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Assessment of Green Human Resource Management in Developing Sustainable Performance of Manufacturing Industry in Pakistan

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Abstract: In light of the evolving corporate landscape and the growing emphasis on competencies and strategic approaches, the concept of Green Human Resource Management (HRM) has emerged as a vital component of global green development. Green HRM integrates environmental considerations into HR activities, contributing to the long-term sustainability of organizations and their workforce. While existing literature has predominantly focused on sustainability, this research addresses the novel contribution of Green HRM. The study examines the impact of Green HRM practices on the sustainability of Pakistan's manufacturing industry, encompassing social, environmental, and economic performance indicators. Data were collected from 111 manufacturing employees in Pakistan, utilizing a convenience sampling method and structured questionnaires. The findings reveal that Green HRM positively influences the environmental, economic, and social performance management practices of emerging economies. Companies with a strong brand image can leverage Green HRM practices to enhance sales and consumer awareness, aligning with their green objectives. Consequently, manufacturing enterprises in Pakistan can enhance their clean industrial capacity by adopting the proposed investigation model.

Introduction

According to Dumont J. et al. (2016), green human resource management (green HRM) is a newly developed term conceptualized to impact employee green workplace behavior. Vital environmental initiatives have increased brand awareness and business sales (Wee & Quazi, 2005; Yang et al., 2011; Salem et al., 2012). Although workers are the ones who carry out the organization's green strategies, employers must encourage employee behavior that advances the organization's green

objectives. Daily, Govindarajulu and Bishop (2009). Green HRM is defined as HRM practices that improve results for the environment (Kousar & Shafiq, (2023), Arshad et al. (2022), Faisal & Iqbal, (2023), Hayat et al. (2022), Shafiq et al. (2023), Roshana et al. (2023), Nosheen & Danya, (2022), Kumar & Khan, (2023).

Historically, Businesses represented the natural world as unboundedly lovely and accessible. This corporate demise of the prevalent was caused by thinking in which people

and corporations think that using common areas has no impact on the surroundings. However, due to that circumstance, resources were depleted, and pollution was produced (Shaw et al., 2016; Faisal and Iqbal, 2023). Businesses must uphold their obligations to safeguard the environment in light of the growing environmental issues being revealed. This wonder established the idea of sustainable performance, in which the company's achievement of social and ecological goals was just as significant as its economic success (Bombiak & Marciniuk-Kluska, 2018; Hayat et al., 2022).

According to recent research, sustainable performance has attracted significant interest, and studies have examined how it relates to green HRM Zaid et al. (2018), Abdul-Rashid et al. (2017), Iqbal et al. (2023), Hayyat et al. (2023), Ramzan et al. (2023), Sustainable manufacturing methods, and green supply chain management (Yildiz & Sezen, 2019; Kumar & Khan, 2023).

Green HRM stimulates environmental, economic, and social performance. We will carry out this investigation to comprehend this phenomenon. However, this research aims to solve the ecological problem in Pakistan's industrial sector. This research will also benefit managers and practitioners in today's economic, social, and environmental performance context. Additionally, implementing the current study's model in Pakistan's industrial sectors would improve the likelihood of cleaner production and apply green HRM to attain sustainability.

The current research project will thus examine the potential contribution of green HRM to enhancing sustainable performance in Pakistan's big industrial companies. Two hundred manufacturing businesses operating in Pakistan will be surveyed. Specific research questions will be addressed to accomplish the study's goal.

Literature Review

Sustainable development is crucial for corporate operations, especially amid environmental crises and social class divides. Companies may attain sustainability by better using their human resources. Hiring a human resource manager is a crucial component of a business's sustainability strategy since human resource management affects how an organization interacts with the outside world, which affects ecology and civilization (Saifulina N. et al., 2020; Sibte & Asim, 2023). According to Dumont, J. et al. (2017), green HRM has been emphasized as a crucial component that influences employee green management practices and workers' economic sustainability.

Operating manufacturing companies must take a deeper look at the environmental agenda. A green HRM package and personal inclination are essential to encourage staff involvement within the company in implementing ecological sustainability efforts (Ababneh, O. M. A. 2021; Shafiq et al., 2023). With green HRM practices, organizations may their corporate plan with outside factors more effectively. According to research by Yong et al. (2020), work descriptions of employees, green hiring, green incentive, green evaluation, and green analysis all significantly affect the efficiency of the environment.

