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Fostering Employee Pro-Environmental Behavior: The role of Green Commitment as a mediator in the context of Green Management practices

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This study endeavour sought to furnish empirical substantiation pertaining to the determinants influencing pro-environmental behaviour (EPB) among employees, incorporating the mediating influence of green commitment (GC) along with the moderating impacts of green self-efficacy (GSE) and environmental passion (EP). Specifically, the investigation considered three independent variables: green empowerment (GEP), green human capital (GHC) and individual green values (IGV). Employing a quantitative methodology, data were amassed from 205 employees within pharmaceutical organizations in Saudi Arabia. Employing regression analysis, the results indicated a positive correlation between EPB and GHC. Furthermore, GEP and IGV exhibited statistically significant and positive associations with EPB. Correspondingly, in alignment with anticipated outcomes, the study validated the role of GC mediation in the connections between GHC, GEP, IGV, and EPB. Nevertheless, GSE and EP demonstrated insignificance as moderators in the connection between GC and EPB. The present study makes a valuable contribution to the existing body of literature while proffering pragmatic insights for organizations striving to foster environmentally friendly behaviour.

Keywords: Pro-environmental Behaviour, Green Commitment, Green Self-Efficacy, Green Management Practices

1. Introduction

Over the past few years, there has been noticed pronounced rise in attention directed towards environmental sustainability, emerging as a focal area of considerable significance. There is a growing recognition among organisations of the utmost significance in protecting and preserving natural resources and the environment as integral components for attaining enduring success in the long term (Elkington, 2018). The absence of conscientiousness towards environmental matters not only detrimentally affects sustainability but also has the potential to lead to financial ramifications. Consequently, in accordance with the findings of (Chaudhary, 2020) numerous organizations are presently directing their attention towards the incorporation of environmental sustainability into their business frameworks and operational procedures. This trend has engendered a growing fascination with "green" organizations, marked by the advent of green management practices that denote the assimilation of environmental management principles into organizational operations (Amrutha & Geetha, 2020). In scholarly discourse, green management practices are defined as the implementation of measures that endorse and foster pro-environmental behaviour, encompassing considerations for environmental concerns (Chaudhary, 2020). These practises underpin employees' unwavering sustainability commitment. These practises also greatly affect their pro-environmental attitude and company performance (Kim et al., 2019). Pro-environmental behaviour exhibited by employees is characterized by the actions undertaken to advance environmental preservation, whether integral to job responsibilities or undertaken voluntarily (Chaudhary, 2020). Activities such as conserving water, electricity, and employing recycled paper are considered instances of pro-environmental behaviour. GHRM is linked to cultivating a culture having a sustainable environment in an organizations (Kim et al., 2019). Research has articulated about the adoption of pro-environmental behaviour as necessary for the ecological performance of organizations (Kim et al., 2019), Further research is required to identify the factors that motivate pro-environmental behaviours in the field of green management, particularly in the specific case of Saudi Arabia. Al Doghan et al. (2022) investigated delved into the influence of GHRM specifically on the environmental performance, creating an opportunity to scrutinize the pro-environmental attributes of an organization.

This study seeks to investigate the determinants of pro-environmental behaviour, considering green commitment as the mediating factor, and the less-explored moderating influences of environmental passion and green self-efficacy (Nasir et al., 2023). Green commitment refers to the degree to which employees identify themselves and participate in environmental behaviour, showcasing the dedication and attachment to the cause of environmental protection and preservation (Afsar & Umrani, 2020). Pham et al. (2020) contended that the implementation of green management practises by organisations results in the development and promotion of concerns and commitment to environmental protection among employees, subsequently influencing their pro-environmental behaviours. Therefore, the research specifically intends to accomplish the following key objectives:

To evaluate how green human capital, green empowerment, and individual green values influence the pro-environmental behaviour of employees.

To investigate if the green commitment acts as a mediator in the relationship between the predictors and the dependent variable, which is categorised as the employees' pro-environmental behaviour.
To assess the correlation between the green commitmaret and employee pro-environmental behaviour is subject to moderation by green self-efficacy and environmental passion. The results of this study provide significant insights as for both scholars and practitioners in the pharmaceutical sector, particularly organizations in Saudi Arabia and similar contexts, regarding the employee's fostering of environmentally friendly conduct using green management practises. This study aims to provide a comprehensive analysis of the impact of key elements on the organisational structure of Saudi Arabia. By shedding light on this topic, it contributes to the existing body of scholarly knowledge. It enhances our understanding of the associations among green environmental factors, green management practices, and individual traits such as green commitment and behaviours.

