

The Relation between Green Human Resource Management Strategies and Organizational Innovativeness among Head Nurses

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Abstract:

Background: Green human resource management strategies are practices in organizations that focus on the human side of environmental management to promote organizational performance and innovativeness. **Aim:** This study aimed to investigate the relation between green human resource management strategies and organizational innovativeness among head nurses. **Research Design:** Descriptive correlational research design was utilized. **Setting:** Medical and surgical buildings, Benha University Hospital. **Subjects:** all available head nurses (60) who are working on the above mentioned setting. **Tools:** Two main tools namely (I) Green Human Resource Management Strategies Questionnaire and (II) Organizational Innovativeness Questionnaire. **Results:** slightly more than two-thirds (66.7%) of head nurses had high perception level toward green human resource management strategies and the majority (90.0%) of them perceived high level of organizational innovativeness. **Conclusion:** There was highly statistically significant correlation between total head nurses' perception of green human resource management strategies and total organizational innovativeness. **Recommendations:** Nurse Managers should link green rewards and compensation with environmentally friendly behavior and performance and further research needs to be conducted to identify challenges facing implementation of GHRM strategies in health care setting

Keywords: *Green human resource management strategies, Head nurses & Organizational innovativeness.*

Introduction

In recent years, green human resources management (GHRM) is one of the modern concepts of administrative thought, which reconciles human resources management with environmental management, and the concept of greening has developed significantly in previous years, using this term to the contributions of human resources management within the environmental frameworks of organizations and the preservation of natural resources for achieving organizational innovativeness (Yong et al., 2019 & Agyabeng et al., 2020).

The green human resources management comprises a set of strategies that work in harmony with human resource management and environmental management to attain green goals and stimulate human resource competencies within the framework of environmental performance. These strategies include green job analysis, green attraction and polarization green performance management, green training and development, green health and safety, green reward and compensation and green labor relation an employee involvement (Al-Romeedy, 2019 & Ansari et al., 2021).

Green job analysis; hospitals should design the outline and specifications of nurses' work from the perspective of green management, and conduct work

analysis. Green Attraction and Polarization Strategy; a system in which the importance of the environment is central and a key component of an organization committed to attracting individuals with green and green values (Al-inizi & Al-dahhan, 2020). Green performance management strategies, on the other hand, refer to processes in which nurses need to improve their professional skills to help them better achieve organizational goals and objectives (Jermsittiparsert et al., 2019).

In addition, green training and development is another strategy for enabling caregivers to learn and adopt new perspectives, skills and attitudes, a systematic process that links human behavior to environmental goals. Green reward and compensation are seen as key strategy in enhancing environmentally positive nurses' attitudes and behaviors (Arora & Mishra, 2020 & Saaeb & Al-Saidi, 2021). Green Health and Safety is an HRM strategy aimed at managing and maintaining the health and safety of caregivers and the environment. This includes keeping staff safe by providing nurses with healthy working units (Tang et al., 2018). The final strategy green labor relation an employee involvement. It refers to employee engagement and participation in green initiatives that lead to better green management by aligning

employee skills, motivations and goals with green management practices (Alqudah et al., 2021). Innovativeness is a key ability that provides a competitive advantage not only in the healthcare sector, but in many other industries as well. It is a characteristic of an organization that leads to innovation. Highly innovative organizations develop and innovate products and processes, abandoning the obsolete (Pesämaa et al., 2017). Innovation is defined in its simplest form as the commercialization process of transforming ideas into products/services, new and improved methods of production/distribution, or new social services. Innovation is therefore the realization of a new or improved product (goods or services) or process, new marketing methods, or organizational methods in internal applications, workplace organization, or external relationships. To innovate, products, processes, marketing methods, and organizational methods must be new or significantly improved. In this context, innovation activity includes newly developed or adopted products, processes or methods (Kucharska, 2021).

According to Acar & Acar (2012) organizational innovation can be assessed in three categories: The first category is product innovation, which describes technical details, components and materials, legal software, ease of use or other functional characteristics developed according to characteristics and intended use describe an entirely new product or service. Product innovation can take advantage of new knowledge and new technologies; hold to use and combine existing knowledge and technology. Minor design changes are not considered product innovations (Visnjic et al., 2016).

