



Impact of human resource management on fostering sustainable behavior among employees: The moderating role of managerial awareness



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ARTICLE INFO

Article history:

Received 18 October 2024

Received in revised form

14 February 2025

Accepted 5 June 2025

Keywords:

Managerial awareness

Human resource practices

Sustainable behavior

Mining and quarrying

Employee engagement

ABSTRACT

Saudi Arabia's Vision 2030 outlines a strategic commitment to economic transformation by diversifying income sources and promoting sustainable development. This study examines the moderating role of managerial awareness in the relationship between human resource management (HRM) practices—recruitment and selection, training and development, leadership, communication and engagement, work environment, and facilities—and employees' sustainable behavior. A quantitative methodology was adopted, using a self-administered questionnaire distributed to HR managers in the Saudi mining and quarrying sector. A simple random sample of 281 individuals was selected, and data analysis was conducted using the Statistical Package for Social Sciences (SPSS), with Cronbach's Alpha used to assess reliability. The findings indicate that HRM practices positively influence employees' sustainable behavior and that managerial awareness moderates this relationship. The study recommends further exploration of how HRM practices contribute to sustainability and highlights the role of managerial engagement in shaping employees' environmental responsibility. The research is expected to contribute theoretically by deepening understanding of the link between managerial awareness and sustainable behavior and practically by providing insights into effective HRM strategies for fostering sustainability in organizations.

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1. Introduction

Promoting sustainable actions among the employees is crucial in the present business environment for a number of good reasons. First, creating a sustainable organizational culture not only fits the current needs of society and meets the sustainable goals, but also fosters the corporate culture. Since the employees are an essential part of the organization and can influence the operations greatly, organizational promotion of sustainability leads to achieving environmental conservation goals such as low carbon emissions and reduced waste production (Faeni, 2024). Such initiatives also help the planet, which makes customers, investors, and other stakeholders happy as more of them are inclining towards environment-friendly businesses. Sustainability should be adopted because it

improves corporate image, talent acquisition, and ensures the organization's sustainability in the light of increasing global complexities (Alreahi et al., 2022). Additionally, focusing on sustainability in organizational behavior can bring about important savings and improvements in commercial activity (Faisal, 2023). Usman et al. (2023) noted that implementing policies that promote energy saving, minimization of wastes, and environmentally friendly purchase of products can lead to low expenses on energy, less cost incurred on the purchase of many materials, and high efficiency. Such employees are also likely to be much more motivated, have higher morale and job satisfaction, and therefore, such a culture also improves the organization's ability to retain employees. Further, when an organization empowers them to embrace sustainability initiatives, people become motivated to provide creative solutions that may create a sustainable product or service in the market advantage (Ercantan and Eyupoglu, 2022). Therefore, it becomes evident that the promotion of sustainable behavior among employees is not just an ethical reality but also a business-oriented approach, which has a three-fold value for organizational, stakeholder, and social welfare (Faeni, 2024).

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<https://doi.org/10.21833/ijaas.2025.07.001>

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1.1. Background and problem statement

Ercantan and Eyupoglu (2022) argued that human resources' mindset and practices have the ability to play a role in determining employees' behavior inside an organization. They also added that such a department is able to orient employees' behavior towards a more sustainable stream of thinking. Farrukh et al. (2022) agreed on the same idea, arguing that human resources can be employed for providing training and education for employees so that they develop their ability to grasp and understand relevant sustainability concepts and practices. This can take place by putting the necessary information and skills in the hands of employees, HR helps to empower them and to make them adhere to sustainability.

On the other hand, Aboramadan et al. (2022) argued that HR design and implement policies that emphasize sustainability. They also communicate these policy guidelines to clarify the expectations for employees. In addition, HR specialists address issues related to communication and awareness by promoting the visibility and importance of sustainability policies within the organization. This, in turn, supports the development of a sustainability-oriented culture.

Similarly, Sabbir and Taufique (2022) noted that when the HR department embraces sustainability and adopts sustainable management practices, it reaches a stage referred to as "green HRM." This approach requires HR to encourage sustainable thinking among employees and engage them in fostering a mindset focused on sustainability. Such efforts aim to meet essential needs and guide the organization towards improved and more sustainable performance.

Cao et al. (2022) argued that managerial awareness influences management's behavior and develops the staff culture. The famous saying "Lead by example" is no doubt apt for managers who have embraced sustainability principles. After all, the reason why employees tend to adapt their bosses' behavior is because of their respect or admiration for their leader, which consequently may lead to imitation. Besides, managers will offer support, motivation, and equality that will, in turn, create a place where positive attitudes are encouraged.

