

# The Impact of Green Human Resources Management on the Sustainable Performance: The Moderating Role of Strategic Vigilance in the Jordanian Pharmaceutical Industrial Companies

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**Abstract:** *The study aimed to investigate the impact of green human resource management (GHRM) on sustainable performance, and to explain the modified role of strategic vigilance in enhancing the impact of green human resource management on sustainable performance at Jordanian Pharmaceutical Industrial Companies. The study used a descriptive-analytical approach, targeting managerial employees in senior and middle management. A proportional stratified random sample was used, consisting of 205 employees. A questionnaire was developed to collect primary data. Data was collected, analyzed, and hypotheses tested using appropriate statistical methods. The study found several notable results, including. There was a statistically significant effect of GHRM practices on sustainable performance; there was a statistically significant effect of strategic vigilance in enhancing the impact of GHRM in SP; there was a moderate level of relative importance for GHRM and a high level of relative importance for all dimensions of sustainable performance except environmental performance, which was moderate in relative importance. The relative importance of the strategic vigilance variable reached a high level. The study recommended pharmaceutical companies enhance their focus on sustainable performance by supporting the implementation of environmentally friendly green practices and providing all necessary strategic, organizational, and logistical requirements that ensure their achievement. The support and commitment of administrations to developing mechanisms that enhance strategic vigilance and to providing the necessary administrative, financial, and moral support for them.*

**Key words:** *Green Human Resources management, sustainable performance, Strategic Vigilance, Jordanian pharmaceutical companies.*

## 1. INTRODUCTION

Recently, there has been growing global attention towards sustainable business practices to transition to sustainable patterns in managing their resources and operations as a response to the economic, social, and environmental challenges and natural phenomena that led to environmental imbalances such as desertification, environmental pollution, overexploitation of natural resources, increasing quantities of organic and industrial waste, and rises in energy consumption levels, all of which threaten their survival and continuity. This necessitated the need for organizations to adjust their institutional behavior by adopting environmentally friendly practices and promoting a green management culture. This involves instilling values, beliefs, and practices that prioritize environmental responsibility and sustainability throughout the organization by integrating their environmental departments with other departments, notably Human Resource Management, to be known as Green Human Resource Management (GHRM).

To emphasize the important role of human resources in achieving sustainable organizational performance and improving its environmental performance to become environmentally friendly as one of

the main sustainable performance dimensions. Moreover, achieving social and economic sustainability and building an environmental brand reputation, Al-Zgool (2020). The reputation of businesses is no longer dependent on their profit or financial position but on their ability to achieve sustainable performance, with a focus on environmental and social performance compared to economic performance, to maximize their capacity to respond to internal and external stakeholders' expectations and needs. Therefore, they began adopting environmentally friendly practices in their production processes to reduce their ecological footprint and contribute positively to the planet (Cankaya et al., 2019).

However, to respond to the requirements of achieving sustainable performance, this involves using new mechanisms that enable them to do that. Adopting a strategic vigilance system that they can contribute to shaping the future by conducting strategic monitoring and exploration of the variables surrounding them, enhancing their abilities to adapt to internal and external changes, exploiting opportunities, and avoiding threats by possessing information systems that contribute to the continuity and sustainability of these companies while achieving sustainable performance.

## 2. PROBLEM STATEMENT AND RESEARCH QUESTIONS

Business organizations face numerous challenges that impede their progress, growth, and attainment of sustainable performance. Therefore, there is a need to focus on the role of green human resource management (GHRM) in adapting to these challenges using environmentally friendly practices and initiatives to achieve sustainable performance. Several studies have emphasized the effective role of GHRM in achieving sustainable performance, such as Al-Bahiri (2018), Rawashdeh (2018), and Arqawi et al. (2019), which urged researchers and academics to further explore future business strategies that aim to achieve sustainable performance through the effective implementation of GHRM practices. However, the researcher doesn't find any studies that specifically investigate the direct impact of strategic vigilance on improving the impact of green human resource management on sustainable performance.

Based on the aforementioned, the problem statement is formulated into the main question: "What is the direct impact of strategic vigilance in improving the impact of green human resource management on sustainable performance in Jordanian pharmaceutical industrial companies?" And to understand the relative importance level of Green Human Resource Management (GHRM) dimensions and sustainable performance dimensions, as well as to assess the impact of GHRM dimensions on the sub-variables of the dependent variable, sustainable performance (environmental performance, economic performance, and social performance), and the level of application of strategic vigilance among Jordanian pharmaceutical companies.

The importance of the study lies in its focus on addressing the emerging challenges related to sustainability within the pharmaceutical industry, a sector that plays a crucial role in both healthcare provision and environmental impact, by investigating various new variables and factors within this context (GHRM, strategic vigilance) to fill the gap in the existing management literature and provide practical insights and recommendations that can be utilized by decision-makers within Jordanian pharmaceutical companies.

## 3. STUDY HYPOTHESES

The main hypotheses are formulated as follows:

**(H01):** There is no statistically significant impact at a significance level ( $p \leq 0.050$ ) for green human resource management practices with their dimensions (green recruitment, green training, and development, green compensation and rewards, and green performance evaluation of human resources) on sustainable performance with its dimensions (environmental performance, economic performance, and social performance) in Jordanian pharmaceutical companies.

**(H02):** There is no statistically significant impact at a significance level ( $p \leq 0.050$ ) for strategic vigilance in enhancing the impact of combined dimensions of green human resource management practices on combined sustainable performance in Jordanian pharmaceutical companies.