The second category of organizational innovativeness is process innovation. This means being innovative in all the necessary steps involved in creating and developing our products. Implementation of this method involves significant developments in technology, equipment, or software. The concept of process innovation illustrates how extensive it can be to address the concept of innovation, and how difficult and misleading it can be because of the potential for conflict (Awan et al., 2021).

The third category is innovation culture. Innovation requires the contribution and support of all stakeholders, so a participatory management approach is needed. This expression makes a point and shows the relationship between organizational culture and innovation. In fact, the concept of culture is often used in literature as innovation culture. Behavioral innovation in this context occurs at the individual, team, or management level, contributes to the formation of a culture of innovation, and emphasizes synergy-based group dynamics (Bendak et al., 2020).

GHRM strategies enable organization adopts different mechanisms, methods, plans and policies for environmental sustainability and responsibility. To achieve competitive advantage and best environmental performance, GHRM strategies have become essential to organizational innovativeness, influencing client satisfaction, trust, credibility and preference in the industry (Hollebeek & Rather, 2020; Yen et al., 2020 and Alqudah et al., 2021).

Significance of the study

GHRM is seen as a source of competitive advantage by creating a culture of sustainability and managing sustainability initiatives. From organizational learning, performance evaluations, positions, training, recruitment, teamwork, selection, and organizational culture to environmental issues, healthcare organizations can achieve GHRM strategies and goals to increase their capacity to innovate. Innovativeness include an organization's ability to use and recombine resources and capabilities, redefine them, and present innovative results. GHRM has attracted the attention of practitioners and researchers around the world. However, little is known about the relationship between the nature of GHRM strategies and an organizational innovativeness. (Roscoe et al., 2019 and Marchiori et al., 2021). Therefore, this study was conducted to assess the relation between Green HRM strategies and organizational innovativeness among head nurses.

Aim of the Study

The present study aimed to investigate the relation between green human resource management strategies and organizational innovativeness among head nurses.

Research questions:

1. What are the head nurses perception levels toward green human resource management strategies?
2. What are the levels of organizational innovativeness as perceived by head nurses?
3. Is there a relation between head nurses perception toward green human resource management strategies and organizational innovativeness?

Subjects and Method

Research Design:

A descriptive correlational design was utilized to achieve the aim of the present study.

Setting:

The current study was conducted in all inpatient medical, surgical and critical care units at Benha University Hospital.

Subjects:

Included all the available head nurses during the time of data collection who are working in the above mentioned study setting, and agree to participate in

the study, the total head nurse and their assistances was 60 (32 head nurses from medical building and 28 head nurses from surgical building) .

Tools of data collection:

Data of the present study was collected by using two tools:

First tool: Green Human Resource Management Strategies Questionnaire:

It was developed by the researcher after reviewing literature (Shah (2019); Al-inizi & Al-dahhan, (2020); & Alqudah et al., (2021) .It was to assess head nurses perception toward green human resource management strategies. It consisted of two parts:-
Part (1): It included personal data about head nurses as age, gender, marital status, work department, educational qualification, and years of experience.
Part (2): It consisted of 39 items divided into seven dimensions as follow:

Dimensions	No. of items	Example
Green job analysis	5	Incorporating environmental awareness as a core competency requirement of the work specification.
Green attraction and polarization	3	The hospital is keen to attract environmentally conscious nurses to fill vacancies.
Green performance calendar	6	The performance evaluation process includes in depth dialogues on the environmental problems facing the hospital.
Green training and development	8	The hospital is working on the availability of environmental training for its employees.
Green rewards and compensation	5	The administration provides incentives to encourage green trends at the hospital.
Green health and safety	6	The hospital provides regular vaccinations for health care team members.
Green labor relations and employee involvement	6	Employees participate in improving quality and solving environmental problems

Scoring system:

Subjects' responses were scored on a three point Likert Scale as the following (3) for agree, (2) for neutral and (1) for disagree. The score of items was summed-up and converted into percent scores and the total divided by the number of the items, giving the mean score. The perception level of head nurses was

considered low: if the percentage < 60% (39- 69), moderate if percentage 60 - < 75 % (70-87) and high if percentage ≥ 75 %.(88- 117).