Based on the above argument, this current research study seeks to answer the following question: What is the moderating role of managerial awareness on the relationship between human resources practices and sustainability behavior among employees?

The significance of the present study lies in its ability to shed light on the role of human resource practices, as well as the awareness of managers and employees, and the sense of shared responsibility in promoting sustainable behavior within organizations. By examining these processes, organizations can develop effective strategies to create a supportive work environment, enhance employee commitment to sustainability initiatives,

assess sustainability performance, and improve overall business outcomes. The findings of this study also contribute to the growing body of knowledge on green human resource management and offer practical tools to help organizations encourage employees to adopt sustainable practices.

This current research is based on achieving the following set of objectives:

- Identify the concept of HR in the theme of sustainability
- Explore the approaches to achieving employees' sustainable behavior
- Connect HR practices and the sustainable behavior of individuals
- Involve the concept of managerial awareness in the linkage between HR and sustainable behavior

In order to better highlight the relationship between variables, researchers have built a model from which study hypotheses were extracted based on Ercantan and Eyupoglu (2022), Farrukh et al. (2022), Aboramadan et al. (2022), Sabbir and Taufique (2022), Cao et al. (2022), Richards (2022), and Van Buren (2022), and shown in Fig. 1.

H1: Human resources practices positively influence employees' sustainable behavior within the Saudi mining and quarrying sector.

H2: Managerial awareness moderates the relationship between human resources practices and employees' sustainable behavior within the Saudi mining and quarrying sector.

2. Literature review

2.1. Sustainability in human resources practices

Mohiuddin et al. (2022) argued that human resources practices' sustainability refers to the transformation in ideas, policies, and practices in human resources management that would align with sustainability and sustainable goals. Taha and Taha (2023) added that it is an approach in which HR strategies are oriented to sustainable business goals. Organizational culture is developed that implies responsibility to the company's outcomes as well as to environmental and social consequences, priorities are set toward supporting activities that contribute to the achievement of long-term goals in terms of the company's stability along with considering the impact on environment and social system (Mukhuty et al., 2022). Sustainable HR practices covers different areas relating to the management of people in the organization; the selection and recruitment of employees; training and development of the employees; and the assessment of employees and their contributions in light of social Corporate Social Responsibility; as well as towards environmental sustainability goals that the organization may have (Darvishmotevali and Altinay, 2022).

Lu et al. (2023) stated that sustainable HRM strives to include other areas within the organization

that interact with external entities, social responsibilities, and partner with the community at large, should adhere to corporate responsibility and ethical standards. Another broad area for sustainability management, according to [Sharma et al. \(2022\)](#), is the adoption of the principles of eco-efficiency, social equity, and ethical governance in all human resources management, including recruitment, training, compensation, and retention policies as implemented by the HR departments of organizations. Through the development of the

assertion that an environmentally selective, socially considerate, and ethically sensitive workforce positively affects organizational image, talent attraction, and the world, organizations can create a positive impact. In conclusion, integrating sustainability into HR policies and practices helps organizations align with their core values and goals. It also positions them as responsible corporate entities that care about the well-being of their employees, society, and the environment ([Kramar, 2022](#)).

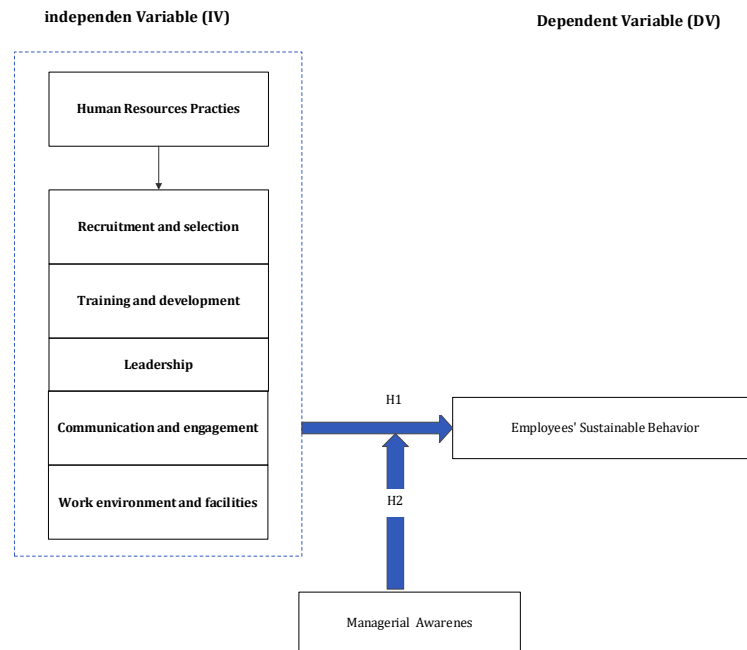


Fig. 1: Study model

Among the most noticeable practices in human resources that are related to sustainability are the ones presented by [Ercantan and Eyupoglu \(2022\)](#), [Farrukh et al. \(2022\)](#), [Aboramadan et al. \(2022\)](#), [Sabbir and Taufique \(2022\)](#), [Cao et al. \(2022\)](#), [Richards \(2022\)](#), and [Van Buren \(2022\)](#).

