

Green human resource management

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A two-study investigation of antecedents and outcomes

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Abstract

Purpose – The study aimed to provide insights on antecedent and outcome of green HRM at the organisational level and the outcome of green HRM at the individual level. It also sought to examine the mechanism through which green HRM would lead to employees' positive outcome.

Design/methodology/approach – A quantitative study design using a two-study approach was employed to collect and analyse the data. For study 1, 206 hotels from Malaysia were included in analysis at the organisational level, while in study 2 at the individual level, 508 employees from different sectors provided insights through an online questionnaire. For both studies, partial least squares (PLS–SEM) was used to assess the research model.

Findings – All the proposed hypotheses were supported. Specifically, at the organisational level, organisational environmental culture is positively related to green HRM, and green HRM management positively associates with organisation's environmental performance. At the individual level, green HRM positively influences employees' job satisfaction, and meaningfulness through work is a strong mediator in this relationship.

Originality/value – This study is significant as it contributes to both theory and practice by providing fresh insights on green HRM and its antecedent and outcomes at two levels (organisational and individual) and across two economies (emerging and developed). It also sheds some light on the outcome of green HRM at the employee level which is an area that is still under-researched. By focusing on meaningfulness through work as an important factor, the study contributes to better understanding of green HRM and employees' positive outcomes.

Keywords Green HRM, Meaningfulness through work, Job satisfaction, Environmental performance, Organisational environmental culture

Paper type Research paper

Introduction

Environmental degradation and climate change have become among the most pressing issues of the current century resulting in economic losses from weather and climate-related disasters such as devastating hurricanes, droughts, heat waves and wildfires. Human activities are estimated to have already caused approximately 1.0 °C of global warming above pre-industrial levels (United Nations Environment Programme, 2019). Business sector has often been at the centrepiece of all sustainability discussions and is regarded as a major cause of ecological harms at local, regional and global scales (Moscardo *et al.*, 2013). Therefore,



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businesses are expected to play a key role in solving environmental problems (Schaltegger and Burritt, 2010).

Beyond obtaining a social licence to operate, businesses are under mounting pressure from stakeholders to take a more proactive approach towards environmental issues and become accountable for their environmental impacts to ensure that future generations can also have their needs and aspirations met. This requires businesses to go beyond compliance and take a more proactive approach to achieve environmental sustainability.

According to the working model of business ethics (Moscardo *et al.*, 2013; Van Marrewijk, 2003), environment is one of the main pillars of corporate social responsibility (CSR) in creating a sustainable business. CSR is defined as a company's discretionary involvement in business practices that appear to further economic, societal and environmental well-being (Du *et al.*, 2011). Achieving environmental sustainability requires change in business operations and how goods and services are delivered. Success of any change process in general, and environmental performance improvement, in particular, highly relies on employees as the main change agents (Nejati *et al.*, 2017). To this end, green human resource management (HRM) can be seen as a way for organisations to practice their CSR. Green HRM is essential for the successful implementation of green strategies and environmental management practices (Daily and Huang, 2001; Renwick *et al.*, 2013) and can positively contribute to an organisation's environmental sustainability. Literature defines green HRM as a set of specific HRM practices that enable and sustain a proactive approach to environmental management and the achievement of high-performance outcomes in relation to environmental sustainability (Becker *et al.*, 1998).

Given the importance of green HRM in achieving environmental sustainability, there has been a surge in green HRM research (e.g. Dumont *et al.*, 2017; Nejati *et al.*, 2017; O'Donohue and Torugsa, 2016; Pham *et al.*, 2019; Renwick *et al.*, 2016; Yu *et al.*, 2020). However, the extant research still remains largely undefined in terms of green HRM antecedents and how it influences organisational outcomes (Ren *et al.*, 2018). The lack of such research results in an unclear understanding of the factors which give rise to green HRM (i.e. antecedents) and the intermediate process (i.e. mediator) through which green HRM leads to positive outcomes. Moreover, as stated by Ren *et al.* (2018), an improved understanding of the green HRM and its mediating processes is needed to properly guide the design of green HRM system to gain long-term benefits. Another area of concern is paucity of research and insights into how green HRM influences employees. This is crucial as understanding the impact of green HRM on employees is an essential step in creating an effective green HRM system in organisations (Ren *et al.*, 2018).

Taken together, the current study aims to fill this gap by examining how green HRM leads to positive outcomes at organisational and individual (i.e. employee) levels. Using a two-study investigation, we first examine the antecedent and outcome of green HRM at the organisational level. Then, we investigate the mechanism through which green HRM leads to employees' positive outcomes at the individual level. Results of our study provided support to our hypotheses. By conducting a double-perspective research approach, we contribute to the extant literature in three ways. First, by establishing the positive link between organisational environmental culture and green HRM, we show a condition that can lead to adoption of green HRM beyond a coercive management practice. Second, we advance the existing research on green HRM at the individual level based on the job characteristics model. Third, we demystify the process through which green HRM impacts employees' outcomes by examining the important role of meaningfulness through work as a mediator in our proposed model.