### 3.1 The study model

A hypothetical model has been developed to illustrate the logical relationships between the study variables. Figure 1 illustrates the proposed model, which consists of the independent variable (green human resource management practices), the dependent variable (sustainable performance), and the mediating variable (strategic vigilance).

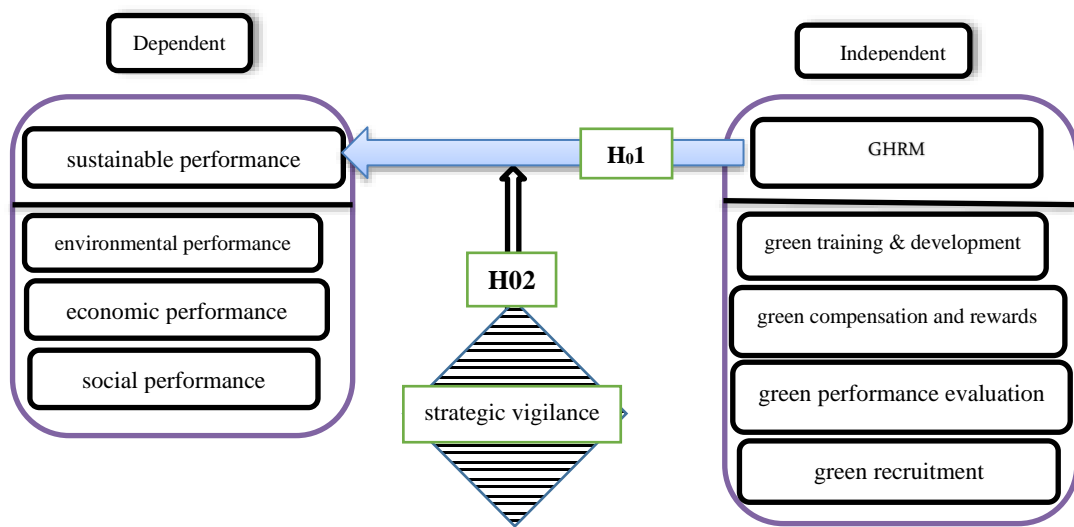


Figure (1)

The study model was developed based on the readings of researchers from the following sources:

Independent Variable: Rayner & Morgan (2018), Owino & Kwasira (2018), Tang et al. (2018), El-Masry & Bakr (2018), Roscoe et al. (2019), Azza (2019), Qara'a & Qasimi (2020).

Dependent Variable: Rawashdeh (2018), Umair et al. (2019), Al-Hassani (2018).

Mediating Variable: Al-Najjar & Al-Shawabkeh (2020), Hameed & Ibrahim (2020), Khawam (2018), Mahmoud (2018), Belhaj (2017), Khadija (2018), Wheelen & Hunger (2004).

#### 4. PREVIOUS STUDIES

**Alzgoor (2021) study:** aimed to investigate the impact of green human resource factors, including green capabilities, green opportunities, and green motivations, on enhancing environmental performance in the pharmaceutical sector in Bahrain. It explored the influence of managers' emotional intelligence on this relationship. The study concluded that there is a significant positive relationship between green capabilities and green opportunities for environmental performance. Green motivations have a weak impact on environmental performance. The green emotional intelligence of leaders has a strong impact on environmental performance. Organizations' focus on green recruitment and training helps improve their operational quality, enhance their reputation, reduce overall costs, and prolong the lifespan of production processes. Expressing emotional affinity for green practices enhances organizational environmental performance.

**Shaban's study (2019)** aimed to provide a comprehensive theoretical framework for green human resource management practices, including green recruitment and selection, green training, green performance management, and green wages and rewards. It investigated the concepts of human resource management as well as the requirements, benefits, processes, and challenges facing the implementation of green human resource practices and management practices in organizations. The study tested this concept from the perspective of construction companies in both Egypt and the United Kingdom. The study found that the implementation of green human resource practices from operational and process perspectives, such as human capital acquisition, human resource planning, recruitment, and selection, contributes to achieving organizational goals and sustainable performance by integrating green human resource management policies and practices with the organization's strategic objectives.

**Khan et al., (2020) study** aimed to examine the direct relationship between green human resource management practices (green recruitment and selection, green training and development, and green performance evaluation) and sustainable performance in 248 Malaysian manufacturing companies certified to ISO 14001. The study found a significant direct relationship between green human resource practices and sustainable performance within the selected companies.

**Amrutha & Getha (2020) study:** aimed to identify the current progress and research gaps in green human resource literature and investigate the future of green human resource practices in meeting the requirements of social sustainability in organizations. The researcher employed quantitative analysis and qualitative data analysis from databases such as Scopus and Google Scholar, resulting in the identification of over 174 scientific articles written between 1995 and 2019. The study revealed three categories of articles in the field of green human resources: green management practices, green employee behavior in the workplace, and organizational sustainability. It was found that social sustainability is explored less compared to economic and environmental sustainability.

**Yong et al. (2019) study:** Aimed to investigate the impact of green human resource management practices, including green job analysis, green recruitment, green training, green performance evaluation, and green rewards, on sustainability in 112 large manufacturing companies in Malaysia, each employing more than 200 employees. The selection of these large companies was due to their sensitivity towards environmental issues. The study found that green recruitment and green training have positive impacts on sustainability, while no significant impact was found for green job analysis, green recruitment, or performance evaluation.