Recruitment and selection: Applying sustainability to recruitment and selection involves selecting individuals whose attitude complements the organizational sustainability agenda. Through the proper administration of tests and other techniques, the HR departments can use questionnaires to screen those who have incorporating passion for implementing sustainable practices in the firm. In addition, organizations select employees with sustainability orientation, so they are more likely not only to have technical and professional competence but also to introduce sustainable practices to the organization.

Training and development: The implementation of sustainability measures in the training and development of personnel prepares the staff in environmental conservation. It can include activities like seminars that focus on issues related to do with energy use, waste, and adequate resource utilization, so that staff can be in a position to make the correct choices in a way that can benefit the company, as well as the environment. Ongoing opportunities to

learn about sustainability can enrich corporate culture by formally and informally preparing the workforce to look for ways to be more responsible within the environment of organization.

Leadership: Organizational management has ultimate influence in contributing to the sustainability endeavors of employees, which includes providing torch-bearer-like leadership in the organization. Sustainable leaders are concerned about the protection of the environment, articulate the company's sustainability objectives, and assist employees in how they can play a role in sustainability activity ([Hashem and Khalaf, 2023](#)). That is, when high-level management truly cares about sustainability, the employees will follow and actively practice sustainable behaviors as part of their job.

Communication and engagement: Communication and interaction plans play an important role in marketing employees' sustainable activities. Specific organizational solutions, which can be used by organizations to promote sustainable development, include the HR department engaging the staff in open discussions about the organization's sustainable development goals, providing feedback on practices, and acknowledging employees with sustainability values. Constant affirmative communication with employees brings ownership to

corporate sustainability since people feel that they are part of an organization by being involved in the processes.

Work environment and facilities: A sustainable work environment can be developed by maintaining discipline with relation to the facilities where energy efficiency, compound recycling, and environmentally friendly practices are provided. FM can also work with the human resource department to conduct green activities such as recycling and energy conservation, and green purchasing. This makes very much sense, since such an arrangement of employees' work environment meets not only the organization's needs but also the personal needs of the workers to carry out their work and other functions in a sustainable manner.

Employees' sustainable behavior: Zacher et al. (2023) and Aboramadan et al. (2022) stated that sustainable behavior in the workplace refers to the purposeful, responsible actions, choices, and efforts carried out by individuals in an organization that do not harm the environment, the economy or society and that support the systematic, economic, social and ecological sustainability of the ecosystem, the organization and society. According to Bhattacharya et al. (2023), in the recent dynamic global business environment, employee pro-activity and green behavior act as a key driver to organizational performance and improved organizational corporate culture on sustainable development. This includes the orders and suggestions given by the leadership to individuals and organizations, and practices and programs related to energy conservation, waste minimization, recycling, environmental programs, and supporting the community. Sustainable employee behavior is marked by increased concern with conserving the environment, with the desire to reduce this impact in the workplace and personal life (Dey et al., 2022; Latif et al., 2022).

Katz et al. (2022) noted that the sustainable behavior of the employees does not end with mere compliance with the laid down regulations; it is more of an ethical responsibility, discretion, and full compliance with stewardship responsibilities on aspects of resource utilization as well as impact on society. Lu et al. (2023) argued that employees who implement the sustainable value concept of change at work are more committed, inventive, and cooperate more in an organization. They also respond proactively to environmental challenges in a manner that not only lessens an organization's environmental impact but also prompts change in conduct in others, including peers, supervisors, subordinates, customers, and shareholders. When the staff is motivated to engage in sustainable behavior at work, and when such behavior is rewarded, a virtuous cycle constantly pushes for sustainability improvements, improves corporate image, and places the firm as a model organization for sustainability within the industry and beyond (Li et al., 2022; Tuan, 2022).

Managerial awareness: Polas et al. (2023) defined managerial awareness as concerns about how

managers can perceive, appraise, and manage various internal and external developments that affect organizational performance, such as micro and macro-environmental opportunities and threats, employee relations, technologies, and laws, among others. It includes the understanding of context, vision, and potential as well as the capacity to make and implement sound decisions for the organization's strategic success (Schulte and Knuts, 2022).