According to Mousa, S. K., & Othman, M. (2020), experts have shown great interest in Green HRM. Studies on green HRM practices are few, but they are becoming more prevalent in developing nations. However, Amrutha, V. N., & Geetha, S. N. (2020) analyze the gaps in Green HRM management in earlier research showing that green practices satisfy an organization's sustainability needs. According to the resource conversion theory (COR), strategic planning with human resource management is required for the usage of current resources in manufacturing industries and the quest for new sustainable resources. Employees place a high value on sustainable resources, and any danger of

loss or uncertainty causes them to adopt green behavior or look for alternatives. Green organizational practices, outputs, and values have been linked to green human resource management (Begum, V., & Arshi, T. A., 2020; Roshana et al., 2023).

Due to government policies and goals, employees in public sector businesses need to be made aware of green human resource management techniques. It makes it more difficult for staff members to meet corporate and national sustainability objectives. Green HRM practices considerably boost the sustainability of the corporation. To preserve Pakistan's manufacturing sector's sustainable development and performance, the company must integrate green ideas across its human resource management division. To ensure sustainability, a company should create yearly green aims and targets that are in line with the vision and policies of the government (Jayabalan N. et al., 2020; Nosheen & Danyal, 2022).

According to Chakraborty, D., & Biswas, W. (2020), businesses preserve their worldwide identity with cutting-edge operational and human resource strategies, serving as a competitive advantage for manufacturing enterprises. Workforce diversity has to be effectively handled given the start of globalization, quick changes, and workplace environmental difficulties for firms. The main components of a company's business plan that are crucial to investigating green business aspects are its green HRM practices.

Faisal, S., and Naushad, M. (2020) assert that the increasing significance of sustainable growth in the environmentally friendly component of modern businesses is the establishment of a competitive advantage that leads to the promotion of incorporating elements of environmentally friendly practices into the field of human resource management, also known as green HRM. According to Pinzone et al. (2016), Green HRM methods facilitate collective employee participation in the defense

of environmental sustainability by performing voluntary acts and going above and beyond. However, it has been shown that the initial concept of controlling the working environment as an organizational transformation that requires the strong support of the workers influences employee behavior.

According to Swarnalatha, V. (2020), businesses require exceptional administrative and social performance to maintain a competitive advantage via precise establishing and carrying out green HRM techniques. However, it won't be long until the corporation starts using environmentally conscious practices that are good for the company, the community, and the environment as a whole. The company should consider green issues and procedures while making strategic choices, corporate policies, and regular activity initiatives, including human resource management.

The fact that Singh et al. (2020) explored how leadership in green transformation, environmental performance, and green innovation interchange. Through the indirect effects of green innovation, green HRM affects the environmental performance of industrial firms. Environmental performance may be improved with green HRM efforts (Siyambalapitiya et al., 2018; Mastoid, 2022). According to the Kim et al. (2019) paradigm, environmental performance advancement is supported by green HRM practices and functions.

The influence of green HRM efforts on environmental performance was explored by Raj and Verma (2019). The company's operations are intimately connected to environmental issues. However, it has been discovered that India is experiencing a significant energy crisis due to the deterioration of the usual energy sources and a need for more creativity in presenting new energy source options. As a result, at the current level, green HRM practices must be linked with environmental management. Additionally, Yusliza et al. (2019) have emphasized the

organization's function and the significance of acting socially rather than only in an ecologically responsible one to accomplish economic sustainability goals.

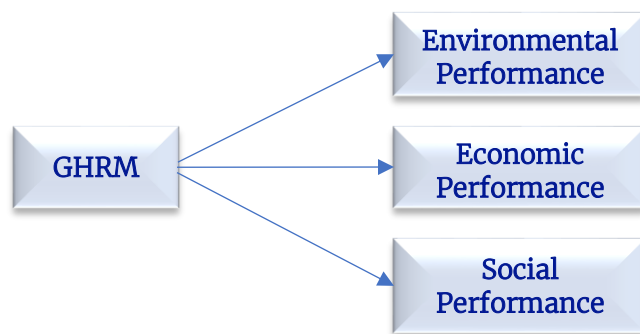
Additionally, to achieve green goals and objectives connected to the sustainable performance of the manufacturing sectors, firms must examine their human resource. The human resource management department, According to Singh, L. P., & Padhi, A. (2020), is viewed as a critical component and catalyst for the organization's green culture, where the procedures, objectives, and regulations are organized with the organization's sustainability and can be improved environmentally conscious employee come from the creative movement, and have authority to try something innovative.