In the following sections, this study provides an empirical overview of the targeted variables, their key dimensions, and the interrelationships derived from existing literature. The adopted methodology, statistical analytical procedures for result computation, and their interpretation are also outlined. The final section delves into the key findings, their empirical substantiation, study conclusions, and acknowledged limitations.

2. Literature Review

The objective of this study is to investigate the influence of green human capital, green empowerment, and individual green values on employees' pro-environmental behaviour. Additionally, this study will examine the mediating role of green commitment and the moderation effects based on the Ability-Motivation-Opportunity (AMO) theory. According to this theoretical framework, the fundamental drivers of high performance are individuals' abilities, motivation, and efforts to identify and engage in opportunities (Hughes, 2007). The theory prominently underscores the significance of individuals, with employees being the primary workforce within any organizational context. Therefore, the fundamental operational drivers lie in their individual abilities, cognitions, and motivations. To instil environmentally friendly and sustainable practices, organizations and employees themselves require the key constructs outlined in the theory (Sibian & Ispas, 2021). A recent study utilized this theory to examine how green management practices, green commitment, and green attitudes contribute to the enhancement of employees' pro-environmental behaviour. The study highlighted the relevance of the AMO theory in assessing green employee behaviours (Hayyat et al., 2023).

Green Factors and Pro-Environmental Behaviour

Amid escalating global environmental apprehensions, businesses are swiftly adopting pro-environmental practices and initiatives, enhancing both their profitability and environmental sustainability (Afsar et al., 2020). Implementing GHRM practices significantly influences employees' pro-environmental behaviour (EPBs) and their commitment to environmentally friendly practices (Ansari et al., 2021. This underscores the positive impact of GHRM in fostering an environmentally conscious culture within businesses. Further, the study explores that the relationship between pro-environmental behaviours of employees and GHRM practices is mediated by the green commitment of the employees. This states that cultivating a robust commitment to sustainable practices among employees contributes to the positive effects of GHRM on their environmental attitudes and behaviour (Ansari et al., 2021**).** A study Ojo et al. (2022) emphasizes the pivotal role of initiatives like environmentally-focused training, implementation of efficient performance management strategies, along with the facilitation of empowerment initiatives, plays a crucial role in the promotion of pro-environmental behaviour. The mediating impact of pro-environmental behaviour on the effects of green training is further emphasised, performance management, and emerment on environmental performance. Integrating green practices aligns with transformative projects requiring active employee engagement. Consequently, the HR department holds a significant role regarding communicating the importance of fostering a positive work environment to senior management. This environment encourages open discussions, diverse perspectives, and collaborative dialogues on environmental concerns (Dede, 2019).
According to Emel and Caliskan (2019) employee empowerment entails the delegation of increased authority by management to staff members for addressing environmental issues. Facilitating active participation of employees in defining the organization's environmental objectives fortifies organizational mechanisms conducive to employee empowerment within the framework of green initiatives. The study Farrukh et al. (2022) underscores the importance of incorporating green elements in predicting EPB through the implementation of GHRM. In addition, the research assures the moderating influence of environmental knowledge. In conclusion, this research provides a comprehensive and cohesive comprehension of the strategies that can proficiently encourage EPBs. Subsequent hypotheses can be formulated based on these discussions:
H1*: A positive correlation exists between environmentally conscious human capital and the pro-environmental conduct of employees.*
H2: *A positive connection is present between empowerment for eco-friendly initiatives and the pro-environmental conduct of employees.*
H3: *A favourable association is observed between personal environmentally friendly values and the employee's pro-environmental conduct.*

Green Commitment Mediation

Green Commitment (GC) is delineated as an inherent With an objective motivated by a duty to protect the environmen. According to Montabon, Pagell, & Wu (2016), It involves an emotional connection, identification, active engagement, and genuine concern for environmental issues in the workplace. Employees are less likely to prioritize pro-environmental

activities in their daily work unless they possess a strong commitment to environmental preservation. Thus, employees' GC offers a more effective explanation for the association between GHRM and EPBs (Afsar et al., 2020). Personal investment and emotional attachment significantly influence employees' EPBs. Elevated levels of employees' Green Commitment (GC) are directly linked to EPBs, including activities such as recycling, energy conservation, resource mindfulness, and an overarching commitment to fostering a sustainable environment in the workplace. The literature underscores the crucial role that GC plays as a mediator in the connections between GHRM and different organisational and employee outcomes. Studies have particularly revealed GC's mediating role in the relationship between green recovery performance and GRM (Tuan, 2020). Likewise, additional research has demonstrated the role of GC as a mediator between EPBs and organisational factors. For example, (Afsar & Umrani, 2020) found that GC had a mediation effect in the link between EPBs and CSR actions.