Schaltegger et al. (2022) and Demir et al. (2023) argued that organizational success is highly determined by the ability of the managers to be informed based on the environment, as well as future unconstructive anticipation of the potential risks, as well as constructive imagination of new opportunities in the course of managerial work. This awareness goes well beyond knowing what is happening in the industry; it requires a great understanding of the informal culture and structure of the organization as well as relationships between and within teams of stakeholders. Managers who have a very good awareness can easily handle intricate challenges, motivate people, and create a positive culture for constant advancement in their company (Greenland et al., 2022).

Rahman et al. (2023) noted that knowledge of managers is one of the most critical factors is equally required for agility in decision-making and prevention of problem occurrence. First, managers with awareness skills can easily identify signs of challenges, conflicts, and, for that matter, gain new opportunities in the market much earlier compared to others. The skills of managers have to be oriented towards the identification of internal and external factors to direct organizational teams to the attainment of strategic goals and objectives, as well as the responsible management of growth. Concisely, awareness thus constitutes a key fundamental competency in the role of managers, who may harness the same to guide their organizations towards success in a present-day dynamic organizational environment (Beusch et al., 2022).

Sustainability from a Saudi perspective: Alqahtany and Aravindakshan (2022) noted that sustainability based on Saudi thinking incorporates three elements in a combined strategy of economic development, environmental protection, and social welfare as the foundation to achieve the Kingdom of Saudi Arabia of a future that is prosperous and sustainable. Saudi Arabia has set out on a process of change called Vision 2030, which is a program that aims to assist Saudi Arabia to become a country adapted to the conditions of the twenty-first century and to develop a new economic model that would make the country sustainable (Ebaid, 2022).

Yusuf and Lytras (2023) stated that Saudi Arabia's sustainability agenda aims at the diversification away from oil and the embrace of a renewable energy-based economy. It has also established solar and wind power plants as part of its drive to tap into the natural resources of light and wind for the generation of power back home instead

of going out to foreign nations in a bid to mitigate on green gas emissions. Thus, Saudi Arabia not only reduces the environmental harm from its energy industry and unlocks a new round of oil brilliance, but also establishes the metamorphosed country as a worldwide renewable energy authority (Aldhafeeri and Alhazmi, 2022).

While AlKhars et al. (2024) argued that Saudi Arabia has also continued to support environmental conservation to preserve features in the Kingdom, including the Red Sea Coral Reefs and the Arabian Desert. Contestation aims at environmental protection, the fight against desertification, and the rational use of national wealth, which consists of valuable natural resources, with the view of passing it intact to future generations. Moreover, the Kingdom has installed programs regarding water scarcity and waste management to face environmental issues and boosted efficiency (Almulhim et al., 2022). Almuqrin et al. (2023) added that Saudi Arabia appreciates the role of social sustainability to develop sustainability for the better and empower citizens. Efforts to strengthen education, health, shelter, and employment for all support the development of a stronger and tolerant society. Keeping in mind the government's target to achieve sustainable development for all the citizens of the Kingdom, the Kingdom invests in people or human capital for enhanced social development.

Related studies: Ercantan and Eyupoglu (2022) noted in their study that management skills that green human resource management possesses helped the potential employee perceive green task-related as well as assigned behaviors greenly, and this perception was a green moderator between the influence and indirectly to the employees' psychological green climate perception. It was revealed in this text that it is of utmost importance to lay the foundation of sustainable HR practices.

On the other hand, Farrukh et al. (2022) examined the value of green transformation leadership in considering employees' pro-environmental behavior GHRMs via the mediating role. Besides, it was also made clear that the mediating effect of ecological knowledge on environmentally friendly actions holds. This study puts forward an in-depth, holistic understanding of how employees' pro-environmental behavior becomes promoted. Richards (2022) also noted that sustainable HRM is, so to speak, much wider than what has been examined in the present HRM literature. The map suggests the inclusion of more movements and platforms to sustainable HRM, such as a sustainable leadership mindset and sustainable workspaces that would increase employees' comprehension of sustainability.

Van Buren (2022) added that one should look at the concept of sustainable HRM through the lens of a pluralistic approach, as this would make it more unique and multidimensional. Sustainable HRM may help to alter the usual one-sided view of the employment relationship as a type of people management where the focus is on meeting the

expectations of the employer, whilst the employee is excluded from decision-making that is aimed at benefiting the general society.

3. Methods and materials

3.1. Methodological approach

The current study employed a quantitative methodology, which involves collecting and analyzing numerical data in line with the study's objectives. This approach is justified as it allows the collection of primary data from a larger sample, thereby enhancing the generalizability of the findings.

