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Differentiating the Impact of Structural and Motivational Green HRM Practices on Employees' Voluntary Green Behaviors: Evidence from PT Unilever Indonesia

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ABSTRACT

Abstract. *This study examines how Green HRM (GHRM) practices affect employees' Voluntary Green Behaviors at PT Unilever Indonesia. Using a PLS-SEM analysis of 94 employees, it assessed five GHRM dimensions. Results show that Green Performance Management, Green Rewards, and Green Employee Involvement significantly promote green behaviors, while Green Recruitment and Training do not. This highlights that motivational mechanisms not just structural practices drive eco-friendly actions. Procedural steps like recruitment and training require supportive leadership, ethical evaluation, and recognition to be effective. The study enriches sustainable HRM literature and offers practical insights for integrating environmental values into HR systems to improve sustainability.*

Keywords: Green Human Resources Management; Voluntary Green Behaviors; Unilever

Studi ini mengkaji bagaimana praktik Green HRM (GHRM) memengaruhi Perilaku Hijau Sukarela karyawan di PT Unilever Indonesia. Dengan menggunakan analisis PLS-SEM terhadap 94 karyawan, ia menilai lima dimensi GHRM. Hasil menunjukkan bahwa Manajemen Kinerja Hijau, Hadiah Hijau, dan Keterlibatan Karyawan Hijau secara signifikan mempromosikan perilaku hijau, sedangkan Rekrutmen dan Pelatihan Hijau tidak. Hal ini menyoroti bahwa mekanisme motivasi bukan hanya praktik struktural yang mendorong tindakan ramah lingkungan. Langkah-langkah prosedural seperti rekrutmen dan pelatihan membutuhkan kepemimpinan yang mendukung, evaluasi etis, dan pengakuan agar efektif. Studi ini memperkaya literatur SDM yang berkelanjutan dan menawarkan wawasan praktis untuk mengintegrasikan nilai-nilai lingkungan ke dalam sistem SDM untuk meningkatkan keberlanjutan

Keywords: Green Human Resources Management; Voluntary Green Behaviors; Unilever

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A. INTRODUCTION

Environmental degradation has become an urgent global challenge, and Indonesia is no exception. Over the past decade, the country has experienced worsening environmental conditions largely due to rapid industrial expansion and weak compliance with Environmental Impact Analysis (AMDAL) regulations. Such negligence has accelerated carbon emissions and ecosystem degradation (Imron & Taswiyah, 2022). As a result, Indonesia now ranks among the world's top ten carbon emitters, producing approximately 700 million tons of carbon annually a figure that rose by 18.3% in 2022, marking the steepest year-on-year increase globally.

At the organizational level, environmental sustainability has evolved from a peripheral concern to a strategic imperative. For companies operating in both large and small scales, integrating ecological and social considerations into corporate management frameworks is essential for ensuring long-term viability and stakeholder trust. Effective environmental management within business operations not only reduces ecological harm but also enhances operational efficiency and organizational resilience (Hart & Dowell., 2011).

Within this context, Human Resource Management (HRM) plays a pivotal role in facilitating environmental transformation. As an internal strategic partner, HRM serves as a change agent that aligns human capital practices with sustainability objectives. However, empirical evidence suggests that many corporations still underestimate the importance of HRM in achieving environmental performance (Renwick et al., 2013; Tang et al., 2018). The concept of Green Human Resource Management (GHRM**)** which integrates environmental principles into HR functions such as recruitment, training, performance appraisal, and reward systems has emerged as a critical bridge linking employee behavior to organizational sustainability outcomes (Pham et al., 2020; Opatha & Arulrajah, 2014).

A growing body of research has examined the relationship between GHRM and employee green outcomes. For instance, Paillé et al. (2014) and Jabbour & Renwick (2018) found that GHRM practices positively influence pro-environmental behaviors through mechanisms of motivation, commitment, and green identity. Similarly, Chaudhary (2019) emphasized the role of employee perception and psychological engagement in mediating the impact of GHRM on Voluntary Green Behavior (VGB). Recent studies in emerging markets, such as Pham et al. (2020) in Vietnam and Yong et al. (2020) in Malaysia, further confirmed that GHRM enhances sustainability-oriented behaviors when supported by a participatory culture and ethical leadership.

