

MODELING GHRM, GREEN HUMAN CAPITAL, AND ENVIRONMENTAL PERFORMANCE; MODERATING ROLE OF PRO-ENVIRONMENTAL ATTITUDE

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Abstract. In the world's era of global warming, organizations are under intensive pressure to reduce industrial waste, minimize carbon emissions, and general demand for more responsible work practices to manage a suitable environment. Therefore, the study aims to examine the connection between GHRM, green capital, and environmental performance and moderate the role of a pro-environmental attitude. The population of this study is based on the pharmaceutical manufacturing sector in Pakistan. It includes top and middle management (i.e., CEOs, Directors, General Managers, HR, Operations, Logistics, and Supply Chain Managers of pharmaceutical manufacturing firms). The sample selection assumes that they are aware of the practices and know the subject matter of the study. Therefore, the cluster random sampling technique was used for sample selection. In total, 525 questionnaires were distributed and 347 were the final unit of analysis for this study. The results reveal that GHRM and green capital positively and significantly affect GSCM and environmental performance. Moreover, it was revealed that the pro-environmental attitude moderates the relationship between GHRM, green capital, and environmental performance. So, this study contributes to the available literature on GHRM, green capital, and environmental performance. This study provides policymakers and managers with guidelines to pay attention to environmental performance. Hence, the findings support direct and indirect hypotheses with various theoretical and managerial implications for management and policymakers to ensure the contributing factors of environmental performance.

Keywords: GHRM, green capital, pro-environmental attitude, environmental performance.

JEL Classification: M1, M14, M10.

Introduction

Human resource management is of critical importance for adapting new aspects of business activities, so the implication is decisive at each stage of an organization and quite challenging due to the continuous process (Cohen et al., 2012; Shah et al., 2021). Therefore, the implication of a package of associated but reliable human resource management practices improves productivity (Zaid et al., 2018). Aligned with this, the phenomena of the GHRM bundle practices mention a set of comprehensive environmental human actions and practices that are

thoroughly interlinked and systematically and logically linked with an adaptation of the modern orientation of an organization (Zaid et al., 2018; Yusliza et al., 2019).

In the recent era, the adaptation and management of green ecology is the primary critical issue for organizations. Keeping in mind the aspects of both extremes, workers and customers, because it is daring for a workforce to adopt the change, they feel insecure though they have to deal with extra ecological matters (Colbert & Kurucz, 2009; Allameh et al., 2018). Therefore, the adaptation and implication of GHRM practices are imperative for businesses because organisations can reduce their

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cost, improve work efficiency, and employees participate in the achievement of individual and organizational objectives. Moreover, GHRM practices offer an ultimate structure that leads organizations to better govern ecological influence (Nejati et al., 2017). Therefore, GHRM is supposed to be the best strategy for the impact of environmental performance. The study revealed that the GHRM practices contained actions aligned with environmental concerns, low-cost reduction, greater work efficiency, enhanced employee retention and engagement, which help organizations reduce their employee carbon footprints (Sheopuri & Sheopuri, 2015).

Furthermore, the manufacturing sector is deliberated as a source of various forms of ecological pollution in developed and underdeveloped countries, requiring organizations to critically assess, monitor, and correct managerial activities (Rehman et al., 2021). Firms should invest in human capital to improve their performance (Shoaib et al., 2022). Similarly, it is credence to invest in GHC for organizational development because employee knowledge of the environment and relevant skills are deeply rooted in organizational performance (Yong et al., 2020a). In fact, regarding all organizational functions, employees are similarly responsible for maintaining an organisation's green and environmental image (Jabbour & Santos, 2008; Opatha & Arulrajah, 2014). Subsequently, managers have to involve employees at each stage of an organization to preserve the environment. HR managers are required to implement GHRM practices to improve environmental performance. Therefore, this study examined the relationship between GHRM practice and the effect of green capital on environmental performance. Also, measure the moderating effect of a pro-environmental attitude between GHRM practice and environmental performance and the relationship of green capital with environmental performance.