In light of these findings, the current study suggests that a worker's GC could act as a go-between for GHRM and EPBs. In accordance with this, GC is delineated as an emploe's voluntary dedication to environmental concerns, which (Chen et al., 2021) proposed to function as a mediating conduit between green factors initiatives and the manifestation of EPBs. Organisational commitment is directly impacted by green training and development, as well as green recruiting and selection (Shoaib et al., 2021). This emphasises how important green commitment is as a mediator in implementing environmental policies to support green workplace initiatives, emphasizing the significance of GHRM practices in this context (Shoaib et al., 2021). Considering these conversations, the hypotheses that follow can be developed:

H4: *Green commitment mediates the relationship between green human capital and employee pro-environmental behaviour.*

H5: *Green commitment mediates the relationship between green empowerment and employee pro-environmental behaviour.*

H6: *Green commitment mediates the relationship between individual green values and employee pro-environmental behaviour.*

Moderating Role of GSE and Environmental Passion

GSE facilitates the generation of innovative ideas pertaining to green processes, eco-friendly infrastructure, sustainable products, and environmentally conscious practices. These ideas represent effective, distinctive, and inventive approaches to address environmental challenges (Song & Yu, 2018). The study Akhtar et al. (2021) illustrate a noteworthy and favourable effect of market orientation on green product innovation as well as green self-efficacy (GSE). Additionally, GSE significantly bridges the connection between innovative green products and commercial orientation. To enhance the indirect influence of employees in fostering pro-environmental behaviour through waste management, GSE serves a positive moderating role (Guo et al., 2019).

Another research by Nurul Alam et al. (2023) seeks to thoroughly investigate and evaluate the influence of GHRM on employees' EPB. It delves into the crucial role of employee Green Commitment (GC) as a mediating factor, facilitating a comprehensive understanding of its influence on the relationship between GHRM practices and PEB. Furthermore, Nurul Alam et al. (2023) elaborate on the moderating function of GSE and underscore its significance concerning the interplay between GHRM initiatives and employees' perspectives and actions pertaining to environmental sustainability.

The study by Choong et al. (2020) demonstrates that a favourable green workplace and environmental passion affect EPB. A green work climate and EPB are somewhat mediated by unified environmental enthusiasm. These endeavours are anticipated to cultivate heightened cohesive environmental passion, thereby facilitating the advancement of pro-environmental behaviour among organizational members (Choong et al., 2020).

The evaluation of an individual's or an organization's ability to achieve environmental objectives is regarded as a pivotal element of Green Self-Efficacy, encompassing self-efficacy grounded in environmental considerations (Chen et al., 2015). Elevated Green Self-Efficacy serves as a catalyst for individual pro-environmental actions (Meinhold & Malkus, 2005). A person's environmental attitudes and beliefs can be sparked by green self-efficacy (Nordlund & Garvill, 2003). The study Gilal et al. (2019) about the implementation of green HRM practices positively contributes to improved environmental performance, facilitated by employees' fervour for environmental concerns. Consequently, this study posits that:

H7*: GSE moderates the association between green commitment and pro-environmental behaviour among employees.*

H8*: GSE moderates the association between green commitment and pro-environmental behaviour among employees.*