Second tool: Organizational Innovativeness Questionnaire:

It was developed by the researchers after reviewing literature (Acar & Acar (2012); & Ruvio, et al., (2014). It was used to assess the level of organizational innovativeness as perceived by head nurses. It included 20 items divided into three dimensions as follow:

Dimensions	No. of items	Example
Health- nursing service (technical) innovations	7	The hospital deliver special health \ nursing services flexibly according to patients' orders
Process (administrative) innovations	6	Managers take the initiative in an effort to shape the environment to the organization's advantage.
Innovativeness (innovative culture)	7	The hospital managers and employees share the same vision of the future.

Scoring system:

Subjects' responses were measured on a three point Likert Scale as the following (3) for agree, (2) for neutral and (1) for disagree. The score of items was summed-up and converted into percent scores and the total divided by the number of the items, giving the mean score. The level of organizational innovativeness was considered low: if the percentage: if the score < 60 % (20- 35) and considered moderate if percentage 60 - < 75 % (36-44) and high if percentage ≥ 75% (45- 60).

Methods

The study was executed according to the following steps:

Approval

An official permission to conduct the study was obtained from the director of Benha University Hospital after explaining the aim of the study.

Preparatory phase:

This phase started from beginning of November 2021 till the end of February 2022. It included the following: Reviewing the national and international related literature using journals, periodicals, textbooks, internet and theoretical knowledge of the various aspects concerning the topic of the study for developing the tools and translating the tools into Arabic language.

Tools Validity and Reliability

The two tools contents were adopted, translated into Arabic and tested for face validity by 5 juries, who were experts related to field which included three assistant professors in nursing administration from Benha University. Based on their recommendations the necessary modifications were made. Also, the reliability of the tools was conducted to determine the internal consistency and homogeneity of the used tools by Cronbach's Alpha test. The internal consistency of Green Human Resource Management Strategies Questionnaire was $r = .937$ and Organizational Innovativeness Questionnaire was $r = .986$.

Ethical considerations

Prior to the conduction of the study, ethical approval was obtained from the scientific research committee at Faculty of Nursing- Benha University. All participants interviewed for explaining the purposes and procedures of the study and they have the right to withdrawal from the study any time during the study. In addition, confidentiality and anonymity of the subjects were assured through coding of all data. Oral consent to participate was assumed by attendance of filling questionnaires sheet.

Pilot study:

A pilot study was conducted at March 2022 to ensure the clarity and relevancy of the tools of data collection. It was carried out on 6 head nurses who represented 10% of total studied subjects. It has also served in estimating the time needed for filling the tools. It ranged between 20-30 minutes. No modifications were needed so, the pilot study subjects were included in the study.

Field work:

The actual field work was conducted from the beginning of April 2022 to the end of May 2022. The researchers gathered data by their own through interviewing head nurses and explaining the study's aim to them. The data was collected from head nurses before and after work hours based on their availability for two days each week. The number of head nurses interviewed daily ranged from 10 to 13. The time it took to complete the questionnaire sheet ranged between 20 to 30 minutes. The completed forms were gathered on time and double-checked for accuracy to ensure that no data was missing.

Statistical Design:

The collected data were revised, coded, tabulated and verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 25.0) was used. Descriptive statistics were applied in the form of mean and standard deviation for quantitative variables and frequency & percentages for qualitative variables. Qualitative categorical variables were

compared using chi-square test. Pearson correlation coefficient was calculated between variables. Statistical significance was considered at p-value $p < 0.05$, and considered highly statistically significance at p-value $p < 0.001$.

Results

Table (1): Distribution of the studied head nurses regarding their personal data (n=60).

Personal data	No.	%
Department		
Medical	29	46.7
Surgical	31	53.3
Age (years)		
25: < 30	16	26.7
30: 35	11	18.3
> 35	33	55.0
M±SD	36.73±8.48 years	
Range	32	
Gender		
Female	57	95.0
Male	3	5.0
Marital status		
Married	55	91.7
Unmarried	5	8.3
Educational qualification		
Nursing diploma	11	18.3
Associated degree of nursing	2	3.3
Bachelor of nursing science	41	68.4
Post graduate studies	6	10.0
Years of experience in working units		
< 5	9	15.0
5: <10	12	20.0
10: 15	15	25.0
> 15	24	40.0
M±SD	16.86±9.98 years	
Range	39	
Did you attend any training courses about green human resource management strategies?		
Yes	41	68.3
No	19	31.4