1. Theoretical background

1.1. GHRM practices

GHRM refers to amalgamating all ecological business management practices induction into HRM (Renwick et al., 2013). So, GHRM practices are recognized as a substantial element that leads to improvement in environmental performance. In addition, it contributes to the organisation's financial performance (Renwick et al., 2013). On the contrary, the available literature on HRM significantly affects organizational performance by influencing employee attitudes and work behavior (Jabbour et al., 2010; Dumont et al., 2017). On the other hand, the GHRM concept refers to understanding the links between organizational actions that influence the environment. Various studies empirically investigate the bundle of GHRM practices rather than measure the individual effect of each practice that affects an organisation's environmental performance (Renwick et al., 2013; Nejati et al., 2017). This study also considers three dimensions of GHRM practices, i.e., green hiring, green training and

participation, and green performance management and compensation. Therefore, implementing a green strategy is prolific for an organization and employees because it helps subside the adverse effect on society and ecology (Delmas & Pekovic, 2013). Therefore, this study discusses the dimensions of GHRM practices taken in this study below.

1.2. Green hiring

Organizations with green strategies have to focus on their hiring process to recruit employees who understand and are interested in environmental protection practices (Renwick et al., 2013). Thus, it is worth seeing that organizations have to increase the recruitment attraction because of increasing awareness of upcoming talent (Ehnert, 2009). So, by doing this, organizations could be able to shape their environmental reputation, helping to inspire the image that organizations have a concern for the environment. Therefore, by recruiting the right person with understanding of environmental concerns, organizations must promote their green vision, previous environmental performance, and policy through advertisement, which can help appeal to potential employees to apply for positions. In addition, a detailed job description should be given in the advertisement along with the environmental task, the skills and knowledge required to carry out the environmental activities. Therefore, green hiring is a critical dimension in GHRM practices that emphasize the formation of a workforce that deals with environmental issues that help improve their environmental performance (Zibarras & Coan, 2015).

1.3. Green training and involvement

GTI has emerged as essential for any organization because it leads to sustainable development (Pinzone et al., 2019). Additionally, GTI is imperative for the productive implementation of the green strategy (Jabbour et al., 2013) and cleaner production (Pinzone et al., 2019). Therefore, organizations must introduce practices on social and environmental issues at each level of employee training and development programs (Mehta & Chugan, 2015). It is important to design environmental training programs that consider optimizing environmental benefits. Another study assessed that environmental training significantly influences an organisation's environmental performance (Daily et al., 2012). The participation of staff in green programs helps organizations improve their green image. It is a guide to restructuring their green objectives, motivation, and worker capabilities required to deal with environmental concerns.

1.4. Green performance management and compensation

An organisation's environmental performance is imperative to enhance its economic performance. Therefore, the adoption of a green standard is helpful for environmental performance. For the implications of green strategy and

the achievement of green goals, organizations must enhance the green reward system for their environmental commitment (Jabbour et al., 2019; Nejati et al., 2017). The study revealed that an organisation's environmental management benefited from the green rewards and compensation system. It helps to avoid negative behaviour and emboldening eco-friendly behaviour. Different types of rewards systems prevail to acquire green skills. Rewards can be given in monetary benefits, i.e., bonuses, cash and premiums, and non-monetary benefits, i.e., leave and gifts. Moreover, recognition-based environmental management rewards include awards, dinners, and promotional, external roles, and daily praises. Lastly, rewards are based on environmental management, that is, feedback (Shah et al., 2021; Renwick et al., 2013; Opatha, 2013; Jabbour et al., 2010). Another study found that green compensation improves the sustainability of the project and improves the commitment of staff to green goals (Meriman & Sen, 2012).