**Al-Shawabkeh (2019) study:** The study aimed to understand the impact of strategic vigilance with its dimensions, such as environmental vigilance, competitive vigilance, technological vigilance, and business vigilance, on decision-making processes in Jordanian pharmaceutical companies, with a focus on the role of decision support systems in this process. The study adopted a descriptive analytical approach, involving all levels of management. The study concluded that there is a significant impact of strategic awareness with its various dimensions on decision-making effectiveness in Jordanian pharmaceutical companies, and it also demonstrated the influence of decision support systems in enhancing this relationship.

**Afum et al. (2020) study:** The study aimed to explore the relationship between green manufacturing practices, competitive capability, corporate reputation, and dimensions of sustainable performance, including economic, social, and environmental performance. The study used a mixed-methods approach and included 158 small and medium-sized manufacturing companies in Ghana. The study found that green manufacturing has a significant and positive impact on sustainable performance in its economic, social, and environmental dimensions.

**Zaki (2019) study:** The study aimed to analyze the impact of strategic vigilance with its various dimensions, such as marketing vigilance, competitive vigilance, technological vigilance, and environmental vigilance, on the development of pharmaceutical products in Egyptian businesses. The study relied on data collected from 63 public companies in Egypt, and it found that the elements used for strategic vigilance can contribute to explaining the ability of companies to develop their products.

## 5. GREEN HUMAN RESOURCE MANAGEMENT (GHRM)

### 5.1 The Concept of Green Human Resource Management:

The term "green human resource management" was first used in 1996 after the publication of the book "Greening People" by Wehrmeyer (1996). Many researchers have formulated the concept of green human resource management. Peerzadah et al. (2018) defined it as "the use of human resource management policies to encourage optimal resource utilization within organizations and enhance environmental protection, thereby contributing to raising morale and satisfaction among employees." Mwita (2019) defined it as "the use of human resource management practices to enhance sustainable performance practices and increase employees' commitment to environmental sustainability issues through the use of HR functions, policies, procedures, and strategies as mechanisms for environmental management in the workplace."

### 5.2 Practices of Green Human Resource Management:

Sheikh et al. (2019) emphasize that achieving green management requires considering human resource management in an integrated context and from a sustainable perspective. such as green recruitment, green training and development, green performance, and green compensation (Sudin et al., 2018)

#### 5.2.1 Green Recruitment:

Organizations are increasingly convinced that attracting environmentally conscious candidates can contribute to their competitive advantage by improving the quality of their products and services by preserving and conserving the environment and natural resources. Mumtaz et al. (2020) and Mukherjee et al. (2020) define the green recruitment perspective as "a recruitment process conducted paperlessly with minimal

environmental impact, cost, time, and energy to hire suitable candidates for required positions through a set of practices that reflect green principles include job descriptions with environmental sustainability agenda, posting job openings online, receiving job applications online, ensuring job advertisements reflect the organization's values and environmental standards, conducting recruitment interviews via phone or video, asking environmental-related questions to job candidates during the selection interviews, using simple techniques like Skype, or complex electronic methods for conducting group interviews or hosting virtual job, or using various communication strategies to engage job applicants, such as text messages, emails, and social media platforms (Shahriar et al., 2019).

### **5.2.2 Green Training and Development:**

Green training and development aim to educate employees about values and environmental management, train them on energy-saving work methods and waste reduction, and provide opportunities for employees to engage in solving environmental problems (Mwita, 2019). Tang et al. (2018) define it as "a system of activities incentivizing employees to learn necessary skills for environmental protection and care for environmental issues as a fundamental aspect of achieving environmental goals."

According to Sheikh (2020), green training is "the process of providing employees with sufficient knowledge, skills, and attitudes to comply with green strategies. Green training and development are "a continuous process of developing and training employees on the best green practices to increase their environmental awareness through specialized training programs on environmental concepts for new and existing employees and using environmentally friendly e-training techniques.

### **5.2.3 Green Compensation and Rewards:**

Compensation and rewards play a vital role in human resource management in any organization; they are closely linked to achieving the three dimensions of sustainability (economic, social, and environmental) and serve as motivators for employees (Malik et al., 2020).

Mukherjee et al. (2020) suggest that designing a green compensation and rewards system (both monetary and non-monetary) is beneficial for incentivizing employees who achieve the environmental goals outlined in job descriptions or those who introduce innovations to protect the environment using minimal resources. Recognizing such achievements with awards can enhance productivity, loyalty, satisfaction, and motivation among employees, thereby achieving satisfactory levels of environmental performance. A green compensation and rewards system serves as a good indicator of an organization's seriousness and commitment to achieving sustainable environmental performance. Mwita (2019)

### **5.2.4 Green Performance Evaluation for Human Resources:**

Sheikh (2020) suggests that organizations must have a performance management system that provides feedback, accountability, and documentation of employee performance systematically, encourages employees to improve their performance, and directs their talents toward achieving organizational goals in a better way. Using environmental performance standards to encourage employees to comply with green rules and regulations and the organization's green standards.

Opatha & Hewapathiran (2019) argue that without this practice, no organization can guarantee actual environmental performance in the long run. Green performance evaluation for employees and teams can be conducted either separately or as part of the organization's traditional performance evaluation system, based on pre-agreed environmental criteria and goals within job descriptions. Setting a set of green standards for evaluating performance, such as energy consumption and waste recycling, is essential (Shahriar et al., 2019).

## **6. SUSTAINABLE PERFORMANCE**

### **6.1 Introduction:**

Sustainability is a triple-bottom-line concept encompassing economic, environmental, and social dimensions, which cannot be achieved without these dimensions interacting with each other in a balanced manner. The success of organizations is linked to achieving overall dimensions, not just financial results (Kucukoglu & Pinar, 2018). Organizations are seeking components to confront this challenge, including human resources, which possess competencies, capabilities, and capacities to distinguish the organization from others, achieving its sustainability, continuity, growth, and ultimately sustainable performance (Al-Masri & Abubakr, 2018).