Theory and hypotheses

Studies on green HRM have provided evidence for its significant impact on corporate performance (i.e. environmental and financial performance) (Crotty and Rodgers, 2012) and employees' outcomes (i.e. well-being, commitment, satisfaction). Improving work climate and meeting twenty-first century work requirements and demands about environmental awareness benefit both organisations and employees (Obeidat *et al.*, 2018). Therefore, the current study looks at green HRM practices and their subsequent outcomes at both organisation and individual levels to provide novel insights in the field. Specifically, in the first study we consider green HRM and its related outcome at the organisational level, while in study 2 we focus on green HRM at the individual level.

Organisational level

Organisational environmental culture and green HRM. Organisational culture refers to the values, beliefs and behaviours of organisational employees (Schein, 1992). In particular, values represent the way individuals think about what is right and what should be done in compliance with ethical codes (Holt and Anthony, 2000). Beliefs are defined as the way individuals perceive something as true or false. Behaviours are the actual activities that individuals perform based on their values and beliefs (Schein, 1992). Integration of values, beliefs and behaviours forms an organisational philosophy or ideology that can be used as a guide to deal with different situations at the organisation (Schein, 1992). Therefore, employees' behaviours highly reflect the organisation's ideology, and over time these behaviours turn into habits, forming the organisation's culture (Schein, 1992).

Both formal and informal institutional contexts have cascading effects on the organisation's culture and environment, making culture as one of the key antecedents of green HRM. Specifically, green HRM practices are programmes, techniques and processes that help organisations diminish their environmental effects, while increasing their positive environmental effects (Arulrajah *et al.*, 2016). In other words, green HRM is defined as HR practices that focus on environmental sustainability through creating green employees, who can recognise and appreciate organisation's environmental initiatives. It concentrates on green selection and recruitment, green training and development, green performance management and appraisal and green pay and reward system that expands organisation's human capital (Yusoff *et al.*, 2018).

Research shows that organisational culture, structure, leadership and strategy are among the important predictors of green HRM (DuBois and Dubois, 2012). These identified antecedents of green HRM are regarded as proximal contextual signs, indicating the need, value and urgency of green HRM practices in the organisation. Moreover, organisational conditions are important motivators for practicing pro-environmental activities such as green HRM by the organisations (Ren *et al.*, 2018). If an organisation values green activities by going beyond merely profit-making goals, and seeking ways to minimise the negative and maximise the positive consequences of its activities on the environment (Sroufe *et al.*, 2010), it creates a culture that promotes green HRM and its related practices. Therefore, organisational environmental culture, by building an environment in which green activities are highly valued, encourages green hiring, training, appraisal and incentivisation, which are the dimensions of green HRM (Amini *et al.*, 2018; Dyllick and Hockerts, 2002). Thus, we conjecture that

H1. Organisational environmental culture is positively related to green HRM.

Green HRM and environmental performance. Human resource management is fundamental to enhance a firm's competitive advantage (Combs *et al.*, 2006), and it is evident in the literature that firms are proactively implementing practices for better environmental

management, with reduced costs and increased revenue flows, to attain important environmentally related business goals (O'Donohue and Torugsa, 2016). Research shows that green HRM is one of the best strategies for boosting firms' environmental performance because it provides an essential ground to efficiently manage firms' environmental impact (Sudin, 2011). Environmental performance refers to the organisation's commitment in protecting the environment and demonstrating environmental care through defining measurable operational parameters (Paillé *et al.*, 2014; Roscoe *et al.*, 2019). Therefore, green HRM practices including environment-friendly HR activities lead to increased efficiencies, lower costs and improved employee engagement and retention. This will ultimately benefit organisations by dampening employee carbon footprint (Sheopuri and Sheopuri, 2015). Moreover, green HRM helps organisations improve their environmental performance through enhancing employee awareness about environmental issues (Fayyazi *et al.*, 2015).

In the same vein, Dutta (2012) states that one of the best ways for organisations to achieve improved environmental performance is via green HRM, because it creates 'green employee' through focusing on green hiring, green compensation and green training. Employees are the building blocks of organisations, and their pro-environmental behaviours lead to the betterment of organisation's environmental performance in aggregate (Daily *et al.*, 2009; Kim *et al.*, 2019).

Prior research supports that green HRM builds an environment, in which green initiatives and activities are considered as shared values among employees. This can lead to green empowerment (Gholami *et al.*, 2016), facilitating organisations' environmental performance, increasing engagement in sustainability management and improving green supply chain activities (Nejati *et al.*, 2017; Teixeira *et al.*, 2016). In a study by Jabbour *et al.* (2008), green HRM was found as a significant contributor to organisations' environmental performance. Similarly, organisations which implemented green HRM at the strategic level and involved all different levels of employees in the practices had a successful environmental performance (Paillé *et al.*, 2014; Yusoff *et al.*, 2018). Green HRM practices are considered as useful strategies for organisations to improve their human capital which can ultimately lead to better environmental performance (Álvarez Jaramillo *et al.*, 2019; Roscoe *et al.*, 2019) through promoting employees' green behaviours and fostering green organisational culture (Kim *et al.*, 2019). A substantial body of research provides evidence for the fundamental role of green HRM in obtaining environmental sustainability (Arda *et al.*, 2019; Paillé *et al.*, 2014). For instance, Daily *et al.* (2012) concentrated on different levels of employees (i.e. individual, group, organisations and system) and green initiatives in the workplace. The importance of environmental training and organisational learning and their links to environmental performance was considered in a study by Vidal-Salazar *et al.* (2012). It is believed that employees with environmental values play a crucial role in helping organisations to proactively adopt and enact principles of environmental sustainability and boost organisation's environmental performance (O'Donohue and Torugsa, 2016; Paillé *et al.*, 2014; Tariq *et al.*, 2016). As such, we hypothesise that

H2. Green HRM is positively related to the organisations' environmental performance.