1.5. Green human capital

Resource-based view theory highlights the importance of human capital for organizational performance, which helps gain a competitive advantage in a competitive environment (Barney, 1991). Another study found that GHC is an asset to an organization in its knowledge, capabilities, creativity, skills, experience, and commitments toward environmental protection (Chen, 2008a). Firms should invest in human capital to improve their performance (Chen, 2008b). Similarly, it is credence to invest in GHC for organizational development because employee knowledge of the environment and relevant skills are deeply rooted in organizational performance (Yong et al., 2020a). Therefore, under the lenses of RBV theory, organizations have to utilize their scarce resources to gain a competitive advantage (Bužavaitė & Korsakienė, 2022; Korsakienė & Raišienė, 2022). Also, they have to be valuable and different for a competitor to hunt the better opportunities (Barney, 1991). As human capital is denoted as an intangible asset for a firm, retaining that asset is by far the most critical factor in recent times. Another study revealed a substantial intangible asset that improves employee satisfaction (Allameh et al., 2018). However, existing studies on GHC are limited (Yong et al., 2020a). It is believed that the introduction of training programs for the development of green abilities and the improvement of skills so that employees perform daily activities efficiently, as GHC is a critical asset of an organization that helps for the implication of green strategies in a vibrant environment. Therefore, firms can translate their goals at all levels and improve management commitment.

1.6. Green performance management and compensation

The implication of environmental performance programs helped various organizations reduce their emissions, reduce greenhouse gases, shrink existing hazardous waste,

and manage solid waste management (Daily et al., 2012). The study revealed that the implication of green strategies is recognized as a key contributing factor to enhancing environmental performance. The input of the manufacturing organization for environmental concerns is strongly interlinked with better environmental performance, so the allocation of funds for improvement technology aimed at preventing pollution (Miroshnychenko et al., 2017). Furthermore, the implications of GHRM practices help to improve their environmental performance. In the current era, in various industries, firms are instigating green strategies to improve environmental performance. A study revealed that organizations invest in the right person to improve their skills and capabilities for effective management of environmental performance (Daily et al., 2012). Moreover, it is understandable that employee participation has greater prominence in managing the environmental performance of firms. As Harvey et al. (2010) revealed, staff are more attracted to working with an organization concerned with environmental issues.

2. Methodology

2.1. Data

This study is based on the positivist research approach and the explanatory research framework that measure how these variables affect the study sample drawn from the Pakistan pharmaceutical manufacturing organization. It comprises CEOs, directors, general, operational, and HR managers. The sample selection sample assumed that they are well aware, have depth of knowledge and understand industry trends (Shoaib et al., 2021). As this sector is growing rapidly, it has been facing bad economic conditions in recent years. Furthermore, the sector is quite competitive and challenging with the presence of global leaders. Almost 600 pharmaceutical companies are operating in Pakistan (Businesswire, 2019). However, these companies are geographically spread across, but production units tend to be concentrated in three major cities, i.e., Karachi, Lahore, and Peshawar (Atif et al., 2017). The cluster random sampling technique was used for the sample selection. Five hundred twenty-five online survey links were sent, 175 questionnaires were distributed in each city, and 30 pharmaceutical firms were randomly selected for the survey in each city (Karachi, Lahore, and Peshawar). However, 367 questionnaires were collected and 20 responses were eliminated due to missing values and outliers. The response rate was 69.90% and 347 questionnaires remained for data analysis.

2.2. Measures

This study adapted the entire construct measuring scale from the existing literature and the elements of each construct were measured on a five-point Likert scale as used by Shoaib et al. (2021). In this study, "1" refers to strongly disagree and "5" measures for strongly agree.

Green HRM practices were measured on 15 items loaded with three dimensions green hiring, green training and participation, and green performance management & compensation items adapted from Jabbour (2011). Furthermore, the moderating construct pro-environmental attitude was measured with a 15 items scale, namely the new ecological paradigm (NEP) developed by Dunlap and Van Liere (1978). Green human capital is measured with five items adapted from Chen (2008a). Environmental performance was measured on six items adapted from Rao (2002), Zhu et al. (2008) and Yong et al. (2020b).

2.3. Analytical method

Two-stage multivariate data analysis was performed based on the characteristics of a theoretical framework with the IBM-SPSS-AMOS 25 version. The present study contained three latent constructs: GHRM practices, green human capital, and environmental performance, including moderating variable pro-environmental attitudes. Only GHRM practices are measured as a high-order construct. Therefore, a confirmatory factor analysis was performed at the first stage. It is a process for validating latent constructs, including convergent, construct, discriminant validity calculation of composite reliability (Awang, 2015; Rehman et al., 2021). Aiming to validate the measurement model, latent constructs have to achieve concurrent, construct, and discriminant validity. In the second stage of multivariate data analysis, SEM was used to measure the interrelationship among three latent constructs, that is, GHRM practices, green human capital and environmental performance.