3.2. Study tool

A questionnaire was developed to collect primary data, drawing on previous studies by Ercantan and Eyupoglu (2022), Farrukh et al. (2022), Aboramadan et al. (2022), Sabbir and Taufique (2022), Cao et al. (2022), Richards (2022), and Van Buren (2022), as well as other relevant sources. The questionnaire consisted of two main sections. The first section focused on the demographic characteristics of the study sample, including age, gender, qualifications, and work experience. The second section contained items related to the study's key sub-variables: recruitment and selection, training and development, leadership, communication and engagement, and work environment and facilities. To ensure the validity of the instrument, the questionnaire was reviewed by a panel of academic experts in the field. A five-point Likert scale was used to structure the responses.

To minimize bias in using self-administered questionnaires, several strategies were applied. First, the questions were carefully constructed to ensure clarity and avoid bias, enabling respondents to interpret them accurately. Additionally, randomizing the order of questions helped reduce order bias, while offering balanced and neutral response options minimized directional response bias. A pilot test was conducted to identify and revise any unclear or biased questions. Options such as "Other" or "Not Applicable," maintaining respondent anonymity, avoiding leading statements, and eliminating researcher assumptions further reduced sampling bias. These measures collectively enhance the reliability and quality of data obtained from self-administered questionnaires.

3.3. Population and sampling

The study population comprised HR managers working in organizations within the mining and quarrying sector in the Kingdom of Saudi Arabia. According to Al-Osaimi (2024), there are a total of 11,672 factories operating in this sector across the country. A simple random sample of 372 managers was selected to represent the population. Following

the data collection process, the researcher successfully obtained 281 fully completed questionnaires, resulting in a response rate of 75.4%, which is considered statistically acceptable.

3.4. Statistical processing and data mitigating

The Statistical Package for Social Sciences (SPSS) was used to analyze the collected primary data. Cronbach's Alpha (α) was calculated to assess the reliability and internal consistency of the research instrument. As shown in Table 1, all variables achieved values above 0.70, indicating that the instrument was both reliable and consistent. Additional statistical analyses performed in this study included means and standard deviations, frequencies and percentages, as well as multiple and linear regression.

Table 1: Cronbach's Alpha values for reliability assessment of study variables

Variable	α
Recruitment and selection	0.93
Training and development	0.907
Leadership	0.845
Communication and engagement	0.908
Work environment and facilities	0.826
Employees' sustainable behavior	0.921
Managerial awareness	0.922

4. Results and discussion

4.1. Demographics

Table 2 shows the descriptive statistics of the study sample. The results indicate that most respondents (36.6%) were over 57 years old. The majority held a BA degree (49.5%) and had more than 17 years of experience in the field (43.1% of the total sample).

Table 2: Demographic characteristics of the study sample

	Frequency	Percent
Age		
24-34	24	8.5
35-45	71	25.3
46-56	84	29.9
+57 years	102	36.3
Educational level		
Diploma or lower	109	38.8
Bachelor's degree	139	49.5
Postgraduate degree	33	11.7
Experience		
2-6	20	7.1
7-11	42	14.9
12-16	98	34.9
+17 years	121	43.1
Total	281	100.0

4.2. Questionnaire analysis

Mean (μ) and standard deviation (σ) were used in order to analyze the questionnaire of the study. Table 3 revealed that all participants had a positive disposition towards the questionnaire statements, with each statement attaining scores beyond the

mean of 3.00 on the scale. Moreover, these results were shown to be statistically significant.

4.3. Hypothesis testing

As shown in Table 4, utilizing multiple regression analysis to investigate the previously stated hypothesis revealed that the independent variables had a very significant and positive correlation with the dependent variable ($r=0.869$). The independent variables account for an additional 75.6% of the total variation in the dependent variable. The statistical analysis indicates that the F value is significant at the 0.05 level. This indicates that Human resources practices positively influence employees' sustainable behavior within the Saudi mining and quarrying sector.

4.4. Pearson correlation

Pearson's correlation was employed to examine the relationship between each independent variable and the dependent variable. The subsequent outcomes were identified in Table 5. The data indicates that the r values vary from 0.28 to 0.847, with the highest value seen between Recruitment and selection and employees' sustainable behavior.

An examination of Table 6 demonstrated a statistically significant correlation between human resources practices and employees' sustainable behavior, as shown by a coefficient of determination (R^2) of 0.578 and a p-value less than 0.5. During the subsequent phase, we included the managerial Awareness variable, which was shown to have a substantial impact on the overall interpretation factor, as seen by an increase of $R^2=60.1\%$. It was observed that the inclusion of the interaction variable pertaining to human resources practices and managerial awareness resulted in a notable increase of 8.6% in the overall interpretation factor, as shown by the R^2 value. This increase was considered statistically significant. That meant, "Managerial awareness moderates the relationship between human resources practices and employees' sustainable behavior within the Saudi mining and quarrying sector."