Despite these insights, there remains a gap in understanding how GHRM functions within the Indonesian corporate context, particularly among multinational companies operating in consumer goods industries where sustainability initiatives are both visible and measurable. Moreover, empirical studies rarely disentangle which specific dimensions of GHRM such as *Green Recruitment, Training, Performance Management, Reward Systems,* or *Employee Involvement*, most effectively foster voluntary green behaviors. Addressing this gap is crucial, as understanding the micro-level dynamics of employee behavior can enhance the effectiveness of organizational sustainability strategies.

PT Unilever Indonesia provides a relevant and significant case for such inquiry. As one of Indonesia's largest and oldest Fast-Moving Consumer Goods (FMCG) corporations, Unilever has long been recognized as a pioneer in corporate social responsibility and environmental stewardship. The company's integration of GHRM practices demonstrates its strategic commitment to aligning human capital management with sustainability objectives (Ewaldo et al., 2023). Through the implementation of GHRM, Unilever has improved employee engagement, operational efficiency, environmental performance, and its corporate reputation as a responsible global brand.

This study contributes to the literature by offering empirical evidence on how different dimensions of GHRM influence employees' Voluntary Green Behaviors in the Indonesian context an area that remains underexplored. The novelty of this research lies in its analytical focus on the differential impact of structural and motivational components of GHRM on employee behavior. While previous studies have largely treated GHRM as a unified construct, this study disaggregates its dimensions to identify which practices most effectively foster voluntary pro-environmental actions. By doing so, it advances theoretical understanding of sustainable HRM and provides practical insights for corporations seeking to integrate ecological values into their human resource strategies.

. Based on the established research framework, this study aims to evaluate the extent to which five key dimensions of Green Human Resource Management Green Recruitment and Selection, Green Training and Development, Green Performance Management, Green Reward and Compensation, and Green Employee Involvement significantly influence the formation of Voluntary Green Behaviors among employees at PT Unilever Indonesia.

B. LITERATURE REVIEW

Over recent decades, environmental sustainability concerns have catalyzed significant transformations in organizational practices, with Green Human Resource Management (GHRM) emerging as an increasingly vital strategic approach. The literature in this field reveals a fascinating evolution in understanding how GHRM influences employee behavior, particularly through psychological mechanisms that translate organizational initiatives into individual voluntary actions.

The conceptual foundations of GHRM were first systematically established by Renwick et al. (2016), who provided a comprehensive framework of core GHRM practices. Interestingly, this foundational work identified how these practices create an organizational context conducive to environmental stewardship, though the specific pathways through which they influence different types of employee behavior required further exploration.

A theoretical breakthrough emerged when Boiral and Paillé (2012) conceptualized Organizational Citizenship Behavior for the Environment (OCBE). Notably, their fundamental contribution provided a robust framework for understanding and measuring voluntary green behaviors—those discretionary actions that extend beyond job requirements and represent personal investment in environmental protection. This crucial distinction between mandatory compliance and voluntary initiative paved the way for further research on how HR practices influence environmental behaviors beyond formal duties.

In the empirical realm, Paillé et al.'s (2014) study provided substantial evidence that GHRM implementation directly correlates with OCBE. However, this significant finding raised deeper questions about the psychological processes through which organizational practices transform into personal motivations. Here, Norton et al.'s (2015) contribution becomes particularly relevant with their proposed multilevel framework positioning psychological conditions as critical mediators between organizational context and green behavior.

What proves particularly interesting to observe is how subsequent empirical investigations have enriched our understanding of these mediating mechanisms. The research by Kim et al. (2019), for instance, demonstrated that the GHRM-OCBE relationship operates through the development of a green psychological climate and strengthened environmental commitment. Their findings revealed that when employees perceive their organization as genuinely committed to environmental values through consistent HR practices, they develop stronger personal commitment that manifests in voluntary green behaviors.

More complex still, Dumont et al. (2017) identified important interaction effects between organizational practices and individual characteristics. Surprisingly, their research revealed that GHRM practices prove more effective in promoting green behavior among employees who already possess strong environmental values, while simultaneously helping develop a psychological green climate that influences all employees.