Individual level

Green HRM and job satisfaction. Green HRM is not only a fundamental strategic plan to enhance organisations' environmental performance, but also plays a vital role in enhancing employees' outcomes such as job satisfaction (Chan and Hawkins, 2010). Research shows that employees' evaluation of their job characteristics is a crucial factor influencing their working behaviour (Yusoff *et al.*, 2018). Specifically, several job characteristics including pride, participation, recognition, self-actualisation, advancement, fairness, working conditions and

the work itself can influence the way employees perceive their job and ultimately result in their satisfaction (Arnett *et al.*, 2002; Huyton and Sutton, 1996; Maslow, 1970; Spinelli and Canavos, 2000).

This is understandable from the lens of job characteristics theory (Hackman and Oldham, 1976) which identifies skill variety, task identity, task significance, autonomy and feedback as the core job characteristics that can prompt different psychological states in individuals. The first three job characteristics stimulate work meaningfulness, autonomy prompts responsibility of the work outcomes and feedback stimulates understanding of the work results (Hackman and Oldham, 1976). The combination of job characteristics increases the motivational aspect of job leading to employees' positive outcomes such as job satisfaction and quality performance (Hackman and Oldham, 1976, 1980). The evaluation of job characteristics and employees' perception can affect their attitudes and satisfaction. In other words, when employees perceive that their job possesses all the core characteristics, they perceive that their job creates meaning for them, resulting in higher job satisfaction (Pollock *et al.*, 2000).

Green HRM as an instrumental strategy helps organisations accomplish their environmental goals through creating a green environmental culture and green employees who are concerned about environmental issues (Kim *et al.*, 2019; Paillé *et al.*, 2014). Protecting environment is a worthy goal for organisations, and despite adding to the workload of employees, they still believe that organisations should focus on environment (Chan and Hawkins, 2010). This is in congruence with green HRM goals to value environmental protection by focusing on activities that reduce negative effects and increase positive effects on the environment. As Chan and Hawkins (2010) found in their study, when employees have environmental awareness to protect the planet, and contribute to a healthier, better and safer environment, they feel that they are contributing something positive to the environment. By emphasising shared environmental goals and values, green HRM promotes an environment in which employees and employers feel that they are doing something meaningful. This will lead to developing a sense of meaningfulness through work which can ultimately result in job satisfaction (Chan and Hawkins, 2010).

There are four steps involved in implementing green HRM practices: have an environmental vision as a guide, provide training to employees to share their environmental goals and visions, assess environmental performance of employees and recognise and reward employees' environmental activities (Clair *et al.*, 1996). In the same vein, Daily and Huang (2001) posit four processes of implementing green HRM including managers' support, training, empowerment and rewards. The processes of implementing green HRM are in line with the core characteristics of job defined by job characteristics model. Particularly, green HRM promotes skill variety, task identity and task significance by providing shared environmental vision and goals and offering trainings to enhance employees' environmental awareness. In addition, by empowering employees and encouraging them to share their environmental goals, they feel that they have autonomy in carrying out environmental activities. Besides, through evaluating, recognising and rewarding their environmental performance, they can realise the actual impact of their activities. Hence, green HRM by providing core job characteristics for employees helps them enhance their work behaviour. Therefore:

H3. Green HRM has a positive relationship with employees' job satisfaction.

Meaningfulness as a mediator. Work is a focal point of human's activity (Hulin, 2014), and often individuals use work as a medium to find meaningfulness in life (Rosso *et al.*, 2010). Giving meaning to work as an ongoing experience is defined as sensemaking (Weick, 1995). According to job characteristics theory, work meaningfulness refers to the 'degree to which the employee experiences the job as one which is generally meaningful, valuable, and

worthwhile' (Hackman and Oldham, 1975, p. 162). Job characteristics model postulates that three core job characteristics including skill variety, task identity and task significance can help employees enhance meaningfulness through work (Hackman and Oldham, 1975). This highlights the importance of job features and individuals' perception about job in attaining meaningfulness through work (Hackman and Oldham, 1980).

In a study by Aguinis and Glavas (2019), it is mentioned that CSR is one of the important antecedents of meaningfulness through work and sensemaking, because employees will develop a strong sense of organisational identification when they see their organisation is concerned about environmental issues and takes a proactive role in addressing them. According to Shen and Benson (2016), green HRM is a central part of CSR initiatives. Green HRM practices concentrate on facilitating and sharing information with employees for the development of a proactive environmental strategy through developing green capabilities, encouraging green activities and providing green opportunities for employees (Aragón-Correa *et al.*, 2013; Renwick *et al.*, 2013). Particularly, developing green abilities deal with developing human capital, motivating green activities are the activities that increase employees' motivation and commitment and providing green opportunities deal with empowering and engaging employees in the green initiatives by the organisation (Renwick *et al.*, 2013). Therefore, the three core values of job characteristics namely skill variety, task identity and task significance are reflected in green HRM practices, making green HRM as one of the ways that can help employees find the core values in their work, leading to feeling of meaningfulness through work.