M= mean

SD= standard deviation

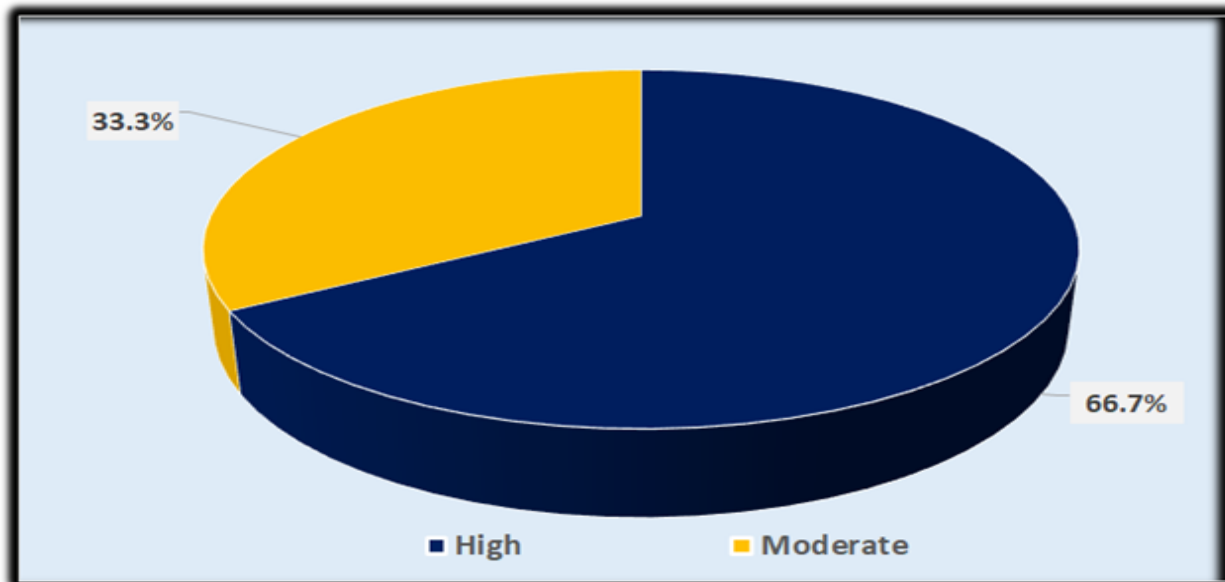


Figure (1): Total head nurses' perception levels toward green human resource management strategies.

Table (2): Mean scores of head nurses perception toward green human resource management strategies (n=60).

Green human resource management strategies	Maximum score	Head nurses (n= 60)			
		Range	Mean ± SD	Mean %	Ranking
Green job analysis	15	10.0	12.61±3.01	84.1	4
Green attraction and polarization	9	6.0	7.60±1.79	84.4	3
Green performance calendar	18	10.0	14.56±3.29	80.9	6
Green training and development	24	10.0	20.16±3.33	84.0	5
Green rewards and compensation	15	10.0	11.73±3.38	78.2	7
Green health and safety	18	6.0	15.93±2.67	88.5	1
Green labor relations and employee involvement	18	6.0	15.33±1.97	85.2	2
Total	117	39.0	97.92±13.11		