3. Results

The theoretical framework contained three latent constructs: GHRM practices, green human capital and environmental performance, and the moderate variable pro-environmental attitude. All the constructs were added to the measurement model to assess the unidimensionality, construct, convergent, discriminant, and measure the composite reliability before the application of SEM (Awang, 2015; Awang et al., 2018). All the modification indices and requirement of measurement model was achieved with fitness indices i.e., values P -value = 0.00, RMSEA < 0.059, CFI > 0.972, TLI > 0.968, and $\chi^2/df = 2.442$ which is <3 that is also achieved.

When all the measurement model achieves the threshold values, then it is considered that construct validity is attained. However, we assume that convergent validity is achieved when the average variance extracted (AVE) value is greater than 0.5. When the value of CR is greater than 0.6 it is considered composite reliability. Composite reliability replaces the regularly available method of Cronbach alpha for data analysis for multivariate analysis in SEM (Kashif et. al., 2015, 2016). The GHRM practices construct achieved the 0.686 value of AVE and the 0.867 value for CR, green human capital achieved the 0.695 value of AVE and the 0.919 value

for CR. Furthermore, the pro-environmental attitude achieved a value of 0.688 of AVE and a value of 0.964 of CR, and lastly, the environmental performance achieved a value of 0.683 of AVE and a value of 0.928 of CR. If all constructs achieved their relative AVE and CR value also reached the threshold level of convergent validity.

When the model achieved the convergent validity, it needs to also achieve the construct validity. Therefore, it is supposed to achieve the construct validity when the model attained the threshold values of model fitness (i.e. absolute fit, incremental fit, and parsimonious fit indices) (Awang et al., 2018; Rehman et al., 2016, 2021).

Furthermore, the measurement model also needs to assess the discriminant validity, which can only be achieved when the model does not contain redundant values. The model contained redundant values when any pair of items in the measurement model were highly correlated. On the contrary, the diagonal and bold values were the square root of the AVE of each construct. If a value greater than 0.85 showed higher multicollinearity contained in a model. When no value is found, the model is found greater than the cut-off value of 0.85 refers to the achievement of discriminant validity.

Once the measurement model was validated, structural equation modelling (SEM) was run in a second stage. All exogenous and endogenous constructs were interlinked in a structural model to measure the causal relationship and the coefficient of regression (Awang et al., 2015, 2018). Once the two exogenous and one endogenous constructs are interlinked, analysis properties were defined and the SEM was performed for estimation path analysis. There are two paths in this model, each path measured with estimated loaded values through the process of SEM present in Table 1.

Table 1. The coefficient of multiple determination or R2 and its implication in this study

Endogenous construct	R2	Conclusions
Environmental Performance	0.69	The constructs of GHRM practices and green human capital estimate about 69% of the variation in environmental performance.

Coefficient of determination or R2 present in above table. The output assessed that GHRM practices and green human capital cause 69% of the variance in environmental performance. Moreover, the causal estimation of unstandardized regression is presented in Table 2.

To measure the moderation of the metric variable, the interaction effect was used in the IBM-SPSS-25 version. During this process, a direct effect of an independent variable (GHRM practices) also the moderation effect of (pro-environmental attitude) was measured on a dependent variable (environmental performance). Firstly, the direct causal effect of GHRM practices is statistically significant ($F = 10.234$, $p < 0.001$). Also, the interaction effect between GHRM practices and pro-environmental

Table 2. Unstandardized regression estimation

Exogenous Constructs	Path	Endogenous Constructs	Estimate	S.E.	C.R.	P	Result
Environmental Performance	<---	GHRM Practices	.443	.057	8.433	.001	Significant
Environmental Performance	<---	Green Human Capital	.432	.067	7.362	.001	Significant