4.5. Discussion

The main focus of the current study is to highlight the moderating role of managerial awareness on the relationship between human resources management in terms of (recruitment and selection, training and development, leadership, communication and engagement, work environment and facilities) and sustainable behavior among employees. Quantitative method was used through a questionnaire, and 281 individuals from the mining and quarrying sector in the Kingdom of Saudi Arabia took part in the study. Statistical Package for Social Sciences (SPSS) was used to deal with the collected primary data. Results of the analysis indicated the acceptance of the study

hypothesis, and it was seen that human resources practices positively influence employees' sustainable behavior within the Saudi mining and quarrying sector. In addition, it was proved through results

that managerial awareness moderates the relationship between human resources practices and employees' sustainable behavior within the Saudi mining and quarrying sector.

Table 3: Descriptive statistics of questionnaire items

Statement	μ	σ
We screen candidates based on their values regarding sustainability.	3.715	1.161
We try to mix and match so that candidates' values align with ours regarding sustainability.	3.865	1.166
The recruitment process involves estimating the level of environmental awareness among candidates.	3.644	1.175
We make sure that our environment resembles our culture of sustainability.	3.897	1.159
We choose candidates based on their commitment to values and beliefs.	3.708	1.153
Recruitment and selection	3.766	1.028
Our employees get the needed training on sustainable practices.	4.199	.843
Our training programs involve modules of environmental awareness and conservation.	3.954	.983
There are continuous learning opportunities for sustainability in our organizations.	4.142	.780
We make sure that our employees are aware of environmental issues and problems.	4.103	.930
We always try to enhance our employees' understanding of ecological practices.	3.982	.790
Training and development	4.076	.742
Our leaders are committed to sustainable initiatives.	4.320	.695
All leaders engage in sustainable practices all the time.	4.324	.711
Leaders promote sustainable actions among employees.	4.199	.668
Our leaders are aware of the concept of leading by example.	4.320	.768
Our leaders encourage employees to integrate sustainable behavior into their daily operations.	3.843	.991
Leadership	4.201	.609
Our sustainability beliefs are shared transparently.	4.206	.898
Employees are always encouraged to share sustainable initiatives.	3.936	1.026
Improving sustainable practices is appreciated by the management.	3.890	1.051
The relationship between employees and management is transparent and based on respect.	3.886	.871
We assess employees' understanding of sustainability through regular feedback.	4.267	.710
Communication and engagement	4.037	.787
Our environment is designed to promote eco-friendly practices.	3.915	.756
All our facilities are designed to reduce operational environmental impact.	4.103	.849
All our devices are chosen based on minimizing waste.	4.174	.911
We aim to reach the maximum level of minimizing energy consumption.	4.199	.758
We are known for providing a safe and sustainable work environment for our employees.	3.815	1.134
Work environment and facilities	4.041	.685
All our employees are aware of the meaning of sustainability.	3.925	1.139
Our employees make sure to align their beliefs with our goals and strategies.	3.715	1.167
Employees are aware that being sustainable means caring for their environmental actions.	3.968	1.135
Employees are aware that sustainable actions are rewarded.	3.801	1.141
Employees are aware that their existence in our organization means they have to be eco-friendly.	4.249	.855
Employees' sustainable behavior	3.932	.954
Managers know that their role is crucial in fostering sustainable behavior among employees.	3.996	1.061
The management is always aware of sustainability initiatives around the world.	4.189	.868
The management always leads by example.	4.149	.978
Our managers are always involved in environment-related activities.	4.064	.864
The management always promotes and implements sustainable initiatives.	4.281	.847
Managerial awareness	4.136	.810

Table 4: Multiple regression analysis results for H1

Model	Coefficients			t	Sig.	R	R-squared
	Unstandardized coefficients	Standardized coefficients	Beta				
	B	Standard error	Beta				
(Constant)	.335	.215	-	1.556	.121	.869	.756
Recruitment and selection	.615	.040	.663	15.515	.000		
Training and development	.144	.055	.112	2.613	.009		
Leadership	-.135	.071	-.086	-1.912	.057		
Communication and engagement	.186	.073	.153	2.556	.011		
Work environment and facilities	.126	.076	.090	1.659	.098		

H1: Human resources practices positively influence employees' sustainable behavior within the Saudi mining and quarrying sector

Table 5: Pearson correlation coefficients between HR practices and employees' sustainable behavior