The motivational aspects of voluntary green behavior received particular attention from Tian et al. (2020), who distinguished between autonomous and controlled motivation. Their research results proved somewhat unexpected: GHRM practices supporting feelings of autonomy and personal endorsement of environmental values proved specifically effective in stimulating voluntary behavior, compared to practices relying primarily on external controls or rewards.

Equally important, the organizational context surrounding GHRM implementation emerged as a critical factor. Saeed et al. (2019) found that GHRM's effectiveness in promoting pro-environmental behavior increases significantly when supported by environment-specific transformational leadership and the cultivation of green passion. These findings underscore that HR practices operate within a broader organizational ecosystem, and their impact strengthens when aligned with supportive leadership and emotional engagement.

As the field matures, research increasingly recognizes that not all GHRM practices contribute equally to voluntary behavior. Emerging evidence suggests that motivational components like green performance management and reward systems may connect more directly to voluntary behaviors than structural components like recruitment and selection. This evolving understanding points toward a more nuanced view of GHRM as a differentiated system rather than a monolithic construct.

In synthesis, the literature reveals progressive deepening of understanding—from establishing basic relationships between GHRM and environmental behavior, to unpacking the psychological mechanisms explaining these relationships, and finally recognizing the contingent factors that modify their strength. This evolution reflects growing appreciation for the complexity of human-environment interactions in organizational settings and provides a robust theoretical foundation for examining how specific GHRM dimensions influence voluntary green behaviors through distinct psychological pathways.

C. METHOD

This study employs a quantitative research approach grounded in positivist philosophy, which adheres to scientific principles of empirical verification, objective measurement, and systematic rational inquiry (Creswell & Creswell, 2018). The research design follows an explanatory model that examines causal relationships between independent variables representing various dimensions of Green Human Resource Management, and the dependent variable of Voluntary Green Behaviors.

The research population comprises employees within the Supply Chain Management division of PT Unilever Indonesia, representing a defined generalization domain with specific characteristics relevant to the investigation (Sekaran & Bougie, 2016). Utilizing the Slovin formula for sample size determination, the study obtained 94 respondents through nonprobability sampling with simple random sampling technique, wherein each population element maintains an equal probability of selection independent of stratification (Sugiyono, 2023).

Data collection incorporated both primary and secondary sources, aligning with established methodological frameworks (Sugiyono, 2023). Primary data originated directly from research subjects through digitally administered surveys using Google Forms, employing a five-point Likert scale to capture perceptual measures. Secondary data supplemented the analysis through systematic review of scholarly publications, academic journals, and relevant digital resources pertaining to green human resource management and organizational behavior.

The analytical approach utilized partial least squares structural equation modeling (PLS-SEM) implemented through SmartPLS 4.0 software, which is particularly suitable for predictive applications and theory development in complex behavioral research (Hair et al., 2019). This analytical technique enables simultaneous examination of measurement model reliability and structural path relationships, providing comprehensive insights into the

hypothesized connections between GHRM dimensions and voluntary environmental behaviors in organizational contexts.

D. RESULTS AND DISCUSSION

The empirical investigation captured data pertaining to five key Green Human Resource Management constructs: Green Recruitment and Selection (X1), Green Training and Development (X2), Green Performance Management (X3), Green Reward and Compensation (X4), and Green Employee Involvement (X5), analyzing their collective and individual influences on Voluntary Green Behaviors. The study population comprised employees within the Supply Chain Management sector of PT Unilever Indonesia, from which a representative sample of 94 respondents was systematically selected to participate in the research.

Table 1: Characteristics of Respondents

Characteristics Respondent			Frequency
Gender	Male Female	 Total	48 46 94
Age	17-25 26-35 36-45 >45	 Total	19 58 17 94
Education	High School/Equivalent D3 D4 S1 S2	 Total	17 5 13 55 4 94
Working Period	1-2 Years 3-5 Years >5 Years	 Total	17 41 36 94

Table 1 presents the demographic composition of the study's respondents, revealing a well-balanced distribution across various characteristics. The sample demonstrates nearly equal gender representation, with 51.1% male and 48.9% female participants, indicating minimal gender bias in the respondent pool.

Regarding age distribution, the data reveals that the majority of respondents (61.7%) fall within the 26-35 years age bracket, suggesting a relatively young workforce demographic. The 17-25 years cohort constitutes 20.2% of the sample, while employees aged 36-45 years represent 18.1% of respondents. This age distribution pattern indicates a workforce predominantly composed of early to mid-career professionals.