X = Mean

SD= standard deviation

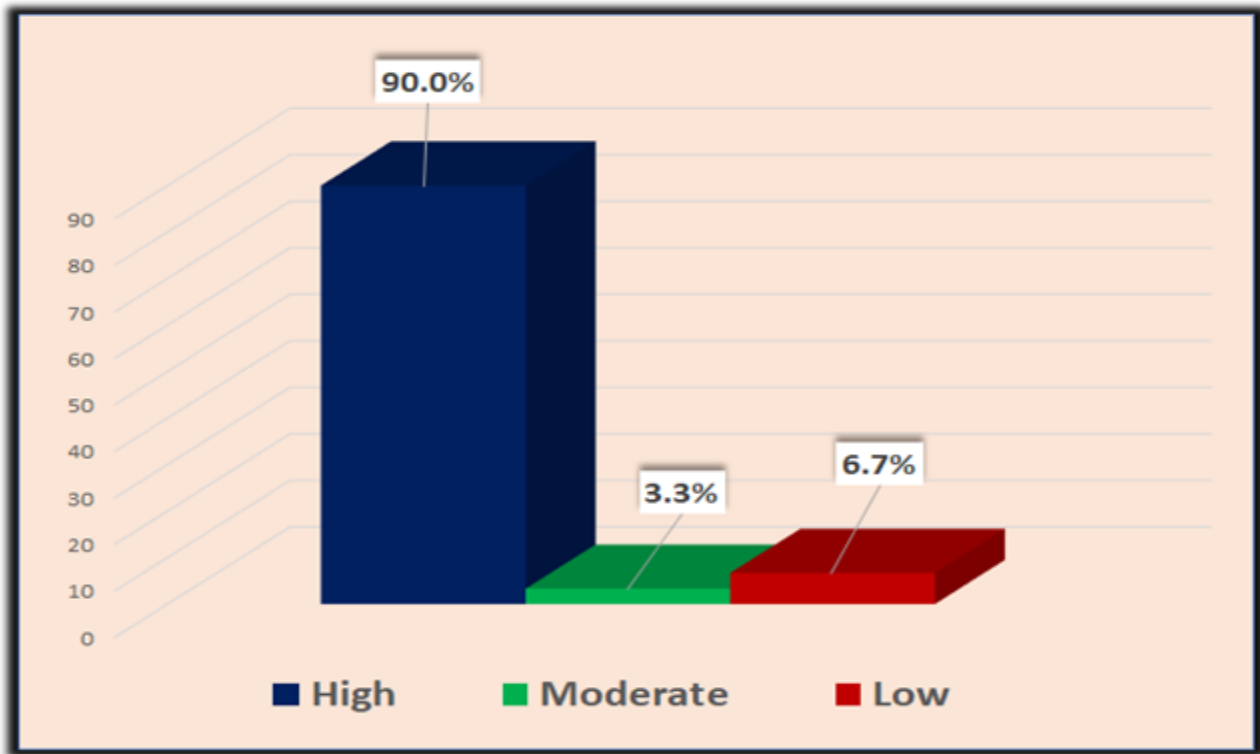


Figure (2): Total levels of organizational innovativeness as perceived by head nurses.

Table (3): Mean scores of organizational innovativeness dimensions as perceived by head nurses (n=60)

Organizational innovativeness dimensions	Maximum scores	Range	M±SD	Mean %	Ranking
Nursing service (Technical) innovations	21	14.0	19.10±3.88	90.9	3
Process (Administrative) innovations	18	10.0	16.43±2.73	91.3	1
Innovativeness (Innovative culture)	21	14.0	19.13±3.72	91.1	2
Total	60	38.0	54.66±10.21		

M= mean

SD= standard deviation

Table (4): Correlation between total head nurses' perception of green human resource management strategies and total organizational innovativeness (n=60)

Variables	Total organizational innovativeness	
	R	P value
Total head nurses' perception of green human resource management strategies	0.425**	0.000**

** Highly statistical significance ($p < 0.001$)

Table (5): Correlation matrix between ' levels of green human resource management strategies and organizational innovativeness dimensions scores among head nurses (n=60)

Dimensions	Spearman's rank correlation coefficient			
		Nursing service (Technical) innovations	Process (Administrative) innovations	Innovativeness (Innovative culture)
Green job analysis	r	0.756**	0.578**	0.637**
	P value	0.000	0.000	0.000
Green attraction and polarization	r	0.756**	0.578**	0.637**
	P value	0.000	0.000	0.000
Green performance calendar	r	0.710**	0.563**	0.661**
	P value	0.000	0.000	0.000
Green training and development	r	0.654**	0.438**	0.514**
	P value	0.000	0.000	0.000
Green rewards and compensation	r	.691**	0.556**	0.653**
	P value	0.000	0.000	0.000
Green health and safety	r	0.760**	0.509**	0.598**
	P value	0.000	0.000	0.000
Green labor relations and employee involvement	r	0.994**	0.666**	0.782**
	P value	0.000	0.000	0.000

** Highly statistical significance ($p < 0.001$)

Table (6): Relation between total head nurses' perception levels of green human resource management strategies and their personal data (n= 60)