H1: There is a favorable effect of Green HRM on Environmental performance.

H2: There is a beneficial effect of Green HRM on Economic performance.

H3: There is a helpful effect of Green HRM on social performance.

Conceptual Framework



Research Methodology

Research Design

Due to the primary nature of the information being collected, this study has adopted a quantitative research methodology. The quantitative technique was chosen because it best matches the heart of the subject and the

research goal to be accomplished and covered in the investigation.

Research Participant and Methods:

Data were collected from Pakistan manufacturing firms. Those participants were part of the study that involved performing the HRM practices and policies implemented to perform in organizations to achieve sustainability. The individual manufacturing industry company serves as the study's unit of analysis. Large manufacturing enterprises are included in the study's sample frame, though. The survey had 111 respondents in all dissemination. A survey questionnaire was disseminated to gather data from the manufacturing companies based on time and resource restrictions.

Research Approach

The investigation approach is a strategy and procedure connected to efficient data analysis methods. Inductive and deductive research methodologies are two distinct categories of research methods. Opie (2019) noted that although quantitative research matches the study's deductive methodology, qualitative research suits the inductive approach. The articles by Opie (2019), Kousar & Shafiq (2023), Arshad et al. (2022), Faisal & Iqbal (2023), Hayat et al. (2022), Shafiq et al. (2023), Roshana et al. (2023), Nosheen & Danya, (2022), Kumar & Khan, (2023) makes it clear that the deductive technique has the benefit of acquiring crucial facts and turning that data into numbers. Other than changing over the data into numerals, it can likewise utilize a theory and start the examination through the speculation of the circumstance. The last advance includes the unequivocal appraisal of the outcome that can be applied to a specific situation. Unexpectedly, the inductive methodology includes the assortment of information that is evaluated for designs in regard to the subject of interest or study.

The current study's objective is to better comprehend how green HRM affects

sustainability by studying its effects on Pakistan's manufacturing industry and identifying its ramifications. Because deductive reasoning is appropriate for quantitative data, the quantitative method has been chosen to be used for this purpose.

Measures

The research tools were used in this investigation to compare four different factors, i.e., green HRM consists of six items adopted discussed in the given table, Environment performance consists of five items, social performance consists of five

items, and economic performance also consists of five items adopted from the previous research papers. To examine the internal consistency of the study scale variables' items, a reliability test was also carried out. The research variables used for each of the four variables, together with their items and sources, are shown in the table below. The Cronbach Alpha value of the GHRM found was 0.929, ENP consist of a 0.865 reliability value, SP consists of 0.880, whereas EP Cronbach alpha value found as 0.872. Hence all variable's Cronbach alpha value is greater from 0.5 to 0.6, which implies that the data collected from the respondents were reliable.

Table 1

Variables, items, Cronbach Alpha, and Source.

Variable	No. of items	Cronbach's Alpha	Source
Green HRM	06	0.929	Tang et al. (2018).
Environment Performance	05.	0.865	Laosirihongthong et al. (2013)
Social Performance	05	0.880	Paul Raj (2011).
Economic Performance	05	0.872	Zhu et al. (2008).

Data Analysis

SPSS software was used for the data analysis version 23.0. The main results of this study were analyzed and established by Cronbach Alpha, descriptive statistics, correlation, and coefficients. Model summary and ANOVA test.