Furthermore, literature indicates that meaningfulness through work leads to positive outcomes such as job satisfaction (Glavas and Kelley, 2014), engagement (May *et al.*, 2004), organisational identification (Pratt *et al.*, 2006), performance (Hackman and Oldham, 1980), psychological well-being (Arnold *et al.*, 2007) and organisational commitment (Glavas and Kelley, 2014). This also coincides with the job characteristics theory, which posits combination of job characteristics that stimulate meaningfulness, responsibility and obvious results drive employees' motivation and job satisfaction (Spector, 1992). Consequently, we hypothesise that

H4. Meaningfulness through work mediates the relationship between green HRM and employees' job satisfaction.

In summary, the current two-study investigation aims to provide insights on the green HRM practices and its relevant outcomes at both organisation and individual levels. Specifically, the double-perspective approach responds to the need for better understanding of green HRM at two levels of organisation and employees. This is essential, as employees are the main agents in implementing and practicing green initiatives in organisations. Figure 1 demonstrates the proposed hypothesised models.

Method

Data and sample

Study 1, which aimed to investigate the phenomenon from an organisational angle, was conducted in the context of hotel industry in Malaysia, which is an emerging economy. This study examined the hotel industry due to its significant environmental footprint. Tourism industry is no longer regarded as a 'smokeless' industry as a result of growing environmental consciousness (Tang *et al.*, 2014). It is responsible for 5 per cent of global emission of CO₂ (UNWTO, 2008) and is predicted to become a leading global source of greenhouse gas (GHG) emissions in the future (Scott *et al.*, 2010). Despite being associated with green and relaxed image, tourism has a remarkably high carbon multiplier, which is the ratio of carbon emitted per dollar spent by the consumer (Gross, 2018). This multiplier is around 1 kg of CO₂ per

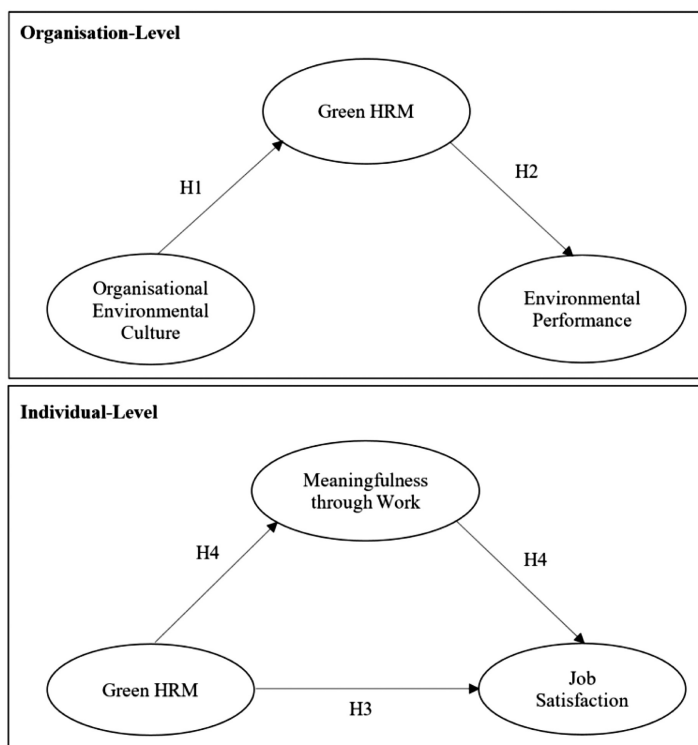


Figure 1.
Hypothesised models

dollar spent for tourism, which is higher than for manufacturing (0.8) or for construction (0.7). Due to the growth of the tourism industry, [Lenzen *et al.* \(2018\)](#) find that its carbon footprint has increased from 3.9 gigatonnes of CO₂ emitted in 2009 to 4.5 gigatonnes in 2013. Hotels, in particular, generate considerable GHG emissions due to their 24-hour operations ([Deng, 2003](#)), different provisions of facilities and functions ([Deng and Burnett, 2000](#)) and high energy usage by occupants ([Vourdoubas, 2015](#)).

For study 1, we collected data through questionnaire using a stratified random sample of hotels in Malaysia. Questionnaires were responded by human resource managers of the hotels as the most informed respondents given the nature of our study. Out of 250 distributed questionnaires, 206 hotels responded to the questionnaire, yielding an 82 per cent response rate for study 1.

Study 2 was conducted in the context of Australia, which is a developed country. This study focused on the individual level of analysis by collecting data from full-time employees. Study samples were recruited by Cint, a third-party online survey administration company in Australia. This is a common approach for data collection in research studies ([Ng *et al.*, 2019](#)). We received 508 complete responses, yielding a 95 per cent response rate. [Table I](#) shows a descriptive profile of our samples in study 1 and study 2.