performance (GHRM practices x pro-environmental attitude) on environmental performance also proven statistically significant ($\beta = 0.107$, $t = 2.092$, $p < 0.05$). Once the significant interaction term effect is achieved, further measure for the simple effects to investigate the nature of the interaction effect. To explore the nature of the interaction effect, follow the process suggested by (Aiken & West, 1991). Therefore, the dataset of moderating variables was divided into two groups, namely low and high, using dummy variables. Further, the effect of GHRM practices was measured on environmental performance both at a high and low level of pro-environmental attitude. As predicted, GHRM practices had positive effect on environmental performance when it had high level of pro-environmental attitude ($\beta = 0.492$, $t = 5.012$, $p < 0.001$). On the other hand, GHRM practices positively affected environmental performance when it had a low pro-environmental attitude ($\beta = 0.312$, $t = 2.421$, $p < 0.001$), but not greater effect than high level. Lastly, the difference between the two levels (i.e., high and low) of pro-environmental attitude. Thus, the difference in slopes was also found significant in the case of GHRM practices ($t = 3.56$; $p < 0.001$).

To measure the moderation of the metric variable, the interaction effect was used in the IBM-SPSS-25 version. During this process, a direct effect of the independent variable (Green human capital), also the moderation effect (pro-environmental attitude) was measured on a dependent variable (environmental performance). Firstly, the direct causal effect of green human capital is statistically significant ($F = 11.119$, $p < 0.001$). Also, the interaction effect between Green human capital and pro-environmental performance (green human capital x pro-environmental attitude) on environmental performance has proven statistically significant ($\beta = 0.109$, $t = 2.184$, $p < 0.05$). Once the significant interaction term effect is achieved, further measure for the simple effects to investigate the nature of the interaction effect. To explore the nature of the interaction effect, the process was suggested by Aiken and West (1991). Therefore, the dataset of moderating variables was divided into two groups, namely low and high, using dummy variables. Furthermore, green human capital was measured on environmental performance both at high and low levels of pro-environmental attitude. As predicted, green human capital had a positive effect on environmental performance when it had a high pro-environmental attitude ($\beta = 0.511$, $t = 4.112$, $p < 0.001$). On the other hand, green human capital positively affected environmental performance when it had a low pro-environmental attitude ($\beta = 0.489$, $t =$

3.886 , $p < 0.001$), but no greater effect than high level. Lastly, the difference between two levels (i.e., high and low) of pro-environmental attitude. Thus, the difference in slopes was also found significant in the case of green human capital ($t = 4.66$; $p < 0.001$).

Discussion and conclusions

This study was intended to measure the effect of GHRM practices and the effect of green human capital on environmental performance. It also identified how the pro-environmental attitude moderates the relationship of GHRM practices and green human capital with environmental performance in the pharmaceutical sector of Pakistan. Application of this framework as a guide, this study proposes an instrument for pharmaceutical managers to evaluate the environmental performance via the interaction of pro-environmental practices and the application of GHRM practices in a particular sector. The results of this research are theoretically explained in hypotheses that may offer configuration and a series of strategies for the pharmaceutical sector of Pakistan. This study demonstrates that GHRM practices contribute to the improvement of environmental performance. The findings align with previous studies (Ahakwa et al., 2021; Saeed et al., 2021). These studies find that if an organization focuses on induced greener activities, skilled employees are required and required training at each level for adaption and emphasizing green thinking to improve environmental performance. Second, this measures the direct relationship between green human capital and environmental performance, which is significantly and positively linked (Huang & Kung, 2011). It revealed that green human capital incorporates environmental distinction and adds value to an organisation's environmental performance.

In addition, the moderating role of a pro-environmental attitude shows the positive relationship between green human capital and environmental performance. The study indicates that a higher level of pro-environmental attitude increases the effect of GHRM practices on environmental performance, so the results align with the previous study (Rehman et al., 2021). In addition, the study also found that a higher level of environmental performance increases the effect of green human capital on environmental performance.

This study proposed identifying the effect of GHRM practices and green human capital on pro-environmental performance. It also pinpoints the moderating effect of a pro-environmental attitude on environmental

performance in the pharmaceutical sector of Pakistan. The results specify that the constructs are associated with GHRM practices and green human capital influenced by GHRM practices and green human capital. This study measures the nexus between GHRM practices, green human capital, and environmental performance to progress the frontiers of knowledge on a sustainable environment. It is also proof that pro-environmental performance moderates the relationship between GHRM practices and green human capital with environmental performance.

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