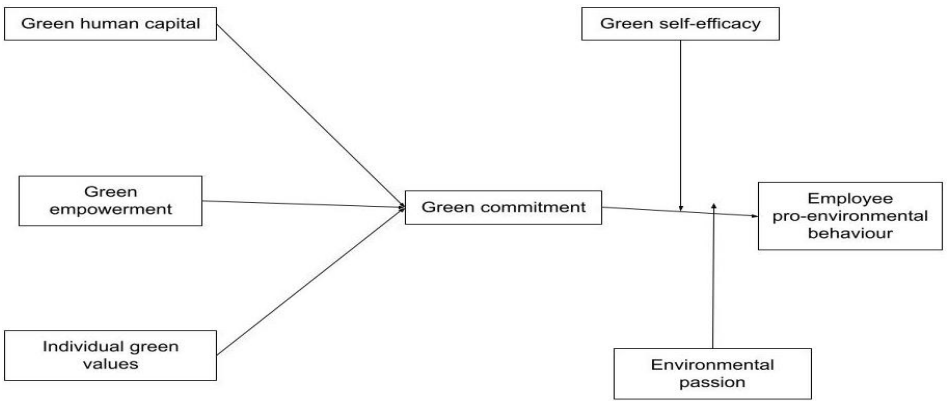

Figure 1: Conceptual Framework

3. Research Methods

Sample and Technique

The study relied on a quantitative approach, known for its robustness and ability to provide objective findings (Bryman, 2016). This approach facilitates the generalization of results due to the utilization of a substantial sample size. Data collection for this study primarily involved obtaining cross-sectional data from organizations in the pharmaceutical sector in Saudi Arabia. Information was gathered from employees working within the Saudi Arabian pharmaceutical industry. The researcher engaged with employees in the HR department of these companies, aiming to apprise potential participants of the study's objectives, as well as the measures in place to ensure data anonymity and confidentiality. The convenience sampling technique was utilized for its expeditious and cost-effective data collection advantages, enabling the researcher to include a diverse array of Saudi Arabian pharmaceutical companies. The survey strategy was considered apt due to its cost-effectiveness, and online questionnaires proved advantageous for seamless data collection, visualization, and storage. The data collection process yielded 243 responses, which underwent a comprehensive review. Incomplete surveys were excluded, resulting in a final sample of 205 for data analysis. To mitigate the potential for social desirability bias, the researcher imparted explicit instructions to respondents during the data collection process. Emphasis was placed on conveying that survey items had no definitive right or wrong answers. Furthermore, respondents received guarantees regarding the privacy and anonymity of their answers. .

Measures

The measurement items were drawn from established literature, using a Likert scale with five points for the constructs. The scale ranged from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). PEB the response variable, was operationalized using seven items sourced from the work of Robertson and Barling (2013). Hameed et al. (2020) approved three items for inclusion in calculating the individual green value (IGV). Likewise, Saeed et al. (2019) measured the variable of green empowerment (GEP) using six items. Chen's (2008) study provided five questions to quantify GHC. While Robertson & Barling (2013) used the same study's ten items to gauge environmental passion (EP). The second moderator, GSE, was quantified using six items from existing scale (Chen et al., 2015). The mediating variable GC, was gauged using a total of eight items from the work of Raineri and Paillé (2016).

Analysis of the Data

The present study employed regression analysis to assess the stipulated hypotheses, encompassing both mediating and moderating effects. Prior to hypothesis evaluation, the researcher conducted an examination of descriptive statistics, including the computation of skewness values to assess data normality and trends. This was followed by correlation analysis, providing insights into the interrelationships among variables. Cronbach's alpha was used to evaluate the indicators' reliability; this approach has been used in earlier research with comparable data (Nasir et al., 2023). Subsequently, in the final stage, linear direct impacts were calculated using regression analysis, mediation effects, and moderation effects of GSE and EP. This involved measuring the coefficients of the respective variables. The SPSS programme was used to carry out all statistical analyses for this research.

Findings

Descriptive statistics offer an insightful summary of the information, as depicted in Table 1. Utilizing a total of 205 complete responses, Table 1 affirms the absence of any missing values for variables in the study. This underscores the quality, authenticity, and high level of engagement exhibited by respondents in completing the questionnaire. Moreover, the skewness levels, which ranged between -2 and +2, confirm the symmetrical nature of the distribution (George & Mallery, 2021) and affirmed the normality assumptions of the data. Additionally, the computed mean values illustrated the response trend in the dataset, with values exceeding 3 indicating favourable perceptions among respondents regarding employee pro-environmental behaviour across all concepts addressed in the questionnaire.

Table 1: Descriptive Statistics

	N	Mean	Std. Deviation	Skewness	
				Statistic	Std. Error
EPB	205	3.8183	.94336	-1.231	.170
IGV	205	3.7805	.92716	-1.039	.170
GHC	205	3.7376	.86637	-.881	.170
GEP	205	3.2463	.80325	-.274	.170
GSE	205	3.8309	1.09620	-.925	.170
GC	205	3.8652	.90844	-1.485	.170
Valid N (listwise)	205				

"Note: IGV= Individual green values, GHC= Green human capital, GEP= Green empowerment, EPB= Employees' pro-environmental behaviour, GSE= Green self-efficacy, GC= Green commitment, EP= Environmental passion"

Subsequently, the correlation between the designated variables was calculated using Pearson correlation, recognized as the most reliable and authentic analysis technique for correlation computation. Table 2 illustrates that the variables demonstrated a positive and significant correlation, with no negative correlation coefficients reported. This outcome signifies a significant association among the targeted variables, thereby affirming the appropriateness of the designed model.