### **6.2 Sustainable Performance Concept and Dimensions:**

The concept of sustainable performance has received attention from researchers in various studies, but there has been no consensus on a specific definition. Swadi (2020) defined it as "a working method that creates value for stakeholders in the long term by exploiting opportunities and managing risks arising from economic, social, and environmental developments." It is also "a strategy through which a company monitors its long-term growth, efficiency, and competitive performance by integrating its economic, social, and environmental performance into company management" (Amacha et al., 2017).

Khan et al. (2020) defined it as "a systematic approach to creating objective synergies between economic, social, and environmental aspects to improve the overall and comprehensive performance of the organization.

### **6.2.1 Economic Sustainability Performance.**

Economic performance represents the cornerstone for achieving sustainable performance; environmental or social impacts cannot be achieved without an economic perspective within the framework of sustainability. Economic performance is not only about generating revenues and profits but also about efficiently utilizing available resources, preventing waste and loss, and prudently using them.

As for Gharibeh (2019), economic performance is reflected in the economic surpluses generated by the enterprise through maximizing its outputs (production, profit, value-added, market share) and reducing its resource usage (capital, labor, raw materials, technology, resource acquisition costs, and energy consumption).

### **6.2.2 Sustainable environmental performance.**

There is no general agreement on a definition due to the difference in terminologies used to refer to the concept of environmental performance (ASharaf and Skaik, 2018). The International Organization for Standardization (ISO) defined it as "the results of an organization's management assessment of its environmental aspects aimed at minimizing environmental harm while maximizing the organization's efficiency in production processes. (Qara and Ghasemi, 2020).

Relates to how to conserve and preserve natural resources, use them wisely, predict their future, optimize energy use, dispose of waste, promote safe products, contribute to environmental solutions, and comply with environmental obligations (Halati, 2018).

Sustainable environmental performance is typically achieved when manufacturing companies reduce waste from their manufacturing processes, cut carbon emissions, minimize the use of pollutants and harmful inputs, and reduce their overall environmental impact (Cankaya et al., 2019).

The environmental dimension also involves the existence and use of sustainable applications such as renewable energy sources, the use of recyclable materials, and the safe disposal of hazardous waste (Aslan et al., 2020).

### **6.2.3 Sustainable social performance**

It is defined as "the performance that accurately measures an organization's practice of its employees' social responsibilities, respect for human rights, and adherence to quality, health, and safety standards, embodying the concept of a safe company to provide integrated job opportunities, concern for labor relations, fair wages, a fair evaluation system, a diverse incentive system, and equal training opportunities (Swadi, 2020). Social performance is linked to what organizations invest in their social initiatives to build their reputation among stakeholders beyond their organizational boundaries, including the use of ethical practices, open communications, and compliance with social obligations (Guppa et al., 2019).

## **7. STRATEGIC VIGILANCE**

### **7.1 Introduction:**

The current environment for economic institutions is characterized by rapid change, complexity, uncertainty, and ambiguity, which affect their strategic decision-making and future choices. They must possess high adaptability, interaction, and flexibility if they want to reach safety, focusing on information and knowledge as crucial elements of production and a significant source of competitive advantage and superior performance. Therefore, these institutions should adapt and adjust, moving away from the risks threatening them and placing them closer to the opportunities they can seize. They must possess and excel in the art of reading and interpreting the environment, and they should strive to continuously monitor, survey, and analyze all factors and anticipate various changes to prevent any discontinuity between them (Khadija, 2018).

### **7.2 The concept of Strategic Vigilance:**

Through reviewing numerous previous pieces of literature, a range of opinions from some writers on the concept of strategic vigilance have been addressed, as follows: Al Najjar and Al Shwabkeh (2020) defined it: "A continuous collective process carried out voluntarily by a group or individuals, utilizing proactive information about changes that may occur in the organization's external environment to create opportunities, mitigate threats, and generalize uncertainties, allowing the organization to act quickly and timely."

Alhimyari et al. (2020): "Strategic vigilance means inquiring about technological innovations, competitors' behaviors, knowing their strategies, and new consumer desires, and contributing to environmental monitoring to obtain information, test it, and disseminate it to improve decision-making in the organization." Hadi and Mazhar (2020): "The organization's ability to remain vigilant and aware of

detecting variables, seizing opportunities, and thwarting threats through collecting, analyzing, and sharing information in both internal and external environments to achieve the organization's goals with maximum efficiency and effectiveness."

### 7.3 Types of Strategic Vigilance

#### 7.3.1 Technological Vigilance:

Technological vigilance is defined as the activity that allows the legitimate use of techniques to monitor and track developments in the scientific, technical, and technological environment through the collection, organization, analysis, and dissemination of strategic information that enables the organization to anticipate these developments and facilitate the process of innovation (Qadri, 2019).

Technological vigilance is portrayed as a method followed by organizations to monitor the level of technological developments and understand the nature of modern technologies used to ensure the correct use of technology in production, monitoring, and bridging the technological gap that may occur with competitors, in addition to communicating with customers to identify their needs for accurate satisfaction (Al-Mousawi et al., 2018).