Measures

Our research measured green HRM using items adapted from [Jabbour \(2011\)](#). In study 1, environmental performance referred to actual environmental practices of hotels in Malaysia's hotel industry. This construct was measured using items adapted from a qualitative study by

Table I.
Demographic profile
of study samples

Demographic data	Frequency	Percentage (%)
<i>Study 1 (N = 206)</i>		
<i>Total number of employees</i>		
Less than 100	60	29.1
Between 100 and 149	130	63.1
Between 150 and 299	16	7.8
<i>ISO 14001 EMS certification</i>		
Yes	93	45.1
No	113	54.9
<i>Hotel classification</i>		
5-star	45	21.8
4-star	64	31.1
3-star	97	47.1
<i>Type of hotel</i>		
Non-chain hotel	68	33.0
International chain hotel	80	38.8
Local chain hotel	58	28.2
<i>Gender of respondent</i>		
Male	72	35
Female	134	65
<i>Age</i>		
21–30 years	29	14.1
31–40 years	99	48.1
41–50 years	74	35.9
51–60 years	4	4.0
<i>Tenure in the current organisation</i>		
Less than 5 years	59	28.6
6–10 years	73	35.4
11–15 years	72	35
16–20 years	2	1.0
<i>Study 2 (N = 508)</i>		
<i>Age</i>		
30–35	187	36.8
36–40	156	30.7
41–45	96	18.9
46–50	69	13.6
<i>Education</i>		
Diploma or associate degree	79	15.6
Bachelor's degree	177	34.8
Master's degree	73	14.4
Doctoral degree	15	3.0
Graduate certificate or graduate diploma	111	21.9
Other	53	10.4
<i>Tenure in the current organisation</i>		
Less than 3 years	112	22.0
3–5 years	115	22.6
6–8 years	83	16.3
8–10 years	75	14.8
More than 10 years	123	24.2
<i>Current role</i>		
Managerial	242	47.6
Non-managerial	266	52.4

Yusof and Jamaludin (2013) and demonstrated a good validity and reliability. We measured environmental culture using three items adapted from Jabbour *et al.* (2010). In study 2, we measured meaningfulness through work using three items by Spreitzer (1995). A complete list of items is presented in Table II. All measures demonstrated adequate validity and reliability in the analysis stage.

Common method bias

Given the cross-sectional nature of our research design, we used a number of approaches to minimise common method bias (CMB) and ensure it was not a threat in our study. Following the suggestion by Schwarz *et al.* (2017), we did not use any ambiguous or complex items and ensured none of the constructs in the survey might be affected by external factors at the time of data collection. We also validated the items on green HRM, environmental performance and environmental culture using reviews by five experts including three hotel human resource managers and two HRM researchers. In addition, in study 1, by using hotel human resource managers, we targeted knowledgeable informants in each organisation to respond to questions at the organisational level.

In addition, after the data collection, we used the unmeasured latent method construct (ULMC) technique as a statistical remedy for both studies to detect and control for different sources of CMB, but did not find CMB to be a concern. ULMC technique involves creating a method effect construct that is an aggregate of all of the manifest variables utilised in the study, with no unique observed indicators (Richardson *et al.*, 2009) and comparing the model fit for the ULMC model and the baseline model. When the baseline model has a better fit than the ULMC model, there is no evidence of bias because of CMB.

Following Latan (2018), we also compared the early and late respondents in terms of their demographic variables such as hotel type and classification (in study 1) and age and marital status (in study 2) to test for nonresponse (Armstrong and Overton, 1977) and did not find any significant differences. Therefore, we could safely conclude that non-response bias is of no concern in this study.

Data analysis

Employing a double-perspective approach, the present study aims to provide fresh insights on the antecedent and outcome of green HRM at the organisational level and the related outcomes of green HRM at the individual level. Additionally, it examines whether meaningfulness through work can mediate the relationship between green HRM and job satisfaction at the individual level. This highlights the exploratory nature of the current study, which warrants the use of partial least squares structural equation modelling (PLS–SEM). Specifically, we are interested to find out how much of the variance in environmental performance of organisations is explained by green HRM and organisational environmental culture at the organisational level and how much of the variance in job satisfaction is explained by green HRM and meaningfulness through work at the individual level.

While covariance-based structural equation modelling (CB-SEM) was the dominant method for analysing complex interrelationships between observed and latent variables, in recent years, the number of published articles using PLS–SEM increased significantly relative to CB-SEM (Hair *et al.*, 2017) as it enables researchers to estimate complex models without imposing distributional assumptions on the data. In identifying the appropriate statistical modelling approach for testing study hypotheses, one should understand the distinction between explanatory modelling and predictive modelling (Shmueli, 2010). Following the considerations proposed by Hair *et al.* (2019), this study used PLS–SEM due to its exploratory nature which involved testing research frameworks from a prediction perspective and requiring latent variable scores for measurement of green HRM which was