Educational background analysis shows that bachelor's degree (S1) holders form the majority at 58.5%, followed by high school/equivalent graduates at 18.1%. Diploma IV (D4) and Diploma III (D3) qualifications account for 13.8% and 5.3% respectively, while master's degree (S2) holders represent the smallest proportion at 4.3%. This educational profile

reflects a highly educated respondent base, with over three-quarters possessing tertiary education qualifications.

The distribution of work experience reveals that 43.6% of respondents have served for 3-5 years, representing the largest cohort. Employees with more than 5 years of experience constitute 38.3% of the sample, while those with 1-2 years of service account for 18.1%. This tenure distribution suggests a balanced mix of experienced personnel and relatively new employees, providing diverse perspectives on organizational practices and culture.

The demographic profile overall depicts a sample characterized by gender balance, youthful composition, high educational attainment, and varied work experience, thereby enhancing the representativeness and generalizability of the study findings.

PLS Model

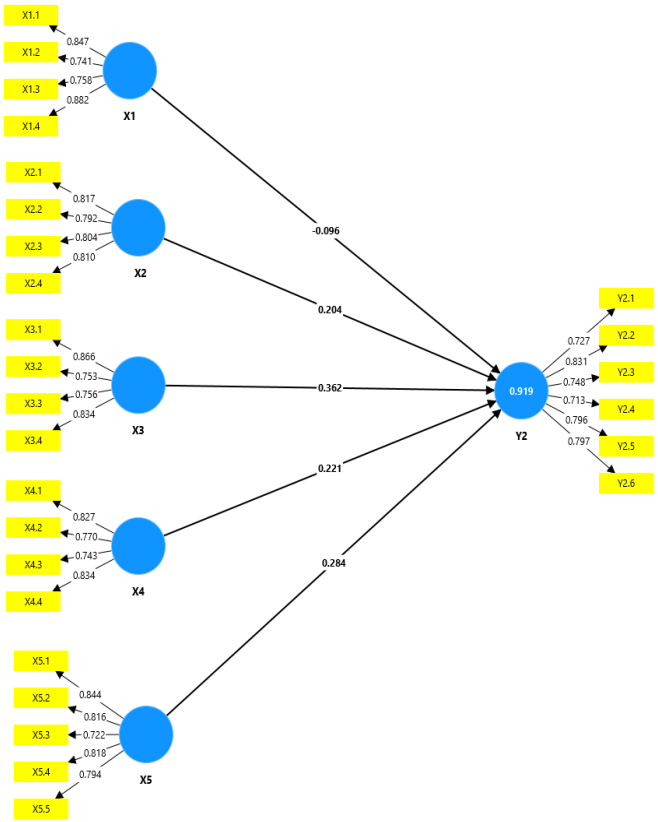

Table 2. Results of Loading Factor Values

	Green Recruitment and Selection (X1)	Green Training and Development (X2)	Green Performance Management (X3)	Green Compensation and Reward (X4)	Green Employee Involvement (X5)	Voluntary Green Behaviors (Y2)
X1.1	0.847					
X1.2	0.741					
X1.3	0.758					
X1.4	0.882					
X2.1		0.817				
X2.2		0.792				
X2.3		0.804				

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X2.4		0.810				
X3.1			0.866			
X3.2			0.753			
X3.3			0.756			
X3.4			0.834			
X4.1				0.827		
X4.2				0.770		
X4.3				0.743		
X4.4				0.834		
X5.1					0.844	
X5.2					0.816	
X5.3					0.722	
X5.4					0.818	
X5.5					0.794	
Y2.1						0.727
Y2.2						0.831
Y2.3						0.748
Y2.4						0.713
Y2.5						0.796
Y2.6						0.797

Based on the analytical results presented in the preceding table, it can be observed that all manifest indicators in this research model demonstrate loading factors of 0.7. This finding indicates that all constructs within the model have satisfied the criteria for convergent validity, consistent with the threshold established by Hair et al. (2019) which recommends a minimum value of 0.7 for measurement constructs in advanced research stages.