Variable	Employees' sustainable behavior	
Recruitment and selection	Pearson correlation	.847**
	Sig. (2-tailed)	.000
	N	281
Training and development	Pearson correlation	.540**
	Sig. (2-tailed)	.000
	N	281
Leadership	Pearson correlation	.280**
	Sig. (2-tailed)	.000
	N	281
Communication and engagement	Pearson correlation	.659**
	Sig. (2-tailed)	.000
	N	281
Work environment and facilities	Pearson correlation	.627**
	Sig. (2-tailed)	.000
	N	281

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

Table 6: Hierarchical regression analysis results for H2

Model summary									
Model	R	R-squared	Adjusted R-squared	Standard error of the estimate	Change statistics				
					R-squared change	F change	df1	df2	Sig. F change
1	.760	.578	.576	.62097	.578	381.695	1	279	.000
2	.775	.601	.598	.60447	.024	16.442	1	278	.000
3	.829	.688	.684	.53608	.086	76.459	1	277	.000
ANOVA									
	Model	Sum of squares		df	Mean square		F		Sig.
1	Regression	147.184		1	147.184		381.695		.000
	Residual	107.584		279	.386				
	Total	254.768		280					
2	Regression	153.192		2	76.596		209.632		.000
	Residual	101.576		278	.365				
	Total	254.768		280					
3	Regression	175.164		3	58.388		203.175		.000
	Residual	79.604		277	.287				
	Total	254.768		280					

H2: Managerial awareness moderates the relationship between human resources practices and employees' sustainable behavior within the Saudi mining and quarrying sector

The evidence that managerial awareness moderates the link between human resources practices and employee sustainable behavior within the Saudi mining and quarrying sector underscores the importance of managerial skill in the conceptualization of organizational sustainability strategies. In this regard, managerial awareness plays a significant role as a predictor of how human resources strategies are adopted and the consequent effect that they have on the behavior and mindset of the employees with regard to sustainability. Such results agreed with [Aboramadan et al. \(2022\)](#) and [Sabbir and Taufique \(2022\)](#) who noted that managers who have the receptiveness needs to grasp the importance of sustainability, as well as, effectively communicate such importance to the employees, and incorporate such meanings into the HR policies are well equipped in achieving organizational sustainability goals.

Moreover, the influence of managerial awareness in the relationship between Sustainable HRM practices and employee sustainable behavior, as well as the relentless correlation between and within each organizational element, establishes a strong argument for the organizational levers that can contribute towards the improvement of sustainability within the mining and quarrying sector. This is where managers with increased awareness come in, as they have a crucial part to play in helping to put sustainability into place at work. This may enable them to better comprehend the consequences of established HR practices on sustainable action by the employees and make sustainable improvements to the activity of implementation of sustainability endeavors, greater engagement of employees, and consequently, the environmental performance of the business sphere in the sector. Among the chosen variables of study presented above, it was noticed that recruitment and selection were the most influential variables on the sustainability of employees, scoring $B=.615$. Recruitment and selection greatly influence sustainable behavior among employees in organizations; similarly, recruitment and selection drastically impact organizational culture and sustainable behavior. Sustainability considerations

can therefore be added to the list of factors the HR department should consider when making their hiring decision, because, apart from coming up with a list of qualified candidates with the required technical skills, there is usually additional focus on whether the identified candidates have a strong corporate sustainability orientation. This agreed with [Richards \(2022\)](#), who stated that when organizational practice for recruitment is anchored on sustainability, organizations convey to prospective personnel their stands for sustainable practices, the aim being to attract employees with noble intentions of creating awareness of sustainable living. When organizations select employees who are environmentally conscious, then the foundation for cultivating an environmentally conscious organizational culture is created. These employees are likely to practice sustainable behaviors on their own, recommend changes that are environmentally friendly, and promote sustainability at the workplace.

In addition, sustainable recruitment and selection practices can help increase the organization's attractiveness and engagement of employees in organizations. People with organizational justice will be willing to support sustainability efforts in the organization since they share the organizational values. They could also be more rigid in their use of sustainable systems, for instance, in efficiency, waste control, and support of environmental causes. Therefore, inclusion of sustainability into the recruitment and selection process is equally a matter of; it assists organizations in attracting competitors who have a high level of commitment towards sustainability, as well as creates an organizational culture that supports sustainability. This agreed with [Ercantan and Eyupoglu \(2022\)](#) who argued that long-term approach to sourcing talent reap numerous benefits that are both good for the organizations' sustainability as well as foster increased levels of engagement among the workforce while building a corporate reputation as a noble corporate citizen who is out to make a positive difference in the world. [Farrukh et al. \(2022\)](#), [Cao et al. \(2022\)](#), and [Van Buren \(2022\)](#) appeared to have the same attitude towards the idea.