Variables	Item loading	AVE	Cronbach's α	CR
<i>Organisational level</i>				
Green HRM (1 = strongly disagree to 5 = strongly agree)		0.58	0.89	0.91
1. My hotel rewards employees for environmental performance	0.79			
2. My hotel gives financial rewards to employees for good environmental performance	0.77			
3. My hotel establishes clear and specific objective of environmental goals for each employee	0.86			
4. My hotel assesses employees' contributions to environmental management	0.88			
5. My hotel records individual environmental performance results	0.88			
6. In my hotel, environmental training is continuous	0.60			
7. In my hotel, environmental training is a priority	0.61			
8. In my hotel, environmental training is considered as an investment	0.61			
Environmental performance (1 = strongly disagree to 5 = strongly agree)		0.51	0.86	0.89
1. My hotel uses local products from the community	0.82			
2. My hotel buys products from green vendors	0.78			
3. My hotel uses green chemical products	0.72			
4. My hotel implements waste separation program 3Rs	0.63			
5. My hotel implements energy reduction	0.70			
6. My hotel installs occupancy-based room unit controllers	0.68			
7. In my hotel, air-conditioner is set to 23–24 degrees	0.74			
8. My hotel practices regular maintenance of air-conditioner system	0.58			
Organisational environmental culture (1 = strongly disagree to 5 = strongly agree)		0.83	0.90	0.94
1. Environmental issues (e.g. energy consumption, water consumption, generation of waste) are considered as my hotel's priority	0.89			
2. Continuous environmental improvement is part of my hotel's mission	0.92			
3. Employees' environmental awareness is one of my hotel's objectives	0.92			
<i>Individual level</i>				
Green HRM (1 = strongly disagree to 5 = strongly agree)		0.80	0.96	0.97
1. My organisation has a continuous environmental training program	0.90			
2. Environmental training is a priority for my organisation when compared to other types of training	0.92			
3. In my organisation, environmental training is viewed as an important investment	0.90			
4. My organisation establishes environmental objectives that each employee must accomplish	0.89			
5. My organisation evaluates an employee's contributions to environmental management improvement	0.92			
6. Employee environmental performance appraisals are recorded by the company	0.90			
7. Employees in my organisation are financially rewarded for their performance in environmental management issues	0.85			
8. Employees who contribute to environmental management improvements are publically recognised by the company	0.87			

Table II.
Measurement model
analysis
(organisational and
individual levels)

(continued)

Table II.

Variables	Item loading	AVE	Cronbach's α	CR
Job satisfaction (1 = strongly disagree to 5 = strongly agree)		0.77	0.85	0.91
1. Overall, I am quite satisfied with my job	0.92			
2. I Do not intend to work for a different company	0.79			
3. I Like my job	0.92			
Meaningfulness through work (1 = strongly disagree to 5 = strongly agree)		0.81	0.88	0.93
1. The work I do in this organisation is very important to me	0.89			
2. My job activities are personally meaningful to me	0.90			
3. The work I do in this organisation is meaningful to me	0.91			

used for follow-up analyses. Although PLS–SEM appears to be the choice when a small population restricts the sample size, it also works very well with large sample sizes (Hair *et al.*, 2019). Therefore, as recommended by Hair *et al.* (2011), we applied PLS–SEM to analyse the hypothesised model using Smart PLS Version 3.0 (Ringle *et al.*, 2015). The data was analysed in two steps, measurement (inner) and structural (outer) models, illustrated in the next section.

Findings

Measurement model

We examined item loadings, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha to confirm the measurement model at both organisation and individual levels. The items loaded highly on their own constructs than the other constructs. To ensure indicators of each construct measure what they are supposed to measure, we tested both convergent and discriminant validity of the constructs. Table II shows the item loadings, AVE, Cronbach's alpha and CR of the constructs at both organisation and individual levels.

As shown in Table II, the item loadings for all the constructs are in a satisfactory range above the recommended threshold of 0.7 except for a few items that loaded below 0.7. However, these items do not cause any problem and the fit remains high because the AVE and CR of the constructs are in a satisfactory range (Hair *et al.*, 2010). Additionally, the AVE values of the constructs range between 0.51 and 0.83 which are higher than the cut-off value of 0.5 (Fornell and Larcker, 1981; Hair *et al.*, 2010). The Cronbach's alpha and CR indices of all the constructs are above the threshold of 0.7 (Hair *et al.*, 2009). Consequently, we confirm the convergent validity and reliability of both organisation-level and individual-level models.

We applied heterotrait–monotrait ratio (HTMT) criterion, as a recommended approach, proposed by Henseler *et al.* (2015) to evaluate discriminant validity of the constructs at the organisation and individual levels. The HTMT ratio is measured through the average of heterotrait–heteromethod correlations (i.e. the correlations of indicators across constructs measuring different phenomena), relative to the average of monotrait–heteromethod correlations (i.e. the correlations of indicators within the same construct). As demonstrated in Tables III and IV, all HTMT values are below the threshold of 0.85, confirming the establishment of discriminant validity of the constructs (Clark and Watson, 1995; Kline, 2011).

To determine whether the data fit the model, we performed the standardised root mean square residuals (SRMR), defined as the difference between the observed correlation and the predicted correlation. As recommended by Henseler *et al.* (2016), SRMR is a goodness of fit measure for PLS–SEM to detect model misspecification. The estimated SRMR values for the study models are 0.10 (organisational level) and 0.04

(individual level), which are in the satisfactory range (Hu and Bentler, 1999), indicating a good fit of the data to the model.