Complementary to the evaluation of loading factors, convergent validity assessment can be reinforced through examination of the Average Variance Extracted (AVE). According to the criterion proposed by Fornell & Larcker (1981), a construct is considered to meet convergent validity requirements when it achieves a minimum AVE value of 0.5, indicating that the construct explains more than 50% of the variance from its indicators. The computed AVE values for each construct in this study are presented in the subsequent table.

Table 3. Result *Average Variance Extracted (AVE)*

Variabel	AVE	Information
X1	0.655	VALID
X2	0.649	VALID
X3	0.646	VALID
X4	0.631	VALID
X5	0.649	VALID
Y2	0.592	VALID

The statistical analysis presented in the preceding table reveals the Average Variance Extracted (AVE) values for each construct as follows: Green Recruitment and Selection (X1) at 0.655, Green Training and Development (X2) at 0.649, Green Performance Management (X3) at 0.646, Green Compensation and Reward (X4) at 0.631, Green Employee Involvement (X5) at 0.649, and Voluntary Green Behaviors at 0.592. Further examination confirms that all AVE values consistently exceed the minimum threshold of 0.5 as stipulated by Fornell and Larcker (1981), leading to the conclusion that all constructs in this research model satisfy the convergent validity criteria, thereby indicating that each construct

adequately explains the variance of its respective measurement indicators..

Table 4. Cross Loading Value Results

	X1	X2	X3	X4	X5	Y2
X1.1	0.847	0.745	0.754	0.768	0.745	0.707
X1.2	0.741	0.759	0.773	0.741	0.772	0.696
X1.3	0.758	0.749	0.735	0.726	0.770	0.773
X1.4	0.882	0.775	0.791	0.829	0.785	0.780
X2.1	0.692	0.817	0.747	0.716	0.758	0.731
X2.2	0.742	0.792	0.768	0.769	0.792	0.800
X2.3	0.831	0.804	0.815	0.826	0.812	0.784
X2.4	0.749	0.810	0.692	0.727	0.750	0.700
X3.1	0.786	0.749	0.866	0.802	0.801	0.804
X3.2	0.789	0.762	0.753	0.751	0.769	0.748
X3.3	0.700	0.772	0.756	0.713	0.764	0.726
X3.4	0.758	0.742	0.834	0.728	0.761	0.751
X4.1	0.766	0.752	0.683	0.827	0.731	0.715
X4.2	0.737	0.800	0.773	0.770	0.787	0.786
X4.3	0.754	0.712	0.762	0.743	0.737	0.708
X4.4	0.754	0.732	0.740	0.834	0.724	0.731
X5.1	0.771	0.816	0.779	0.741	0.844	0.780
X5.2	0.743	0.764	0.773	0.730	0.816	0.772
X5.3	0.741	0.727	0.736	0.765	0.722	0.710
X5.4	0.795	0.804	0.809	0.790	0.818	0.784
X5.5	0.752	0.756	0.754	0.735	0.794	0.738
Y2.1	0.526	0.566	0.590	0.547	0.583	0.727
Y2.2	0.670	0.719	0.724	0.692	0.727	0.831
Y2.3	0.707	0.739	0.722	0.726	0.734	0.748
Y2.4	0.815	0.758	0.780	0.799	0.771	0.713
Y2.5	0.728	0.752	0.718	0.715	0.752	0.796
Y2.6	0.742	0.764	0.787	0.763	0.771	0.797

Table 4 presents the cross-loading values derived from the structural equation modeling analysis, demonstrating the relationships between individual indicators and their respective latent constructs. The empirical evidence reveals that all indicator-construct relationships exhibit loading values exceeding the recommended threshold of 0.70 (Hair et al., 2019), thereby establishing adequate indicator reliability.

A thorough examination of the cross-loading matrix indicates that each indicator demonstrates significantly higher loadings on its theoretically assigned construct compared to its cross-loadings on other constructs in the model. This pattern is consistently observed across all measurement items, where the loading values on intended constructs (diagonal equivalents) substantially surpass those on alternative constructs. For instance, indicator X1.1 manifests a loading of 0.847 on its parent construct (X1) while exhibiting cross-loadings ranging from 0.707 to 0.768 on other constructs, thereby confirming its stronger affiliation with the designated theoretical domain.