Table 2: Pearson Correlation

		EPB	IGV	GHC	GEP	GSE	GC	EP
EPB	Pearson Correlation	1	.853**	.797**	.670**	.766**	.939**	.605**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	205	205	205	205	205	205	205
IGV	Pearson Correlation	.853**	1	.752**	.689**	.801**	.906**	.620**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	205	205	205	205	205	205	205
GHC	Pearson Correlation	.797**	.752**	1	.631**	.688**	.833**	.666**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	205	205	205	205	205	205	205
GEP	Pearson Correlation	.670**	.689**	.631**	1	.683**	.707**	.556**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	205	205	205	205	205	205	205
GSE	Pearson Correlation	.766**	.801**	.688**	.683**	1	.845**	.528**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	205	205	205	205	205	205	205
GC	Pearson Correlation	.939**	.906**	.833**	.707**	.845**	1	.614**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	205	205	205	205	205	205	205
EP	Pearson Correlation	.605**	.620**	.666**	.556**	.528**	.614**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	205	205	205	205	205	205	205

**. Correlation is significant at the 0.01 level (2-tailed).

"Note: IGV= Individual green values, GHC= Green human capital, GEP= Green empowerment, EPB= Employees' pro-environmental behaviour, GSE= Green self-efficacy, GC= Green commitment, EP= Environmental passion"

Cronbach's Alpha was used to evaluate the scale items' reliability; the results are shown in Table 3. The constructions demonstrated acceptable internal consistency with a benchmark of 0.7 (Taber, 2018).

Table 3: Cronbach's Alpha

VAR	ITEMS	VALUE
IGV	3	.926
GHC	5	.873
GEP	6	.690
EPB	5	.862
GSE	6	.980
GC	8	.958
EP	10	.914

"Note: IGV= Individual green values, GHC= Green human capital, GEP= Green empowerment, EPB= Employees' pro-environmental behaviour, GSE= Green self-efficacy, GC= Green commitment, EP= Environmental passion"

Presented in Table 4, the model summary offers insights into the strength of the relationship between the model and the predictors. A 78.4% estimate of the response variable's variability is provided by the modified R-squared value, EBP, can be accounted for by the explanatory variables GEP, GHC, and IGV. Consequently, this implies that the model possesses adequate predictive power.

Table 4: Summary of the Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.887[a]	.787	.784	.43867

a. Predictors: (Constant), GEP, GHC, IGV

The model's "goodness-of-fit" was evaluated using an analysis of variance (ANOVA) employing the F-test for significance. This test offers insights into the appropriateness of the regression model in comparison to a model devoid of any predictors. The model shows a better match for the data, as indicated by Table 5's significance level of 0.000.

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	142.865	3	47.622	247.470	.000[b]
	Residual	38.679	201	.192		
	Total	181.544	204			

a. Dependent Variable: EPB
b. Predictors: (Constant), GEP, GHC, IGV

The initial hypothesis posited a positive association between GHC and EPB. The results presented in Table 6 confirm the hypothesized association at a significance level of 1%, indicating that GHC positively influences EPB. Secondly, GEP was also observed to positively impact EPB, and this association reached significance at a 10% level, providing support for the second hypothesis. Similarly, the third hypothesis, suggesting a positive association between IGV and EPB, received support as the findings demonstrated that IGV significantly and positively affects EPB at a 1% important level.

Table 6: Direct Effect

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.043	.147		.293	.770
	GHC	.365	.055	.335	6.588	.000
	GEP	.100	.054	.086	1.850	.066
	IGV	.552	.055	.542	9.964	.000

a. Dependent Variable: EPB
"Note: GHC= Green human capital, GEP= Green empowerment, IGV= Individual green values, EPB= Employees' pro-environmental behaviour"

According to the fourth hypothesis, GC mediates the connection between GHC and EPB, and the results are presented in the table below. The findings confirmed a significant indirect effect and given the insignificance of

the direct effect (p= .2673), full mediation of GC in the association between GHC and EPB was established. Similarly, the fifth hypothesis received support as GC significantly and fully mediated the relationship between GEP and EPB. Lastly, with an insignificant direct effect and a significant total effect, GC was identified as fully mediating the association between IGV and EPB, as displayed in Table 7.