Structural model

Prior to assessing the structural model, we assessed collinearity and observed no problem in the models as the values of variance inflation factor (VIF) for all predictors in the models were below the recommended value of 3.3 (Field, 2016; Henseler et al., 2017). We performed a non-parametric bootstrapping procedure with 5000 resamples to assess the structural model and test the significance of path models (Henseler et al., 2009). Table V shows the results of the bootstrapping with 206 (organisation model) and 508 (individual model) observations per sample, 5000 sub-samples and no sign changes.

As the results show, at the organisational level, organisational environmental culture is positively and significantly related to green HRM ($\beta = 0.37, p < 0.01$). Green HRM has a significant and positive association with organisation's environmental performance ($\beta = 0.29, p < 0.01$). Therefore, we support both H1 and H2. The R square value for environmental performance is 0.13 which means green HRM and organisational environmental culture can explain 13 per cent of the variance in environmental performance.

At the individual level, green HRM is positively and significantly related to both job satisfaction ($\beta = 0.24, p < 0.01$) and meaningfulness through work ($\beta = 0.26, p < 0.01$). Additionally, meaningfulness through work has a positive and significant relationship with job satisfaction ($\beta = 0.56, p < 0.01$). We have also found a significant indirect effect between

Table III.
Heterotrait–monotrait
ratio (HTMT) –
organisational level

	Environmental performance	Green HRM	Organisational environmental culture
Environmental performance	–	–	–
Green HRM	0.38	–	–
Organisational environmental culture	0.25	0.32	–

Table IV.
Heterotrait–monotrait
ratio (HTMT) –
individual level

	Green HRM	Job satisfaction	Meaningfulness through work
Green HRM	–	–	–
Job satisfaction	0.44	–	–
Meaningfulness through work	0.28	0.71	–

Table V.
Hypotheses and results
(organisation and
individual levels)

Hypothesis pathways	Path coefficient	t-value	Decision
<i>Organisational level</i>			
Organisational environmental culture → green HRM	0.37	6.69**	Supported
Green HRM → environmental performance	0.29	4.83**	Supported
<i>Individual level</i>			
Green HRM → job satisfaction	0.24	6.53**	Supported
Green HRM → meaningfulness through work	0.26	5.91**	Supported
Meaningfulness through work → job satisfaction	0.56	14.39**	Supported
Green HRM → meaningfulness through work → job satisfaction	0.15	5.18**	Supported
Notes: One-tailed level of confidence: * $p < 0.05$, (95 %) $t = >1.645$; ** $p < 0.01$, (99 %) $t \geq 2.33$			

green HRM and job satisfaction that confirms the mediating effect of meaningfulness through work ($\beta = 0.15, p < 0.01$). Consequently, we support H3 and H4. Furthermore, the R square value for job satisfaction is 0.45, which means 45 per cent of the variance in job satisfaction is explained by meaningfulness through work and green HRM. To test the predictive accuracy of the models, we performed the blindfolding procedure with an omission distance of 7. This generated cross-validated redundancy values (Q^2) of higher than zero for all variables, further supporting the predictive accuracy of both models (Fornell and Cha, 1994).

Discussion and conclusion

The current two-study investigation was set out to identify the antecedent and outcome of green HRM at the organisational level and the outcomes of green HRM at the individual level by focusing on the meditating role of meaningfulness through work. Study results provide support for all the hypotheses formulated in the study. In particular, we have found support for organisational environmental culture as a significant predictor and environmental performance as the significant outcome of green HRM at the organisational level. We have also supported the significant role of job satisfaction as the outcome of green HRM and demystified the mechanism through which green HRM is related to job satisfaction. Specifically, we provide evidence for the crucial role of meaningfulness through work as a mediator for the relationship between green HRM and job satisfaction of employees at the individual level. These findings contribute to both theory and practice which are discussed in the following sections.

Organisational level

According to the results, organisational environmental culture plays a crucial role in promoting green HRM at organisations, leading to better environmental performance. Green culture as a tool that encompasses employees' green values, belief and behaviours is vital to shape up organisational environment. As stated by DuBois and Dubois (2012), organisational culture is one of the key antecedents of green HRM, and our study findings provide support for this relationship. Organisational environmental culture as a strategic orientation of the organisations provides the foundation for implementing green HRM. When organisations are aware of environmental issues, set their mission to take a proactive role in dampening those issues and are concerned about their negative environmental impact, they build an organisational environmental culture where developing green employees becomes their priority. In other words, there is a trickle-down effect from the organisational environmental culture on practicing green HRM.

Moreover, we have found evidence for the environmental performance as the outcome of green HRM. This finding coincides with a number of studies in green HRM literature (Arda *et al.*, 2019; Daily *et al.*, 2012; Jabbour *et al.*, 2008; Roscoe *et al.*, 2019). Green HRM is an essential resource to attain organisational goals and enhance organisations' environmental performance via employee participation (Déniz *et al.*, 2003; Domínguez-Falcón *et al.*, 2016). In the same vein, López-Gamero *et al.* (2009) provided support for the key role that proactive environmental management, known as green HRM, plays in escalating organisation's environmental performance. Employees and their green activates lead to the organisation's success or failure in environmental performance (Wehrmeyer, 1996). Therefore, green HRM practices by promoting green activities from hiring to rewarding employees can contribute to an improved organisation's environmental performance.