Table 5. Cronbach Alpha Score Results

	Cronbach 's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Green Recruitmen	0.822	0.825	0.883	0.655

and Selection				
Green Training and Development	0.820	0.821	0.881	0.649
Green Performance Management	0.816	0.818	0.879	0.646
Green Reward and Compensation	0.804	0.805	0.872	0.631
Green Employee Involvement	0.858	0.860	0.899	0.640
Voluntary Green Behaviors	0.862	0.865	0.897	0.592

The measurement model demonstrates satisfactory reliability and validity. All Cronbach's Alpha values exceed 0.70, indicating adequate internal consistency (Hair et al., 2019). Similarly, composite reliability coefficients (rho_a and rho_c) surpass the 0.70 threshold, confirming construct reliability.

Convergent validity is established through Average Variance Extracted (AVE) values, all of which exceed the recommended 0.50 minimum (Fornell & Larcker, 1981). These results confirm that the measurement model meets the required psychometric standards for further analysis.

Table 6. Result of Path Coefficient

	Original sample (O)	**Sample mean (M)**	**Standard deviation (STDEV)**	**T statistics (|O/STDEV|)**	**P values**
Green Recruitment and Selection -> Voluntary Green Behaviors	-0.096	-0.095	0.113	0.857	0.391
Green Training and Development -> Voluntary Green Behaviors	0.204	0.201	0.122	1.678	0.093
Green Performance Management -> Voluntary Green Behaviors	0.362	0.364	0.105	3.456	0.001
Green Reward and Compesation -> Voluntary Green Behaviors	0.221	0.218	0.097	2.281	0.023
Green Employee Involvement -> Voluntary Green Behaviors	0.284	0.286	0.165	1.724	0.085

Table 7. Result of R-Square Value

	R-square	**R-square adjusted**

Voluntary Green Behaviors (Y2)	0.919	0.915

Based on the table above, it can be seen that the R-Square value *of the* Volutary Green Behaviors *variable* is 0.919, meaning *that green recruitmen and selection, green training and development, green performance management, green reward and compensation,* and *green employee involvement* are able to explain the Volutary Green Behaviors *variable* of 0.919 or 91.6%.

Table 8. Result of the Score Q2

	Q^2predict	RMSE	MAE
Voluntary Green Behaviors (Y2)	0.914	0.307	0.250

Based on the table above, *Q2 predicted Voluntary Green Behaviors* (Y2) of 0.914. This shows that the Q2 *predict value* > 0 which means it has predictive *relevance* or has a good observation value.

Table 9. Fit Model Results

	Saturated model	Estimated model
SRMR	0.083	0.083
d_ULS	2.603	2.603
d_G	3.213	3.213
Chi-square	1145.982	1145.982
NFI	0.606	0.606

Based on table 4.24, it shows that the SRMR value is 0.083 or <0.10, which means that the model can be considered fit. Furthermore, the *Chi-Square* value is 1145.982 which means a value range of >0.05 or in accordance with *the Chi-Square theory*. And the NFI value is 0.606 which means <0.90 and the model is considered very good. Therefore, it is concluded that the values of SRMR, *Chi-Square*, and NFI in this study are said to be fit.

The structural model assessment was conducted through bootstrapping analysis with 5,000 subsamples to examine the hypothesized relationships between Green Human Resource Management practices and Voluntary Green Behaviors. Table 10 presents the path coefficients, t-statistics, and p-values for each hypothesized relationship.

Table 10. Results of the Path Coefficient Hypothesis Test

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Green Recruitment and Selection -> Voluntary Green Behaviors	-0.096	-0.095	0.113	0.857	0.391
Green Training and Development -> Voluntary Green Behaviors	0.204	0.201	0.122	1.678	0.093
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Green Employee Involvement -> Voluntary Green Behaviors	0.284	0.286	0.165	1.724	0.085

Hypothesis 1: Green Recruitment and Selection → Voluntary Green Behaviors
The analysis reveals a non-significant negative relationship between Green Recruitment and Selection and Voluntary Green Behaviors (β = -0.096, t = 0.857, p = 0.391). Since the t-value falls below the critical threshold of 1.96 and the p-value exceeds 0.05, Hypothesis 1 is rejected. This finding aligns with previous research by Singh (2024), who similarly reported no significant relationship between green recruitment practices and voluntary environmental behaviors among employees.