#### 7.3.2 Environmental Vigilance:

Through reviewing numerous previous pieces of literature, the concept of environmental vigilance has been addressed according to the definitions of environmental vigilance. (Hamoudi & Mohammed, 2019): define it as "Comprehensive vigilance that focuses on monitoring economic, political, legal, demographic, and cultural developments that affect the activity and continuity of the organization. The organization's ability to understand the complexity and increasing turmoil in the business environment and assist it in improving its overall performance after achieving success in change, and predicting unexpected outcomes that the external environment will bring if its ability to anticipate them decreases" (Al-Mousawi et al., 2018).

(Aisha & Boukhamkham, 2019): "Continuous vigilance and monitoring, ongoing by collecting information related to all events and developments occurring in economic, political, legal, and social fields that distinguish the institution from its competitors."

#### 7.3.3. Marketing Vigilance:

Organizations develop a third type of strategic vigilance, represented by marketing vigilance, which generally concerns customers (markets) and suppliers through research, processing, and distribution of information related to the organization's markets and focuses on monitoring market trends, consumer behavior, and introducing new products." (Mahmoud et al., 2020).

Marketing vigilance focuses on studying both customers, the background market, and suppliers, the foreground market. The institution constantly needs information about suppliers to ensure a continuous supply of resources and about customers to retain them and foster their loyalty." (Qadri, 2019)

#### 7.3.4 Competitive Vigilance:

It comprises activities through which an organization identifies its current or potential competitors financially and economically (workers, brands, investments, and projects in progress). This type of vigilance aims to monitor the strengths and weaknesses of the organization in terms of manufacturing and costs. The goal of this type is to understand the strategies of competitors so that decisions affecting the organization's future can be anticipated." (Al-Shawabkeh, 2019):

(Dawood & Abbas, 2018) define *competitive vigilance* as the activity through which the organization identifies its potential and current competitors and their policies, while also focusing on the evolving environment in which competing organizations operate through collecting information (quantitative: related to the current performance, objectives, strategies, and governing capabilities of competitors), and information (qualitative: related to research and development efforts, relationships with new suppliers and markets, and new technology)."

## 8. STUDY METHODOLOGY

The study used a descriptive-analytical approach, which describes the phenomenon, used a questionnaire as a means of data collection, developed to achieve the study objectives and test hypotheses.

The study community comprises of 16 Jordanian pharmaceutical companies located in Amman, the study targeted all administrators at the senior and middle management levels, such as the general manager,

director, assistant general manager, and director. A proportional stratified random sampling was used for the study population, consisting of 426 administrative.

Based on this, the sample size representing the population was determined to be 205 administrative, according to statistical methods. The questionnaire was distributed to the targeted group, and the returned questionnaires were 236. 224 questionnaires were valid for statistical analysis, while 12 questionnaires were excluded due to incompleteness. Thus, the percentage of returned questionnaires eligible for statistical analysis was 94.9% of the total returned questionnaires, which is statistically acceptable for the study population. (Al-Najjar et al., 2018)

## 9. STUDY TOOL VALIDITY AND RELIABILITY

### 9.1 Study Validity

To ensure the validity of the study tool, it was presented to a number of reviewers including academic professors and experts in the field. Their feedback and suggestions were taken into consideration to ensure that the tool is suitable for achieving its objectives. Based on their comments, necessary modifications were made, whether related to linguistic formulation, structure and content, clarity of questionnaire paragraphs, or alignment of questionnaire items with their variables. Consequently, the researcher considered the study tool valid for measuring what it was designed for.

### 9.2 Study Tool Stability and Reliability

The study relied on Cronbach's Alpha Coefficient to test the stability of the study tool and verify its reliability, assessing the internal consistency between items for each variable. The stability coefficient result is considered acceptable for statistical analysis purposes if it falls within 70%. The closer the value is to 100%, the higher the stability coefficient, while a value lower than the statistically acceptable percentage is considered weak. Table 1 illustrates that:

**Table 1:** Cronbach's Alpha Coefficient Values

Cronbach's Alpha	Item N	Variable	N
.850	4	Green employment	1
.831	4	Green training	2
.910	4	Green performance	3
.894	4	Green compensation	4
.952	16	<b>GHRM</b>	5
.863	4	Environmental performance	6
.828	4	Economic performance	7
.769	4	Social performance	8
.913	12	<b>Sustainable performance</b>	9
.783	4	Technological vigilance	10
.758	4	Environmental vigilance	11
.814	4	Competitive vigilance	12
.781	4	Marketing vigilance	13
.904	12	<b>Strategic vigilance</b>	14
.965	44	All paragraphs	15

According to Table 1, the values of Cronbach's alpha for the sub-variables of "green human resource management" ranged from .831 to .910, which are considered good values. These values indicate high or good consistency in the responses of the study sample to the items in each variable. The overall Cronbach's alpha value for the items of the independent variable "green human resource management" was .952, which is also considered excellent. Therefore, all these values are greater than .70%, indicating internal consistency among the sub-variable items of "green human resource management" and the reliability of relying on them for statistical analysis.



Table 1, shows that the values (Cronbach's alpha) for the sub-variables of "sustainable performance" ranged from .769 to .863, which are considered good values. The overall Cronbach's alpha value for "sustainable performance" was .913, which is also excellent. All these values are greater than the 70% stability percentage, indicating internal consistency among the sub-variable items of "sustainable performance" and the reliability of relying on them for statistical analysis.

Furthermore, Table 1 illustrates that the internal consistency coefficient values (Cronbach's alpha) for the sub-variables of the modified variable "Strategic Vigilance" ranged from .758 to .814, which are considered good values. The overall Cronbach's alpha value for the items in the modified variable "Strategic Vigilance" was .904, which is also excellent. All these values exceed the 70% stability threshold, indicating internal consistency among the sub-variable items of "Strategic Vigilance" and the reliability of relying on them for statistical analysis.