Data Analysis and Findings

The results show that in our conducted study, 111 respondents who participated were Male, which makes 66.7 percent of the sample size. The rest are 37 Female respondents, who make up 33.3 of the sample size. The results show that respondents between the ages of 18 – 23 years 27 percent. Those between the ages of 24 – 29 years are 49.5 percent. Respondents aged 30 – 35 are 14.4 percent, and those aged 36 – 46 years are 9 percent. The findings demonstrate the

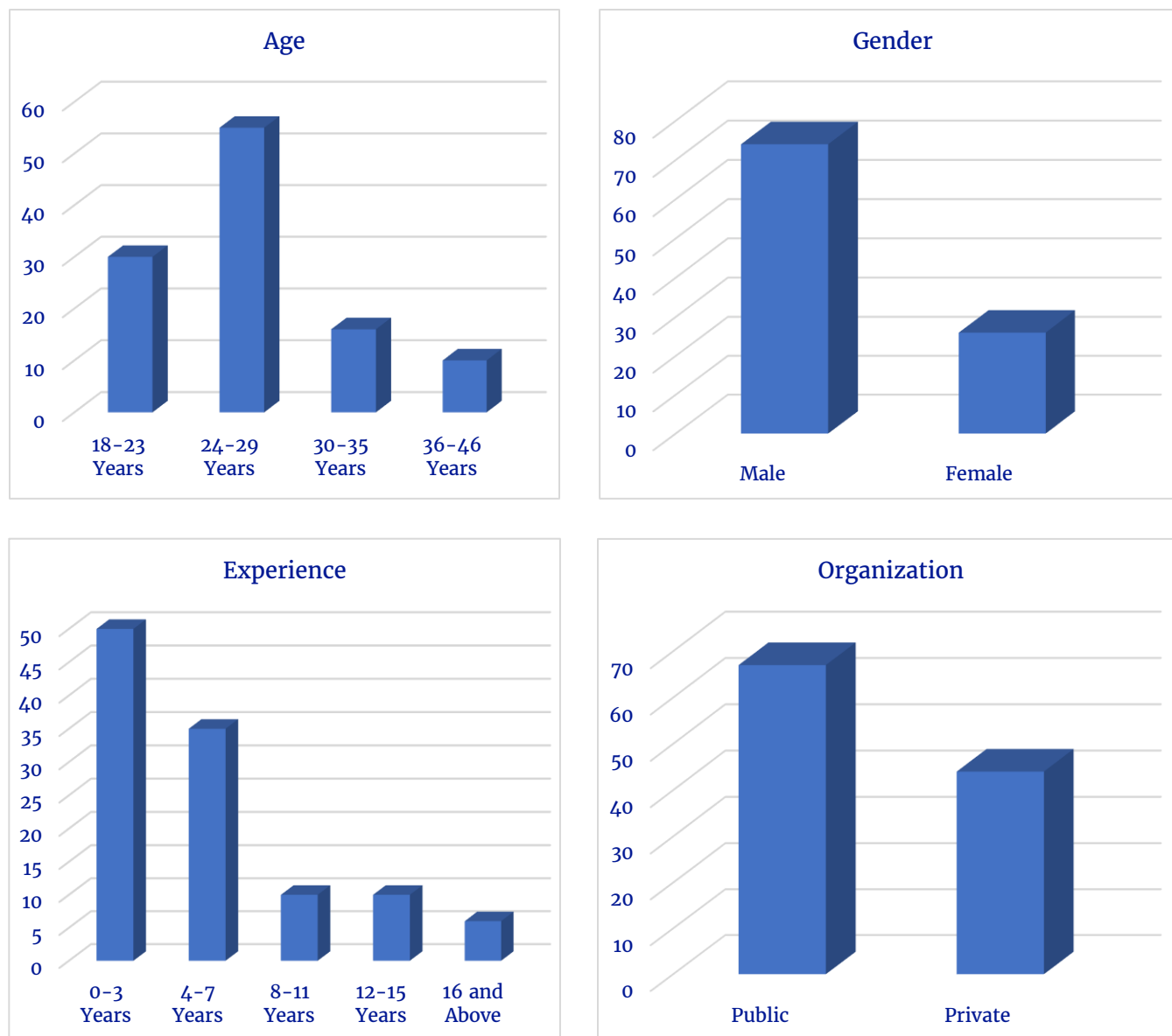
respondents' level of experience. 50 respondents have experience ranging from 0 to 3 years. There were 45% of the participants that had this experience. 35 responders had a range of 4–7 years' worth of experience. People with this experience made up 31.5 percent. 10 participants had an experience level that ranged 8–11 years, constituting 10 percent. 6 participants had an experience level that ranged 16 and above years and constituted 5.4 percent of the total sample.