Perception level Personal data	Head nurses (n=60)				χ^2 /FET	P- Value
	High (n=40)		Moderate (n= 20)			
	No.	%	No.	%		
Age					0.682	0.711
25 -< 30	12	30.0	4	20.0		
30: 35	7	17.5	4	20.0		
> 35	21	52.5	12	60.0		
Gender					6.316	0.033*
Female	40	100.0	17	85.0		
Male	-	-	3	15.0		
Marital status					0.109	0.545
Married	37	92.5	18	90.0		
Unmarried	3	7.5	2	10.0		
Educational qualification					3.532	0.317
Nursing diploma	5	12.5	6	30.0		
Associated degree of nursing	2	5.0	-	-		
Bachelor of nursing science	29	72.5	12	60.0		
Post graduate study	4	10.0	2	10.0		
Years of experience in working units					0.488	0.922
< 5	6	15.0	3	15.0		
5 -< 10	8	20.0	4	20.0		
10 : 15	9	22.5	6	30.0		
> 15	17	42.5	7	35.0		

* Statistical significance ($p \leq 0.05$)

** Highly statistical significance ($p < 0.001$) FET = Fisher exact test

Table (7): Relation between total organizational innovativeness levels as perceived by head nurses and their personal data (n= 60).

Perception level Personal data	Head nurses (n=60)						χ^2 /FET	P -Value
	High (n=54)		Moderate (n= 2)		Low (n=4)			
	No.	%	No.	%	No.	%		
Age								
25 -< 30	14	25.9	-	-	2	50.0	3.354	0.501
30: 35	9	16.7	1	50.0	1	25.0		
> 35	31	57.4	1	50.0	1	25.0		
Gender								
Female	52	96.3	2	100.0	3	75.0	3.665	0.160
Male	2	3.7	-	-	1	25.0		
Marital status								
Married	50	92.6	2	100.0	3	75.0	1.697	0.428
Unmarried	4	7.4	-	-	1	25.0		
Educational qualification								
Nursing diploma	10	18.5	-	-	1	25.0	1.695	0.946
Associated degree of nursing	2	3.7	-	-	-	-		
Bachelor of nursing science	36	66.7	2	100.0	3	75.0		
Post graduate study	6	11.1	-	-	-	-		
Years of experience in working units								
< 5	7	13.0	-	-	2	50.0	10.832	0.044**
5 -< 10	12	22.2	-	-	-	-		
10 : 15	12	22.2	2	100.0	1	25.0		
> 15	23	42.6	-	-	1	25.0		

* Statistical significance ($p \leq 0.05$)** Highly statistical significance ($p < 0.001$) FET = Fisher exact test

Table (1): Illustrates that more than half (53.3%, 55.0%) of head nurses were working at surgical department and had age more than 35 years respectively with mean age 36.73 ± 8.48 years. And the majority (95.0%, 91.7%) of them were females and married respectively. In relation to their educational qualification more than two thirds (68.4%) of them had baccalaureate degree of nursing. As far as their years of experience two fifth (40.0%) of head nurses had more than 15 years of experience with mean 16.86 ± 9.98 years. In addition, more than two thirds (68.3 %) of them attended training courses about green human resource management strategies.

Figure (1): Indicates that slightly more than two-thirds (66.7%) of head nurses had high perception level toward green human resource management strategies, whenever, one-third (33.3%) of head nurses had moderate perception level.

Table (2): Clarifies that the highest mean percent (88.5 %) with mean and standard deviation 15.93 ± 2.67 was related to green health and safety strategy, while the lowest mean percent (78.2 %) with mean and standard deviation 11.73 ± 3.38 was related to green rewards and compensation strategy.

Figure (2): Demonstrates that the majority (90.0%) of studied head nurses perceived high level of

organizational innovativeness, whenever, the minority (3.3%) of them perceived moderate level.

Table (3): Shows that the highest mean percent (91.3 %) with mean and standard deviation 16.43 ± 2.73 was related to process (administrative) innovations dimension, while the lowest mean percent (90.9 %) with mean and standard deviation 19.10 ± 3.88 was related to nursing service (technical) innovations dimensions.

Table (4): Shows that there was highly statistically significant correlation between total head nurses' perception of green human resource management strategies and total organizational innovativeness.

Table (5): Indicates that there was highly statistically significant correlation between levels of green human resource management strategies and organizational innovativeness dimensions scores among head nurses.

Table (6): Clarifies that there was statistical significant relation between total head nurses' perception levels of green human resource management strategies and their gender, while there was non statistical significant difference between total perception levels and all other personal data.

Table (7): Demonstrates that there was highly statistical significant relation between total organizational innovativeness levels as perceived by head nurses and their years of experience in working

units, while there was non statistical significant relation between total organizational innovativeness levels and all other personal data.