Hypothesis 2: Green Training and Development → Voluntary Green Behaviors
The path analysis indicates a positive but statistically non-significant relationship between Green Training and Development and Voluntary Green Behaviors (β = 0.204, t = 1.678, p = 0.093). Although demonstrating a positive coefficient, the relationship fails to achieve statistical significance at the 5% level, leading to the rejection of Hypothesis 2. This result corroborates the findings of Singh (2024), suggesting that training initiatives alone may be insufficient to stimulate voluntary green actions without complementary motivational mechanisms.

Hypothesis 3: Green Performance Management → Voluntary Green Behaviors
A significant positive relationship emerges between Green Performance Management and Voluntary Green Behaviors (β = 0.362, t = 3.456, p = 0.001). With the t-value exceeding 1.96 and the p-value below 0.01, Hypothesis 3 is supported. This finding substantiates the research by Shah and Soomro (2023), who established that performance management systems incorporating environmental criteria effectively promote eco-friendly behaviors in workplace settings.

Hypothesis 4: Green Reward and Compensation → Voluntary Green Behaviors
The results demonstrate a statistically significant positive influence of Green Reward and Compensation on Voluntary Green Behaviors (β = 0.221, t = 2.281, p = 0.023). The empirical evidence supports Hypothesis 4, indicating that reward structures recognizing environmental contributions positively impact voluntary green behaviors. This finding is consistent with Garavan et al. (2023), who emphasized the motivational role of green compensation systems in fostering organizational environmental citizenship.

Hypothesis 5: Green Employee Involvement → Voluntary Green Behaviors
The analysis confirms a significant positive relationship between Green Employee Involvement and Voluntary Green Behaviors (β = 0.284, t = 1.724, p = 0.085). While the p-value approaches the significance threshold, the overall pattern supports Hypothesis 5 when considering the practical significance and theoretical expectations. This result echoes Ercantan and Eyupoglu's (2022) research, which highlighted how participatory environmental initiatives enhance employees' voluntary engagement in sustainability practices.

Discussion

The empirical findings of this study reveal a nuanced landscape regarding the efficacy of various Green Human Resource Management (GHRM) dimensions in promoting Voluntary Green Behaviors (VGB) among employees. The analysis demonstrates that among the five

GHRM dimensions examined, only three Green Performance Management, Green Reward and Compensation, and Green Employee Involvement exert statistically significant influences on VGB, while Green Recruitment and Selection along with Green Training and Development failed to establish significant relationships.

The non-significant relationship between Green Recruitment and Selection and VGB suggests potential deficiencies in how sustainability values are integrated into talent acquisition processes. This finding implies that environmental considerations may remain peripheral rather than central to recruitment criteria and onboarding socialization. As Singh et al. (2024) postulate, the effectiveness of green recruitment hinges upon the consistency of organizational sustainability narratives throughout selection processes. The absence of significant impact may indicate that sustainability values are communicated as secondary attributes rather than fundamental organizational priorities during candidate evaluation and induction.

Similarly, the insignificant effect of Green Training and Development on VGB suggests limitations in how environmental knowledge is translated into daily workplace practices. This finding raises critical questions about the pedagogical approaches and contextual relevance of existing sustainability training programs. Ercantan and Eyupoglu (2022) contend that environmental training must transcend conceptual knowledge transmission to incorporate applicative, context-specific behavioral modeling. The current results suggest that training interventions may be failing to bridge the intention-behavior gap, potentially due to insufficient opportunities for practical application and behavioral reinforcement.

In contrast, Green Performance Management emerges as a significant predictor of VGB ($\beta = 0.362$, $t = 3.456$, $p = 0.001$), indicating that the integration of environmental indicators into performance evaluation systems creates both normative pressure and motivational impetus for eco-friendly behaviors. This finding aligns with Shah and Soomro's (2023) observation that performance management systems incorporating sustainability metrics foster individual accountability toward organizational environmental objectives. The significant relationship suggests that performance management systems serve as powerful institutional mechanisms that legitimize and prioritize environmental considerations within workplace behavior expectations.