The findings show the summary of the organization type. 67 respondents who participated in the study were from public organizations constituting 60.4 percent. Whereas 44 respondents who participated in the study were from private organization type constituted 39.6 percent of the sample.

Graphical Representation Of Age, Gender, and Experience

Figure 1

Graphical Representation of Demographic Variables



Descriptive Analysis

Descriptive Statistics

The descriptive data are included in Table 2 of the report. Standard deviations, skewness, and kurtosis data are also included with the corresponding mean values. The mean shows the typical answer that was produced about a

particular variable. Skewness and Kurtosis were used to gauge the data's normalcy. Kurtosis is acceptable between -3 and $+3$, whereas Skewness is appropriate between -1 and $+1$. It can be seen that all Skewness and Kurtosis values are inside the acceptable range. Consequently, it may be argued that the data are normal and appropriate for extra statistical analyses.

Table 2

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
GHRM	111	3.7883	.99085	-.301	.229	-.752	.455
ENP	111	3.7532	.91491	-.184	.229	-.526	.455
EP	111	3.6649	.89774	-.011	.229	-.768	.455
SP	111	3.7027	.94767	-.095	.229	-.984	.455
Valid N (listwise)	111						

Correlation Analysis

The findings of the variable association are shown in Table 3. An effective method for determining if there is a strong or weak association between two variables is to do a correlation test. The choice of the hypothesis test

is aided by it. The range of the correlation coefficient is between 1 and -1, and a higher correlation coefficient indicates a stronger association between the independent and dependent variables. As a consequence, the table's findings show that green HRM and sustainability are strongly positively related.

Table 3

Correlation analysis

	GHRM	ENP	EP	SP
GHRM	1	.887**	.764**	.780**
ENP	.887**	1	.797**	.793**
EP	.764**	.797**	1	.894**
SP	.780**	.793**	.894**	1

Regression Analysis

GHRM and ENP

The regression analysis's model summary is shown in Table 4. The correlation between the variables is shown by the value of R. The fact that the value of R, in this case, is 88.7% shows that the GHRM and ENP are positively correlated. The R square value reveals the strength of the correlation or how much the independent variable has an effect on the dependent variable. Here, the number shows that the independent variable's influence on the dependent variable is 78.4%.

The results of an ANOVA are used to examine if differences in certain variable means are

statistically significant. The 5% chance of deciding there is a difference when there isn't one is indicated by the significance level of 0.05. Table 1.7 demonstrates that there is a mean difference between green HRM and environmental performance since the P-value is smaller than 0.05.

The values of Beta are discovered via the coefficient analysis. Here, the table demonstrates that the independent variables' beta values are positive, indicating a favorable direct correlation between the independent and dependent variables. GHRM has a beta value of 0.819. It may be said that GHRM has a direct effect on ENP.

Table 4

Regression (GHRM and ENP)

Model Summary						
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate		
1	.887 ^a	.786	.784	.42474		
ANOVA						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	72.412	1	72.412	401.385	.000 ^b	
Residual	19.664	109	.180			
Total	92.076	110				
Coefficients						
Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
(Constant)	.651	.160			4.070	.000
GHRM	.819	.041	.887		20.035	.000

a. Dependent Variable: ENP, b. Predictors: (Constant), GHRM

GHRM and EP

The value of R, which denotes the correlation between the variables, is shown in Table 5. The fact that R, in this case, is 76.4% shows that the GHRM and EP are positively correlated. The R square value reveals the strength of the correlation or how much the independent variable has an effect on the dependent variable. Here, the number shows that the independent variable's influence on the dependent variable is 58.0%.

It is clear from an ANOVA that there is a difference between the means of the variables

green HRM and environmental performance since the p-value is less than 5% or P0.000. The findings show that there is a considerable relationship between economic success and the green HRM components.

The values of Beta are discovered via the coefficient analysis. Here, the table demonstrates that the independent variables' beta values are positive, indicating a favorable direct correlation between the independent and dependent variables. GHRM has a beta value of 0.693. It may be said that GHRM has a direct effect on EP.