Table 7: Mediation Analysis

Relationship	Total effect	Direct effect	Indirect effect	Confidence Interval		t-statistics	Conclusion
				Lower bound	Upper bound		
GHC →GC →EPB	.8678 (0.000)	.0528 (.267)	.8150	.7768	.9588	18.7981	Full Mediation
GEP → GC → EPB	.7536 (0.000)	.0583 (0.126)	.6953	.6165	.8907	10.8389	Full Mediation
IGV → GC → EPB	.8681 (0.000)	.0123 (.211)	.8558	.7946	.9415	23.3007	Full Mediation

"Note: GHC= Green human capital, GC= Green commitment, EPB= Employees' pro-environmental behaviour"

According to the seventh hypothesis, which is supported by the data in Table 8, GSE moderates the association between GC and EPB. However, the moderating impact of GSE in the association between GC and EPB was not substantiated, as the interaction term proved to be insignificant with a p-value exceeding 0.05. Furthermore, the moderating impact of EP in the relationship between GC and EPB was not supported by the data in the current investigation, as the introduction of EP as the moderator in the model did not yield significant results, as indicated by the insignificant interaction term (p=.3781).

Table 8: Moderation Analysis

		coeff	se	t	*p*	LLCI	ULCI
GSE	constant	.0168	.2270	.0739	.9412	-.4309	.4645
	GC	1.0650	.0735	14.4948	.0000	.9201	1.2099
	GSE	-.0713	.0991	-.7197	.4725	-.2667	.1241
	Int_1	-.0027	.0233	-.1145	.9089	-.0487	.0433
EP	constant	.2510	.3707	.6770	.4992	-.4800	.9819
	GC	.8568	.1051	8.1523	.0000	.6495	1.0640
	EP	-.0410	.1186	-.3458	.7298	-.2749	.1929
	Int_1	.0271	.0307	.8833	.3781	-.0334	.0877

"Note: GSE= Green self-efficacy, GC= Green commitment, EP= Environmental passion"

4. Discussion

This study stands out since it examines green management practices and EPB in the Saudi Arabian setting, focusing on the mediating effect of GC and the moderating roles of GSE and EP. In alignment with expectations, the present study revealed a positive association between GHC and EPB. This outcome resonates with the findings of Shah et al. (2021) as they reported components of green intellectual capital comprising of GHC leads to enhanced environmentally responsible behaviour which leads to environmental performance. Employees with higher GHC levels are more likely to practise resource conservation and waste minimization, among other environmentally friendly behaviours. Therefore, consistent with the empirical findings, this study underscores that Saudi organizations exhibiting robust green human capital tendencies are more likely to incorporate and integrate green practices, resulting in a higher prevalence of environmentally friendly behaviours. This trend signals a positive orientation towards sustainability within the organizational context and encourages environmentally favourable activities among employees.

Moreover, the research corroborated the positive association between GEP and EPB. This particular outcome underscores the significance of managerial green practices in empowering employees through acknowledgment of their efforts and involvement in green initiatives. Consequently, this influence extends to employees' engagement in environmentally friendly behaviour. Organizations prioritizing green initiatives and fostering employee empowerment in such activities tend to cultivate a workforce with environmentally oriented perceptions, resulting in increased participation in a multitude of eco-friendly and green activities. To empirically validate the extracted concept or association derived from the collected data, the researcher examined a study conducted by Nasir et al. (2023) which asserted that GEP can positively contribute to enhancing EPB. Drawing from the empirical evidence presented in the referenced study, the researcher has substantiated sufficient grounds to assert that the green empowerment initiatives implemented by organizations possess incremental influence on employees' pro-environmental behaviours.

The present study further confirmed that IGV significantly and positively influence EPB among employees in Saudi Arabia. Likewise, Hidalgo-Crespo et al. (2022) examined how people are more likely to engage in environmentally conscious conduct when they have environmental worries and beliefs. Consequently, employees working in diverse organizations with a heightened inclination towards environmentally friendly practices are naturally more inclined towards various green activities, such as waste reduction, recycling, and restoration. This heightened environmental consciousness contributes to the active participation of employees in further green and environmentally sustainable initiatives.

Concerning the mediating role of GC, the results obtained in the present study substantiated the significant mediating role of GC in the association between GHC and EPB. This implies that GHC influences EPB through the mediation of employees' GC. In line with this Ansari et al. (2021), verified a notable mediating role of GC, suggesting that organizations can elevate EPB by adopting green practices that augment employees' knowledge and empower them. Organizations operating in Saudi Arabia exhibit a positive emphasis on comprehensive green management practices, including the encouragement of employee engagement and commitment to green initiatives. This functions as both passive and active learning, contributing to the gradual development of intrinsic values among employees.