Finally, Table 1 demonstrates that the internal consistency coefficient value (Cronbach's alpha) for all study tool items was .965, which is higher than the accepted threshold for stability (70%). This indicates internal consistency among the study tool items, their reliability, and stability, supporting their use for statistical analysis.

### 9.3 Suitability of the Study Model for the Statistical Methods Used

#### 9.3.1 Multi-collinearity Test:

To test the suitability of the study model for linear regression analysis, the multicollinearity of the data was examined using Pearson correlation coefficients. This was done to ensure that there were no issues of multicollinearity among the independent variables and the modified variable. Table 2 illustrates the Pearson correlation matrix for the independent variables and the modified variable.

**Table (2): Pearson Correlation Coefficients Value.**

Strategic vigilance	Green employment	Green employment	Green employment	Green employment	Sub-independent
				1	Green employment
			1	.766**	Green training
		1	.750**	.718**	Green performance
	1	.807**	.710**	.679**	Green compensation
1	.603**	.560**	.570**	.562**	<b>Strategic vigilance</b>

Table (2) reveals that the correlation coefficient between the variables "Green Performance Evaluation of Human Resources" and "Green Compensation and Rewards" is (.807). This value exceeds (.80 +/-), indicating the presence of multicollinearity (Sekaran & Bougie, 2010).

#### 9.3.2 Variance Inflation Factor (VIF):

To ensure the absence of high correlations, the Variance Inflation Factor (VIF) was calculated along with the permissible variance inflation (tolerance) to assess the level of linear interaction among the variables. These results are presented in Table (3).

**Table 3: Results of the Linear Interaction Test between Variable Dimensions.**

Collinearity Statistics		Variable
Tolerance	VIF	
.353	2.836	Green employment

.316	3.167	Green training
.273	3.659	Green performance
.301	3.327	Green compensation
.581	1.719	<b>Strategic vigilance</b>

Table (3) indicate that all Variance Inflation Factor (VIF) values were greater than 1 and less than 10., the tolerance values were within the range of 0.01 to 1. This suggests the absence of multicollinearity issues among the study variables (Sekaran & Bougie, 2010).

## 10.ANALYSIS OF STUDY ITEMS RESPONES (STUDY TOOL ANALYSIS)

The study used means, standard deviations, ranks, and relative importance to describe the responses of the sample individuals regarding the questionnaire items and their dimensions as follows:

### 10.1 Dimensions of the (Green Human Resource Management).

Table 4: Mean, Standard Deviation, and Relative Importance of Individuals' Estimates on the Dimensions of GH R.

Relative Importance	Rank	Standard Deviation	Mean	Dimensions	N
moderate	1	.934	3.267	Green employment	1
moderate	2	1.017	3.146	Green training	2
moderate	3	.9733	2.975	Green performance	3
moderate	4	.9185	2.825	Green compensation	4
moderate	-	.9058	3.053	GRHM	5

In table 4, it is known that the means of the sample individuals' estimates on the dimensions of the independent variable ranged from 2.852 to 3.146. Additionally, the data from the previous table indicates that the mean of the sample individuals' estimates on the dimensions of GHRM as a whole was 3.053, with moderate relative importance. This suggests a moderate level of interest in GHRM among the selected Jordanian pharmaceutical companies.

### 10.2 Dimensions of the (Sustainable Performance).

Table (5): Mean, Standard Deviation, and Relative Importance of the individuals' estimates on the dimensions of Sustainable Performance.

Relative Importance	Rank	Standard Deviation	Mean	dimensions	N
moderate	3	1.0350	3.1875	Environmental performance	1
high	1	.8429	3.988	Economic performance	2
high	2	.7758	3.9250	Social performance	3
high	-	.70687	3.7000	<b>Sustainable performance</b>	4

From table 5, it is observed that the means of the individual estimates on the dimensions of the dependent variable ranged from 3.187 to 3.988. Additionally, the table indicates that the mean of the

individuals' estimates on the dimensions of sustainable performance as a whole was 3.700, with high relative importance.

This confirms that there is a high level of interest in achieving sustainable performance in these companies. This could be attributed to the importance of the concept at local and global levels, its positive role in achieving sustainability, excellence, and stakeholder satisfaction, its alignment with strategic, economic, and profitability goals, the promotion of corporate social responsibility, the enhancement of companies' image and reputation, and protecting and conserving the environment's resources from waste and depletion.

### 10.3 Modified Variable: Strategic vigilance

Table Number (6) Means, Standard Deviations, Relative Importance of individuals' estimates for strategic vigilance.

Relative Importance	rank	Standard Deviations	Means	dimensions	N
moderate	4	.683	3.523	Technological vigilance	1
high	2	.573	3.694	Environmental vigilance	2
high	1	.573	3.904	Competitive vigilance	3
moderate	3	.607	3.626	Marketing vigilance	4
high		.533	3.686	overall arithmetic mean <i>Strategic vigilance</i>	5

Table (6) shows that the relative importance of the Strategic vigilance is at a high level, with a mean 3.386. It is notable that the importance level for all sub-variables of Strategic vigilance ranges from moderate for technological Strategic vigilance and marketing Strategic vigilance to high for environmental Strategic vigilance and competitive Strategic vigilance. The means ranged from 3.523 to 3.904.