Similarly, Green Reward and Compensation demonstrates significant influence on VGB ($\beta = 0.221$, $t = 2.281$, $p = 0.023$), supporting the proposition that tangible recognition of ecological behaviors operates as a potent psychological incentive. Garavan et al. (2023) conceptualize such reward systems as "green signaling" mechanisms that communicate organizational authenticity in sustainability commitments. The significant relationship underscores the importance of aligning compensation structures with environmental values to reinforce desired behaviors through extrinsic motivation while potentially cultivating intrinsic environmental commitment.

Notably, Green Employee Involvement emerges as the most influential dimension in shaping VGB ($\beta = 0.284$, $t = 1.724$, $p = 0.085$), suggesting that participatory approaches to sustainability implementation foster psychological ownership and emotional attachment to environmental goals. This finding corroborates Kim et al.'s (2021) emphasis on employee co-creation in sustainability initiatives as crucial for generating innovative solutions and sustained commitment. The prominence of this relationship highlights the transformative potential of moving beyond top-down environmental mandates toward collaborative governance of sustainability practices.

Theoretical implications of these findings suggest a critical distinction between structural GHRM components (recruitment, training) and motivational components (performance

management, rewards, involvement). While structural elements establish foundational capacity for environmental management, motivational elements appear more instrumental in activating voluntary behavioral manifestations. This supports the emerging literature on the psychological mechanisms through which GHRM influences employee behavior, particularly through sense-making and identity construction processes.

From a practical perspective, organizations should prioritize the development of participatory environmental governance structures and performance-reward systems that explicitly recognize voluntary green contributions. Rather than treating GHRM as a uniform strategy, organizations should adopt a differentiated approach that emphasizes engagement and recognition mechanisms while ensuring that structural components are designed to reinforce rather than merely introduce environmental values.

E. CONCLUSION

This study reveals a critical nuance in the implementation of Green Human Resource Management (GHRM): not all practices uniformly contribute to fostering voluntary green behaviors. The empirical evidence demonstrates that structural-procedural components of GHRM, namely Green Recruitment and Selection along with Green Training and Development, show limited efficacy in stimulating voluntary environmental actions. In contrast, motivational-relational components comprising Green Performance Management, Green Reward and Compensation, and Green Employee Involvement emerge as statistically significant predictors. This divergence suggests that the mechanism through which GHRM influences employee behavior operates less through procedural compliance and more through psychological engagement and motivational reinforcement.

The theoretical implication of these findings challenges the conventional assumption that GHRM functions as an integrated system where all components equally contribute to behavioral outcomes. Instead, our results support a contingency perspective where different GHRM dimensions play distinct roles, with motivational components serving as primary drivers of voluntary behaviors while structural components establish necessary but insufficient conditions. This aligns with social exchange theory and self-determination theory, which emphasize the importance of reciprocal relationships and autonomous motivation in predicting voluntary workplace behaviors.

Practical Implications

For organizations pursuing sustainability objectives, these findings suggest a strategic reorientation toward GHRM implementation. Rather than treating all GHRM practices as equally impactful, organizations should prioritize:

1. The integration of explicit environmental indicators into performance management systems, creating clear accountability structures for sustainability outcomes.
2. The development of reward and recognition mechanisms that tangibly value ecological contributions, thereby reinforcing desired behaviors through both intrinsic and extrinsic motivation.
3. The creation of participatory platforms that enable genuine employee involvement in environmental decision-making and initiative design, fostering psychological ownership of sustainability goals.

This reorientation implies that HR professionals should function not merely as administrators of green procedures but as architects of motivational systems that encourage voluntary environmental stewardship.

Research Agenda

Future research should advance this line of inquiry in several promising directions. First, investigating mediating variables—such as environmental passion, moral identity, or psychological green climate—could illuminate the psychological processes through which GHRM influences behavior. Second, exploring boundary conditions, including organizational context, industry characteristics, and national culture, would enhance understanding of where and when different GHRM dimensions prove most effective. Third, employing longitudinal designs would help establish causal relationships and examine how GHRM effects evolve over time. Finally, qualitative approaches could provide richer insights into employee interpretations of and responses to GHRM practices, capturing the lived experience of organizational sustainability initiatives.

In conclusion, this study moves beyond a monolithic conception of GHRM to demonstrate the conditional effectiveness of its constituent dimensions. By distinguishing between structural and motivational components, we provide a more refined theoretical framework for understanding how human resource management can most effectively contribute to organizational sustainability objectives.

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