Consequently, employees are more inclined to participate in environmentally friendly activities, demonstrating heightened commitment.

GC was also identified as a significant mediator in the relationship between GEP and EPB. This suggests that employees' dedication to environmental causes intensifies when they perceive increased empowerment through organizational practices, subsequently enhancing their engagement in EPB. Consistent with this, Nasir et al. (2023) revealed that GC acts as a significant mediator in the relationship between GEP and EPB among employees in pharmaceutical companies. Therefore, drawing on the empirical evidence from the literature study, this research illuminates those employees in Saudi organizations are actively involved in more environmentally friendly practices. The extensive promotion of green management practices provides employees with a supportive push from the management, fostering empowerment for green initiatives. Consequently, employees exhibit heightened commitment and engagement towards environmentally friendly and ecologically sustainable organizational practices. The association between IGV and EPB was also found to be significantly mediated by GC. This was also supported by Paillé et al. (2019) since personal environmental beliefs were identified as increasing the propensity of employees to demonstrate heightened commitment to environmental causes. Employees with ingrained values, beliefs, and mindsets aligned with green activities receive support from management, leveraging it to construct their green commitment. This, in turn, results in increased participation and adoption of environmentally friendly activities.

According to Mughal et al. (2022), GSE did not significantly moderate the link between GC and EPB. The findings of Mughal et al. (2022) indicate that GSE indirectly impacts the association between environmentally conscious leadership and EPB in the energy sector. The divergent outcomes of this study may be attributed to factors such as employees' awareness of the actual implications of self-efficacy in the context of green management, insufficient data, or information dissemination to employees within Saudi organizations, and potentially limited support provided by the management for self-efficacy initiatives.

Ultimately, EP was determined to be statistically insignificant as a moderator especially in between GC and EPB. However, prior studies have shown that EP does contribute significantly to the relationship between organisational management and employees' EPB, particularly in the manufacturing sector (Li et al., 2020). This unconventional outcome could be attributed to the limited motivation extended by the management of Saudi organizations to their employees. Another contributing factor might be the absence of recognition and acknowledgment by organizations for employees actively participating in green practices. This lack of attention acts as a barrier to the cultivation of a robust dedication or passion among employees for both organizational and individual green practices.

5. Conclusion

The effects of GC and GSE have not received as much attention as they should as the importance of green practises in businesses grows. This research aimed to examine the factors impacting EPB to add to the body of existing literature, with a specific emphasis on GC as the mediator and GSE and EP as the moderators, within the context of Saudi Arabia. Employing a quantitative methodology, the study examined a sizable sample from the pharmaceutical industry in Saudi Arabia, collecting data through a survey strategy that yielded 205 complete responses, subsequently analysed using regression analysis. The conceptual framework proposed eight hypotheses, of which six were supported. Consequently, the study underscored the direct influence of GHC, GEP, and IGV on employees' environmentally friendly actions, while highlighting the substantial indirect role of green commitment. This suggests that fostering environmentally responsible behaviours among employees can be achieved through their commitment to environmental causes.

6. Implications of the Study

Theoretical Implications

This study adds theoretical value in several ways. It underscores the pivotal role of green practices in reinforcing sustainability endeavours and constructs a conceptual framework establishing a connection between green values, green human capital, and green empowerment are examples of green employee-related factors—with EPB. Thus, it enriches the current literature by providing empirical substantiation and supplements the existing research in the environmental domain by elucidating the antecedents of EPB. Furthermore, the study explores the determinants of employees' engagement in environmentally friendly behaviour, incorporating both mediators and moderators. It provides evidence into the mediating role of GC, extending the findings of previous research (Nasir et al., 2023). The study creates an avenue for future researchers to investigate additional mediators and determinants of EPB. It also offers a conceptual framework that can be evaluated across various industries and cultural contexts.