Competitive Strategic vigilance ranked first with a mean 3.904, indicating that Jordanian pharmaceutical companies operate in a competitive environment that requires more attention and vigilance in this type of Strategic vigilance to stay competitive and maintain their planned market share. However, technological Strategic vigilance ranked last with a mean 3.523, indicating that Jordanian pharmaceutical companies' focus on technological advancement has not reached the desired level for this industry, especially considering the high cost associated with such technology. Currently, these companies may not have the financial capability to invest in and dominate advanced and clean technologies.

### 10.4 Hypothesis Testing:

the study hypotheses were tested through statistical analysis using Stander Multiple Regression and Hierarchical Multiple Regression.

**(H01)** "There is no statistically significant effect at a significance level ( $p \leq 0.050$ ) for green human resource management practices in their collectively dimensions on sustainable performance collectively dimensions in Jordanian pharmaceutical companies."

Table (7): Impact of Green Human Resource Management Dimensions on Sustainable Performance

$\beta$	Coefficient		Sig.t	Indep.v	ANOVA			Model summery		Dep.v Sustainable Performance
	Stander error	T			Sig F*	D.F	F	R	R <sup>2</sup>	
.481	.157	2.321	.025	Green employment	0.000	4	14.581	<b>.759</b>	<b>.576</b>	
-.078	.109	-.340	.736	Green training		43				

-.030	.175	-.124	.902	Green performance	47
.409	.207	1.518	.136	Green compensation	

Table 7, indicates the correlation coefficient value ( $R = .759$ ) between the independent and dependent variables. The coefficient of determination ( $R^2 = .576$ ) for GHRM means that 57.6% of the variance in sustainable performance can be explained by GHRM. The analysis of variance (ANOVA) yielded an F value of 14.581 with a significance level of  $\text{sig.} = 0.000$ , confirming the significance of the regression at  $p \leq 0.050$ . Furthermore, the coefficients ( $\beta$ ) in Table 7 reveal that the individual relationships between each independent variable and the dependent variable are as follows: For the dimension of green recruitment,  $\beta = .481$  with a t-value of 2.321 and a significance level of  $\text{sig.} = .025$ , indicating a significant impact. For the dimension of green training and development,  $\beta = .078$  with a t-value of  $-.340$  and a significance level of  $\text{sig.} = .736$ , suggesting an insignificant impact. For the dimension of green performance evaluation of human resources,  $\beta = -.030$  with a t-value of  $-.124$  and a significance level of  $\text{sig.} = .902$ , indicating an insignificant impact. For the dimension of green compensation and rewards,  $\beta = .409$  with a t-value of 1.518 and a significance level of  $\text{sig.} = .025$ , suggesting a significant impact.

Based on these findings, the null hypothesis ( $H_{01}$ ) is rejected and the alternative hypothesis is accepted, indicating that there is a statistically significant effect at a significance level ( $p \leq 0.050$ ) for green human resource management practices collectively on sustainable performance with it dimision collectively in Jordanian pharmaceutical companies.

( $H_{02}$ ): "There is no statistically significant effect at a significance level ( $p \leq 0.050$ ) of strategic Strategic vigilance in enhancing the impact of green human resource management practices collectively on sustainable performance collectively in Jordanian pharmaceutical companies."

Table (8): Summary of the Model and Analysis of Variance for the Second Main Hypothesis.

second model	first model	Statement	
.843 <sup>b</sup>	.724 <sup>a</sup>	(R)	(Model Summary)
.710	.524	(R <sup>2</sup> )	
.187	.524	(R <sup>2</sup> ) change	
140.453	60.156	(F change)	
1	4	(DF1)	
218	214	(DF2)	
.000	.000	(Sig F.) change	ANOVA
67.126	49.481	(sum of square)	
5	4	(df)	
160.859	60.156	(F.)	
.000 <sup>c</sup>	.000 <sup>b</sup>	(Sig F.)	

Table (8) show the outcomes of the hierarchical multiple regression based on two models. From the model summary: In the first model, at the first step, there is a statistically significant effect of GHRM on sustainable performance, as indicated by the change in F value ( $\Delta F = 60.156$ ) with a significance level ( $\Delta F = 0.000$  sig) less than .05. The coefficient of determination ( $R^2 = .524$ ) suggests that green human resource management explains 52.4% of the variance in sustainable performance. ANOVA analysis further confirms the significance of the regression at  $p \leq 0.050$ .

In the second model, after introducing the variable of strategic foresight into the regression model, there is an increase of 18.7% in the R2 change, indicating a statistically significant improvement. The change in the Fisher value (F. change = 140.453) with a significance level (Sig. F change = .000) less than 0.050 confirms the significance of the regression at  $p \leq 0.050$ . The beta value ( $\beta = 0.567$ ) for strategic foresight with

a t-value of 11.851 and significance level (sig = 0.000) confirms the significant impact of strategic foresight on enhancing the effect of green human resource management on sustainable performance, increasing the overall variance explained to 71.0% from the initial 52.4%.

This implies that, together, the dimensions of green human resource management and strategic foresight were able to explain 52.4% of the variance in sustainable performance.

ANOVA analysis for the second model indicates that the F value (F) reached (106.859) with a significance level (sig. F = 0.000) and degree of freedom (dF = 5), confirming the significance of the regression at  $p \leq 0.050$ .

Table (9) presents the regression coefficients (Coefficients) for the second main hypothesis.