5. Conclusion and recommendations

In the Saudi context, particularly within the mining and quarrying industry, where environmental issues and sustainable development are becoming increasingly important, the role of managers gains significant relevance. As key actors in promoting sustainability, managers in this sector recognize the critical importance of adopting sustainable practices. They must also navigate regulatory requirements and address public expectations and concerns regarding the environmental impact of their operations. By acting as mediators, managers can drive positive changes across various organizational activities. These include implementing training programs, evaluating employee performance, and providing incentives to encourage sustainable behavior among employees.

Launching from the study results and discussion, the researcher recommended the following:

- **Develop tailored training programs:** Since human resources practices exert a positive relation to employee sustainable behavior in the Saudi mining and quarrying sector, organizations should commit to sustainable training programs. These kinds of programs can inform the employees of the need to practice environmental conservation, equip them with tools and techniques of green practices at the workplace, and enable the personnel to practice sustainable workplace practices. To achieve an appreciation of sustainability issues in the sector, it is recommended that employers tailor the training according to the sector's characteristics.
- **Implement managerial awareness initiatives:** Given that managerial awareness partly mediates the association between human resources practices and employee sustainable behavior change, the awareness of managers should be boosted in the mining and quarrying industry. Companies can invite their managers to practical workshops, briefing sessions, or training that will introduce them to the importance of sustainability, teach them how to convey the organization's sustainability objectives to their subordinates, and discuss effective methods of personally promoting sustainability. When understanding and increasing awareness of sustainability questions at the managerial level, the connection between HR practices and environmentally friendly behaviors in the sector will improve and contribute to the achievement of the desired results.
- **Establish cross-functional sustainability teams:** To extend the understanding of how organizational human resources practices foster sustainable behavior among the employees, organizations can form cross-functional sustainability teams involving HR, management, operations, and other interested departments. These teams can be enhanced to align through planning and execute sustainability processes, assess sustainability performance, and strive to improve it. This study also implies that through cooperation and

collaboration across functional areas in a firm, the impact of utilized HR practices in bringing about sustainable behavior can be enhanced, while the exchange of information on sustainable development among the mining and quarrying sector taken place.

The current study offers both theoretical and practical implications. From a theoretical perspective, the findings support the inclusion of managerial awareness as an important element in existing models and frameworks that explore the relationship between human resource (HR) practices and employees' sustainable behaviors. By introducing managerial awareness as a moderating variable, this research highlights the complexity of organizational processes and the need for adjustments to better understand these processes, particularly in industries such as mining and quarrying, which are highly sensitive to environmental concerns. This theoretical contribution helps address gaps in current frameworks by enhancing their ability to explain how HR practices can effectively promote sustainable behaviors among employees.

From a practical perspective, the study emphasizes the importance of focusing on managerial awareness as a moderating factor in the Saudi mining and quarrying sector. Organizations in this sector can gain significant benefits by equipping managers with the necessary knowledge and tools to communicate, implement, and oversee sustainable practices within their teams. Furthermore, by increasing managers' awareness and providing resources on sustainability issues and strategies, companies can encourage positive behavioral changes among employees. This, in turn, can lead to improved sustainability performance across the organization.

The current study could further explore how the extent of managerial awareness affects the mediated effects of HR practices on employees' sustainable behavior. Evidently, the awareness of these dynamics and interactions may provide a better understanding of the links between managerial awareness approaches and sustainability with reference to organizational environments. Thus, further research can also be directed to how organizational culture can moderate the relationship between the level of managerial awareness, the extent of HR practices, and the level of employees' sustainable behavior. Exploring the role that cultural dimensions play in affecting the adoption of sustainable practices can be a good way of improving understanding of promoting sustainable practices in organizations.

The current study was limited to the following:

- The generalization of the results may be relevant here because the work is devoted to the Saudi mining and quarrying sector only. It may be worthwhile to replicate the study in other industries or regions to gain greater insights into

how managerial awareness influences the relationship between HR practices and sustainable behavior across other contexts.

- Self-reporting bias on sustainable behavior and future studies could enhance this limitation by employing objective measures or an observational approach that would justifiably yield more accurate findings.

Funding

This work was funded by the University of Jeddah, Jeddah, Saudi Arabia, under grant No. (UJ-24-SHR-20405-1). Therefore, the authors thank the University of Jeddah for its technical and financial support.

Compliance with ethical standards

Ethical considerations

All participants provided informed consent prior to their participation in the study, and their responses were collected anonymously to ensure confidentiality.

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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