Practical Implications

With regard to the research study's practical applicability, there is a notable emphasis on green practices within organizations, carrying significance for both organizational entities and employees in recognizing their roles in fostering environmentally friendly behaviour. Given the escalating concerns surrounding environmental degradation, companies can leverage the findings to integrate green practices that heighten employees' environmental awareness and engagement in eco-friendly behaviours. For instance, considering the significance attributed to GHC and GC, organizations may offer training programs addressing environmental issues to enhance employee knowledge and bolster their commitment. One way to cultivate a workforce with higher GHC is to prioritise the adoption of green practises, consequently fostering pro EPB. This can be achieved through the introduction of developmental

initiatives and knowledge-sharing programs. Green training initiatives, focusing on waste management, paper usage, and energy conservation, can effectively raise employee awareness and help encourage behaviour that is environmentally friendly. Additionally, recognizing the pivotal role of employee empowerment, organizations should involve employees in green decision-making processes to instil environmentally conscious behaviours and practices. A company's commitment to environmentally responsible behaviour will be strengthened when its employees are actively supported and encouraged to participate in green practises.

7. Limitations and Future Research

While this study has provided valuable insights for both theoretical understanding and practical applications, it is crucial to acknowledge certain limitations. The research was confined to a specific industry and country context. Future investigations should seek to validate the proposed framework in diverse industries and cultural contexts to ascertain its applicability across varied sectors and cultures. Methodologically, the study relied on cross-sectional data, limiting the examination of causal relationships. Subsequent research endeavours could adopt a longitudinal design for a more comprehensive analysis. Additionally, the use of a quantitative methodology prioritized objectivity; however, future researchers may delve into a more in-depth exploration by incorporating a qualitative approach. Lastly, there is a necessity to identify and incorporate other variables that may exert influence on pro-environmental behaviour.

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Appendix A

Measurement Tool	Reference
Pro-environmental behaviour	
1. I print double sided whenever possible. 2. I put compostable items in the compost bin 3. I put recyclable material (e.g., cans, paper, bottles, batteries) in the recycling bins. 4. I bring reusable eating utensils to work (e.g., travel coffee mug, water bottle, reusable containers, reusable cutlery). 5. I turn lights off when not in use. 6. I take part in environmentally friendly programs (e.g., bike/walk to work day, bring your own local lunch day). 7. I make suggestions about environmentally friendly practices to managers and/or environmental committees, in an effort to increase my organisation's environmental performance.	(Robertson & Barling, 2013)
Environmental Passion	
1. I am passionate about the environment. 2. I enjoy practicing environmentally friendly behaviours. 3. I enjoy engaging in environmentally friendly behaviours. 4. I take pride in helping the environment. 5. I enthusiastically discuss environmental issues with others. 6. I get pleasure from taking care of the environment. 7. I passionately encourage others to be more environmentally responsible. 8. I am a volunteered member of an environmental group. 9. I have voluntarily donated time or money to help the environment in some way. 10. I feel strongly about my environmental values	(Robertson & Barling, 2013)
Green Self-Efficacy	
1. We feel we can succeed in accomplishing environmental ideas; 2. We can achieve most of environmental goals 3. We feel competent to deal effectively with environmental tasks 4. We can perform effectively on environmental missions. 5. We can overcome environmental problems. 6. We could find out creative solutions to environmental problems.	(Chen et al., 2015)
Green Commitment	
1. I really care about the environmental concern of my company. 2. I would feel guilty about not supporting the environmental efforts of my company. 3. The environmental concern of my company means a lot to me. 4. I feel a sense of duty to support the environmental efforts of my company. 5. I really feel as if my company's environmental problems are my own. 6. I feel personally attached to the environmental concern of my company. 7. I feel an obligation to support the environmental efforts of my company. 8. I strongly value the environmental efforts of my company.	(Raineri & Paillé, 2016)
Green Human Capital	
1. The productivity and contribution of environmental protection of the employees in the firm is better than those of its major competitors 2. The employees' competence of environmental protection in the firm is better than that of its major competitors 3. The product or service qualities of environmental protection provided by the employees of the firm are better than those of its major competitors 4. The cooperative degree of team work about environmental protection in the firm is more than that of its major competitors 5. The managers can fully support their employees to achieve their jobs of environmental protection	(Chen, 2008)
Green Empowerment	
1. Recognizing employee as a key stakeholder in environmental management. 2. Providing opportunities to negotiate with management about green workplace agreement. 3. Introducing green whistle-blowing and help-lines. 4. Providing opportunities to the employee to involve and participate in green suggestion schemes and joint consultations for environmental issues problem solving 5. Offering workshops or forums for staff to improve environmental behaviour and exchange their tacit knowledge. 6. Involving employee in formulating environmental strategy.	(Saeed et al., 2019)
Individual Green Value	
1. I feel a personal obligation to do whatever I can to prevent environmental degradation. 2. I feel personally obliged to save as much energy as possible. 3. I feel morally obliged to save energy, regardless of what others do.	(Hameed et al., 2020)