Sig	T	Beta	Std Error	B		(Model)
.019	2.371	.184	.065	.155	Green employment	1
.223	1.223	.101	.068	.083	Green training	
.935	-.082	-.007	.061	-.005	Green performance	
.000	6.167	.510	.059	.362	Green compensation	
.186	1.326	.081	.052	.069	Green employment	2
.934	.083	.005	.054	.004	Green training	
.692	-.396	-.028	.047	-.019	Green performance	
.000	4.836	.322	.047	.228	Green compensation	
.000	11.851	.567	.058	.692	Strategic vigilance	

From Table 9, the value of regression coefficients: In the first model, the different beta values for each of the dimensions of green recruitment, green compensation, and rewards from green human resource management are significant at different levels (T), (.019,.000), respectively, indicating the significance of the coefficients.

In the second model, in Table (9) of the regression coefficients, we find that the beta value for the dimension of green compensation and rewards is (.322) with a t-value of (t = 4.836) and a significance level (sig. =.000), indicating the significance of the regression.

Furthermore, the beta value for the dimension of strategic vigilance is (.567) with a t-value of (t = 11.851) and a significance level (sig. = 0.000), indicating significance as well. This suggests the significance of the coefficients in the second model.

we cannot accept the null second hypothesis, accept the alternative hypothesis stating, "There is a statistically significant effect at a significance level ( $p \leq 0.050$ ) of strategic vigilance in enhancing the impact of green human resource management on sustainable performance in Jordanian pharmaceutical companies."

## 11. THE RESULTS RELATED TO THE STUDY QUESTION.

The descriptive analysis results are consistent with prior research, indicating varying levels of importance for green human resource management practices and sustainable performance, with moderate averages overall. This reflects an increasing interest among companies in adopting this concept, signaling a trend towards development and overcoming obstacles in achieving strategic, production, and marketing goals.

Additionally, the findings reveal differing levels of importance for sustainable performance across its dimensions. Economic and social dimensions are deemed relatively high, highlighting companies' emphasis on economic goals and attention to social aspects for employee motivation and organizational satisfaction. However, the environmental dimension shows moderate importance, possibly due to its novelty at the local level and lack of specialized governmental oversight.

This analysis strongly supports the alternative hypothesis, suggesting a significant impact of strategic vigilance on enhancing the relationship between green human resource management and sustainable performance in Jordanian pharmaceutical firms.

Regarding strategic vigilance, the study finds it to be highly important, with an overall mean of 3.686. Sub-variables like strategic foresight vary, with competitive foresight ranked highest and technological vigilance lowest. This underscores the perceived significance of strategic foresight in these companies for gathering crucial information and enhancing competitiveness and sustainability in future operations.

These results align with previous studies, showing a growing interest and high importance placed on strategic vigilance. However, there are some discrepancies compared to other research, particularly in the focus on competitive vigilance and overall interest in strategic vigilance.

## 12. CONCLUSIONS

Based on the results of the descriptive analysis and hypotheses testing, several conclusions can be drawn:

1. Green Human Resource Management (GHRM) is a relatively nascent concept within Jordanian pharmaceutical companies, with moderate attention and implementation levels observed.
2. While these companies prioritize achieving sustainable performance, their focus predominantly centers on economic performance rather than environmental and social aspects.
3. There exists a deficiency in fostering an environmental performance culture among employees, reflected in their limited awareness, understanding, and engagement with environmental issues.
4. Jordanian pharmaceutical firms exhibit a heightened interest in social performance to bolster their societal image, enhance legal and ethical standing, and recognize the pivotal role of human resources in maximizing profitability and optimizing business outcomes.
5. A growing inclination is noted among these companies to engage in environmental protection activities, spurred by stakeholder demands for eco-friendly products and services, despite potential increases in operational costs. Such investments are anticipated to yield positive long-term financial impacts.
6. These companies demonstrate a clear vision and increasing awareness in enhancing human resource capabilities through education, training, and development initiatives, fostering expertise, capabilities, commitment, and loyalty among employees.
7. Variability is observed in the interest levels regarding strategic vigilance, with environmental and competitive vigilance garnering notable attention compared to marketing and technological vigilance. However, this does not undermine the presence of a comprehensive strategic vigilance system encompassing various forms.
8. Strategic vigilance functions as a critical mechanism for enabling adaptation to environmental changes, seizing opportunities, and mitigating threats within the external landscape. It serves as a risk management tool, facilitating proactive responses to unforeseen challenges, thereby enhancing organizational agility and resilience.

In essence, strategic vigilance emerges as a pivotal driver for organizational adaptation and resilience, complementing efforts towards sustainable performance and the integration of green human resource management practices within Jordanian pharmaceutical companies.

## 13. RECOMMENDATION.

1. Establish dedicated organizational units or cells to develop an effective strategic vigilance system.
2. Emphasize legal compliance and encourage acceptance of eco-friendly products to promote environmental vigilance among employees.
3. Ensure management commitment and support in enhancing strategic vigilance through adequate resources and encouragement.
4. Incorporate green practices into human resources policymaking to promote environmental sustainability and encourage eco-friendly initiatives among employees.

5. Implement fair green compensations and incentives linked to environmental achievements to encourage environmentally responsible behaviors.
6. Leverage information technology in recruitment processes to streamline workflows and attract talent with green practices.
7. Draw lessons from advanced countries' experiences in green HRM to inform local practices.
8. Educate employees on the benefits of green HRM to deepen awareness and enhance the company's reputation.
9. Develop guiding principles for implementing green HRM to maximize sustainable performance.
10. Establish a sustainable strategy with clear environmental goals, realistic targets, and transparent reporting to overcome obstacles and achieve sustainable outcomes.

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