Discussion

The importance of GHRM in organizations has increased exponentially with the growing popularity of environmental management practices. The importance of GHRM is best illustrated by its focus on green human resource practices. These include reducing wasted resources, improving work attitudes, reducing costs, enhancing employee performance, and organizational innovation (Haddock-Millar et al., 2016 & Agyabeng et al., 2020). Human resource management practices and policies aimed at making organizations more environmentally friendly are called GHRM. HRM is the practice of ensuring that an organization's resources are used effectively and efficiently. GHRM also, includes the systematic and planned alignment of typical human resource management practices with an organization's environmental goals (Geetha & Sammanasu, 2020). The current study aimed to investigate the relation between green human resource management strategies and organizational innovativeness among head nurses.

Regarding to the personal characteristics of studied head nurses, the findings of the present study illustrated that more than half of head nurses were working at surgical department and had age more than 35 years with mean age 36.73 ± 8.48 years. And the majority of them were females and married. In relation to their educational qualification more than two thirds of them had baccalaureate degree of nursing. As far as their years of experience two fifth of head nurses had more than 15 years of experience with mean 16.86 ± 9.98 years.

As regarding to head nurses' perception levels toward green human resource management strategies, the findings of the present study indicated that about two-thirds of head nurses had high perception level toward green human resource management strategies whenever, one-third of them had moderate perception level. From the researcher point of view this result may be due to the hospital provide training programs which include an interest in developing green leadership methods for leaders to implement green human resource management strategies which are the core of hospital development nowadays. GHRMS can encourage employees' commitment and involvement in environmental practices. These environmentally friendly practices can therefore help the organization to develop a good reputation, reduce the pressure from clients, and benefit future generations in the long run.

The results of the present study was supported by Amy et al., (2018) who found that most of managers reported that it is very important to have effective GHRMS including recruitment, selection, training, development, performance appraisal, and compensation and rewards practices main indicator for employee innovative behavior, autonomy, and self-growth. In the same line, El-Gazar & Zoromba (2021) mentioned that studied nurses reported more satisfaction with GHRMS had higher levels of psychological wellbeing and exert greater effort to be innovative in the workplace.

The findings of the present study was parallel with Saab & Al-Saidi (2021) who concluded that there was a high perception of the intellectual and theoretical foundations of green human resources management strategies in research sample. On the other hand, this result was contradicted with Mamdouh & Samir (2022) As they found in their study that more than two thirds of the participant had a moderate perception level regarding HRMS. Moreover, this result was different from Swanson (2022) who reported that the nursing staff had low perceptions level of GHRS.

In addition, the findings of the present study indicated that the highest mean percent of head nurses' perception levels toward green human resource management strategies was related to green health and safety strategy, while the lowest mean percent was related to green rewards and compensation strategy. This may be due to the hospital give more attentions to infection control measures perform regular checks and provide vaccinations for health care team members especially after covid 19 pandemic.

The results of the present study was contradicted with El-Gazar & Zoromba (2021) as they found in their study that the highest mean score of participated nurses' perceptions was related to performance-management. Also, this result was in disagreement with Farghaly et al. (2021) who found in their study that green training and development is highest mean and standard deviation and has been ranked as the first with moderated implementation. While, Saab & Al-Saidi (2021) reported that there was a high interest by sample research in adopting green rewards and compensation strategies and there is a weakness in adopting the strategy of green attraction and polarization, through the adoption of traditional methods in attraction and polarization.

Regarding organizational innovativeness level as perceived by head nurse, the findings of the present study demonstrated that the majority of studied head nurses perceived high level of organizational innovativeness, whenever, the minority of them

perceived moderate level. This may be due to managers usually actively seeks and support innovative ideas and creative processes ,take the initiative by introducing new administrative techniques, and exert an effort to shape the environment to the organization's advantage.

In this respect, **Borocki et al. (2013)** mentioned that the organizational innovativeness becomes a part of future organization activity plans and an integral element of the future success and competitive advantage. Innovative organizations are competitive organizations. Organization innovation implies acceptance of new methods of operation organization in the fields of: human resources management; organizational structure; knowledge management; value chain management; setting up partner relations with clients/customers/competition; impact the degree of operation efficiency as well as organization competitive advantage.