Individual level

Another important finding of the present study is supporting the relationship between green HRM and an employee outcome (i.e. job satisfaction). In addition, the mechanism through

which green HRM leads to job satisfaction has been demystified, and meaningfulness through work has been found as a significant mediator in the study model. These relationships can be well explained through the lens of job characteristics theory ([Hackman and Oldham, 1976](#)). Specifically, green HRM by focusing on green training, providing green opportunities and rewarding promotes the three core values of job such as skill variety, task identity and task significance. These job core characteristics stimulate a psychological state in individuals, boosting their work meaningfulness. Employees' attitude and perception about their job can influence their job satisfaction.

Study results corroborate the findings of a study by [Chan and Hawkins \(2010\)](#), who found that when organisations took a proactive role towards environmental issues, although it added to employees' workload, they still highly identified themselves with their organisation and felt that their work is meaningful. In accordance with the present results, prior study by [Glavas and Kelley \(2014\)](#) demonstrated that higher level of meaningfulness through work leads to an increased level of job satisfaction. Being a central part of green HRM, CSR initiatives by [Shen and Benson \(2016\)](#), taken by organisations, develop a sense of identification in employees with their organisations and stimulate their sensemaking and work meaningfulness ([Aguinis and Glavas, 2019](#)). Consequently, the greener the working environment, the higher is employees' work meaningfulness, resulting in enhanced job satisfaction.

Theoretical implications

Our research helps us to better understand the antecedent and outcome of green HRM at the organisational level and the outcome of green HRM at the individual level. Findings of the current study are timely and relevant in the context of green HRM as [Ren et al. \(2018\)](#) identified a number of unexplored areas and called for further research into the field of green HRM. Particularly, they proposed that future research should look into green HRM at different levels involving both teams and organisation as well as individuals or employees as there is a paucity of knowledge in this area. They have also called for green HRM studies to identify antecedents and outcomes of green HRM and focus more on a wide range of employees' attitude and behaviours.

Accordingly, our two-study investigation using a double-perspective approach provides empirical understanding for the concept of green HRM at both organisation and individual levels. We contribute to the green HRM literature by supporting the relationship between organisational environmental culture and green HRM as well as green HRM with environmental performance. Organisational environmental culture is a core factor in green HRM practices and organisation's environmental performance. Furthermore, at the individual level, we focused on job satisfaction as employees' outcome, which is vital as employees are the main agents in implementing and practicing green activities in their organisations. One of the interesting findings of the study is the strong effect of meaningfulness through work and how green HRM can enhance employees' job satisfaction through work meaningfulness. Sensemaking and finding meanings in work are essential as work is a focal point in human activities. Thus, this study expands our understanding and knowledge about green HRM antecedents and outcomes. Specifically, using evidence from both emerging and developed economies, our research shows that proactive environmental activities taken by organisations not only enhance their environmental performance but also result in higher work meaningfulness and job satisfaction in employees.

Practical and managerial implications

The study has a number of significant practical and managerial implications. Green HRM can be used as one of the most effective strategies in enhancing organisation's environmental

performance, contributing to the United Nations Sustainable Development Goal 13 on Climate Action. However, implementing green HRM practices requires organisation to prepare the platform for environmental activities. This can be done by focusing on the organisational environmental culture as the driving force for implementing green initiatives. At the organisational level, top managers and executives should demonstrate their concern about environmental footprint of the organisation and show full support for environmental sustainability through integrating it in the mission and having it as a business objective and priority. Organisational environmental culture can be cascaded down to the middle and human resource managers to focus on employees' green practices that lead to better environmental performance.

As employees are the core elements of organisations and a valuable source of competitive advantage (Jiang *et al.*, 2012), they play as essential role in helping organisations in their pursuit of environmental sustainability. This can be achieved through practicing green HRM, which entails setting environmental performance measures, training employees to empower them in achieving the environmental goals and rewarding their environmental performance.

Limitations and direction for future research

Despite conducting two studies to shed more light on green HRM research from both organisational and employee angle, this study cannot provide causal evidence due to its research design. Nonetheless, this research provided empirical support for the significant association between organisational environmental culture and green HRM, which is consistent with the theoretical link proposed by Ren *et al.* (2018). This research relied on self-ratings and is also limited by its cross-sectional design. While our research design warranted collecting a larger sample size and hence enhancing the statistical power of our analyses, it limited us in controlling for CMB. In this research, we used a combination of a priori approach and statistical analysis to mitigate and assess CMB. However, future studies may use a longitudinal research design to minimise the CMB threat.

In addition, researchers can integrate organisational and individual levels of analysis in a single study using multi-level analysis to extend the analytical and predictive capabilities of their proposed model. Lastly, future studies can provide a more definitive casual evidence on the positive outcomes of greening the workforce through conducting an experimental design.

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