Table 5

Regression (GHRM and EP)

Model Summary					
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate	
1	.764 ^a	.584	.580	.58150	
ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.795	1	51.795	153.172	.000 ^b
Residual	36.858	109	.338		
Total	88.653	110			

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.041	.219		4.754	.000
GHRM	.693	.056	.764	12.376	.000

a. Dependent Variable: EP, b. Predictors: (Constant), GHRM

GHRM and SP

The regression analysis's model summary is shown in Table 6. The correlation between the variables is shown by the value of R. The fact that R, in this case, is 78.0% means that the GHRM and SP are positively correlated. The R square value reveals the strength of the correlation or how much the independent variable has an effect on the dependent variable. Here, the number shows that the independent variable's influence on the dependent variable is 60.9%.

As shown by the ANOVA, there is a difference between the means of the variables

green HRM and social performance when the p-value is less than 5% or P0.000. The findings show that there is a considerable gap between social performance and the green HRM components.

The values of Beta are discovered via the coefficient analysis. Here, the table demonstrates that the independent variables' beta values are positive, indicating a favorable direct correlation between the independent and dependent variables. GHRM has a beta value of 0.746. It may be said that GHRM has a direct effect on SP.

Table 6

Regression (GHRM and SP)

Model Summary					
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate	
1	.780 ^a	.609	.605	.59559	
ANOVA					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	60.124	1	60.124	169.491	.000 ^b
Residual	38.666	109	.355		
Total	98.789	110			
Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	.876	.224		3.905	4.754
GHRM	.746	.057	.780	13.019	12.376

a. Dependent Variable: SP, b. Predictors: (Constant), GHRM

Conclusion

The investigation has added to the current group of information in accomplishing a more significant level of maintainable implementation

in the manufacturing firms of Pakistan. The job of green HRM was discovered to be huge, which assists firms with accomplishing maintainable performance. Green HRM was discovered to be a

basic measurement of ecological-associated concerns. Not restricted distinctly to ecological issues, the investigation has given proof that green HRM is additionally connected with social performance. Henceforth, this examination gave proof that green HRM will, in general, impact nearly nothing yet has a positive relationship with monetary, natural, and social performance in the huge assembling firms of Pakistan.

Practical Implication

The practitioners and academics will benefit from several research contributions from this study. Examining the affiliation between green HRM and the Sustainable performance of Pakistan's manufacturing businesses will add to the body of current information. Professional capabilities, talents, and encouragement from the top leadership in Pakistani manufacturing organizations are devoted to gaining a competitive advantage and sustainable performance. They are also concerned with environmental preservation. Additionally, this research will contribute to environmental studies and organizational behavior knowledge. Examining how green HRM in manufacturing sectors promotes sustainable performance advances research on sustainability. The discovery of these links particularly broadens knowledge and comprehension of how Pakistani manufacturing companies could strategically manage their green HRM to attain manufacturing businesses' sustainable performance.

Additionally, this research will educate senior management, vendors, and clients on sustainability and environmental protection. However, managers and practitioners will also benefit from this study's analysis of today's performance of the economy, society, and environment. Additionally, implementing the present study's model in Pakistan's industrial sectors would improve the likelihood of cleaner production and apply green HRM to attain sustainability.

Limitation and Future Research

This investigation has certain restrictions, even though findings show strong linkages for achieving practical application. Although it was sufficient, the investigation's first example was somewhat constrained. Future tests may take into account using more prominent examples to increase generalizability. Second, the study's design was cross-sectional; longitudinal settings should be used in studies. Additionally, upcoming studies might test the existing model across other industries, countries, and regions to improve the generalizability of the outcomes. Future exams are advised to advance the writing of green HRM and administration, as proposed in earlier exams, to widen the writing.

Future studies may further this analysis by examining the interference effect of green intellectual capital between green HRM and workable implementation—the limited area of GHRM capital involvement needs further investigation. Future studies may build on this work by examining the level of the small establishment, including top management psychological views, attitudes, knowledge, and degree of participation in adopting green HRM practices and how this leads to workable implementation. Lastly, people are preparing to use the environment as a talking point. Future assessments may consider the green job preparation for managers between green HRM and cost-effective implementation. The assumption is that better green education will result in better green research funding and economic implementation.

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