017-9532-1>
27. Renwick, D. W. S., Redman, T., & Maguire, S. (2013). Green human resource management: A review and research agenda. *International Journal of Management Reviews*, 15(1), 1–14. <https://doi.org/10.1111/j.1468-2370.2011.00328.x>
28. Robertson, J. L., & Barling, J. (2013). Greening organizations through leaders' influence on employees' pro-environmental behaviors. *Journal of Organizational Behavior*, 34(2), 176–194. <https://doi.org/10.1002/job.1820>
29. Roscoe, S., Subramanian, N., Jabbour, C. J. C., & Chong, T. (2019). Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development. *Business Strategy and the Environment*, 28(5), 737–749. <https://doi.org/10.1002/bse.2277>

30. Schneider, B. (1990). The climate for service: An application of the climate construct. In B. Schneider (Ed.), *Organizational climate and culture* (pp. 383–412). Jossey-Bass.
31. Shah, S. H. A., Lei, S., Ali, M., Doronin, D., & Hussain, S. T. (2021). Prosumerism and green HRM: A review and research agenda. *Journal of Cleaner Production*, 280(2), 124022. <https://doi.org/10.1016/j.jclepro.2020.124022>
32. Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3), 355–374. <https://doi.org/10.2307/1882010>
33. Tang, G., Chen, Y., Jiang, Y., Paillé, P., & Jia, J. (2018). Green human resource management practices: Scale development and validity. *Asia Pacific Journal of Human Resources*, 56(1), 31–55. <https://doi.org/10.1111/1744-7941.12147>
34. Tung, A., Baird, K., & Schoch, H. (2014). The relationship between organisational factors and the effectiveness of environmental management. *Journal of Environmental Management*, 144, 186–196. <https://doi.org/10.1016/j.jenvman.2014.05.031>
35. UNEP. (2023). Emissions gap report 2023: Broken record—Temperatures hit new highs, yet world fails to cut emissions (again). United Nations Environment Programme. <https://www.unep.org/resources/emissions-gap-report-2023>
36. Yong, J. Y., Yusliza, M. Y., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2019). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212–228. <https://doi.org/10.1002/bse.2359>