This finding of the present study was in the same line with **Ruvio et al. (2014)** who reported that the participants had high perception level regarding organizational innovativeness. In contrary, **Ahmed et al., (2019)** as they found in their study that less than half of the participant had a high level perception of organizational innovativeness.

Furthermore, the findings of the present study showed that the highest mean percent of organizational innovativeness level as perceived by head nurse was related to process (administrative) innovations dimension, while the lowest mean percent was related to nursing service (technical) innovations dimensions. This may be due to the hospital managers seek for new channels for health and nursing services offered by the hospital is an on-going process and they take the initiative by introducing new administrative techniques. In addition, the hospital managers promote and support innovative ideas among staff.

This result was supported by **Cho et al. (2019)** who confirmed that process innovation is the introduction of new elements into an organization's production or service operations to produce a product or render a service. More specifically, it is alterations to processes, through significant changes in technology, equipment, and/or software that are intended to reduce costs or improve quality. Since process innovation is primarily efficiency driven, it requires applying technology to improve the performance of new product development. In other words, process innovation is crucial for product innovation, which translates into the successful introduction of new products.

Moreover, this study finding was inconsistent with **Acar & Acar (2012)** who reported that the most seen innovation type was product innovation followed by

behavioral and marketing innovations among study subjects.

Moreover, the findings of the present study demonstrated that there was highly statistically significant correlation between total head nurses' perception toward green human resource management strategies and total organizational innovativeness. In addition, there was highly statistically significant correlation between levels of green human resource management strategies and organizational innovativeness dimensions scores among head nurses.

This may be duo to GHRM strategies enhance the skills of the human capital and the managerial environmental concerns, which affects organizational performance and sustainable innovation progress. This result was supported by **Roscoe et al. (2019)**, who found that GHRM can enhance green organizational culture, which positively affects the organization's environmental performance and sustainable development. Also, **Chaudhary (2020)** confirmed that green human resource management and innovation initiatives can result in more sustainable firms through a link between green human resource management and innovation practices, which has not been explored in developing countries' manufacturing industries.

In the same line, **Song et al., (2020)** reported that GHRM can enhance employees' ability, motivation and opportunities through green training, green pay and reward, green involvement and so forth for enhancing organizational human capital, which further affect the firm's green product or process innovation. Moreover , this finding was consistent with **Fawehinmi, et al.(2020) & Munawar et al. (2022)** who found in their study that GHRM positively contributed to the innovation of organizations.

The findings of the present study clarified that there was statistical significant relation between total head nurses' perception levels of green human resource management strategies and their gender, while there was non statistical significant difference between total head nurses' perception levels of green human resource management strategies and other all of personal data. The result of the present study was in agreement with **El-Kassar, et al., (2022)** who reported in their study that there were statistically significant positive associations between participants' perception of HRM climate and gender, years of experience and educational level.

The findings of the present study demonstrated that there was highly statistical significant relation between total organizational innovativeness levels as perceived by head nurses and their years of experience in working units, while there was non statistical significant difference between total head

nurses' organizational innovativeness levels and other all of personal data. The possible explanation for this result could relate to that the ability to create innovative solutions is dependent on the knowledge, and even more on experience of head nurses to apply the knowledge to solve new problem and generating new ideas.

This result of the present study was in accordance with Lee, & Hong (2014) & Raja, & Madhavi, (2018) as they found that participants' age and years of experience were significantly and positively correlated to innovativeness .

Conclusion

About two-thirds of head nurses had high perception level toward green human resource management strategies and the majority of them perceived high level of organizational innovativeness. Moreover, there was highly statistically significant correlation between total head nurses' perception of green human resource management strategies and total organizational innovativeness. These findings answered all research questions.

Recommendations:

The researchers made the following recommendations based on the findings of the current study

1. Hospital management should pay attention to green attraction and polarization that must be adopted in its strategy, in light of the environmental practices.
2. The hospital management should cope with market demands to develop health \ nursing services and raise quality of care for achieving organizational innovativeness.
3. Conducting continuous training programs to improve health care team members' environmental awareness and to develop green leadership methods for achieving organizational innovativeness.
4. Incorporating green practices into the job description and performance evaluation process.
5. Nurse managers should link green rewards and compensation with environmentally friendly behavior and performance.
6. Further research needs to be conducted to identify challenges facing implementation of GHRM strategies in health care setting.

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