



Test of a moderated serial mediation model of management commitment to the ecological environment

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ABSTRACT

The purpose of our paper is to assess the interrelationships of management commitment to the ecological environment (MCEE), harmonious environmental passion (HEP), task-related and proactive pro-environmental behaviors (PEB), and qualitative job insecurity (QJIS) in a moderated serial mediation model. Data gathered from hotel customer-contact employees were utilized to gauge the aforementioned links. The results from the partial least squares structural equation modeling suggest that HEP and task-related PEB mediate the linkage between MCEE and proactive PEB in a sequential manner. The results further suggest that QJIS mitigates the influence of MCEE on HEP. More importantly, QJIS reduces the indirect positive impact of MCEE on proactive PEB through HEP and task-related PEB such that the indirect positive impact is lower among hotel employees with high QJIS than among hotel employees with low QJIS. Theoretical and practical implications are discussed.

1. Introduction

In a stiffening competitive marketplace where astute and discerning customers pay attention to the organization's environmental sustainability (ES) initiatives, the need for organizational investment in ES and greening of the work environment becomes inevitable (cf. Arshad et al., 2023; Filimonau et al., 2023; Zheng et al., 2023). The firm's environmental initiatives and green practices make such investments visible. Under the umbrella of signaling theory, the practices can be considered as the firm's signals, and top management makes the transmission of such signals to employees (Connelly et al., 2011). Environmental practices by top management can be studied based on their commitment to the ecological environment (Haldorai et al., 2022). Accordingly, employees' perceptions of management commitment to the ecological environment (MCEE) refers to their evaluations of a firm's commitment to eco-friendly activities in the motivation of staff to display ecological behaviors that would help the firm to achieve its ES goals. MCEE is a response to the investment in sustainability and greening of the work environment.

The ones employed in an organization where management is

committed to the preservation of the ecological environment do have the willingness to engage in ecological behaviors. This highlights employees' harmonious environmental passion (HEP), which denotes "...positive emotion that results in an individual wanting to engage in pro-environmental behaviors" (Robertson and Barling, 2013). Drawing on the motivational pathway in job demands-resources (JD-R) theory (Bakker and Demerouti, 2017), the presence of resources (e.g., green training) associated with MCEE is likely to boost employee motivation such as HEP that in turn gives rise to proactive PEB at elevated levels. As postulated by human capital theory (Ployhart and Moliterno, 2011), employees are likely to engage in ecological behaviors (e.g., proactive PEB) when they perceive that MCEE cultivates their green knowledge and skills that would engender task-related PEB.

On the other hand, if organizational members perceive that they are prone to qualitative job insecurity (QJIS), which refers to "...the uncertainty about the potential loss of (valued) aspects of the job, such as wages, working hours or the content of the job," (De Witte and Näswall, 2003), they lose their work motivation and exhibit negative outcomes. When critical job features such as quality of working conditions and promotion are threatened, employees are unlikely to be motivated to

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perform at high levels. Under the umbrella of psychological contract theory, we surmise that the presence of QJIS highlights the failure of the firm regarding the promises given to employees (Aselage and Eisenberger, 2003; Morrison and Robinson, 1997). This theoretical framework helps us to understand how employees' perceptions of breach in the psychological contract, as indicated by QJIS, would influence their trust in organization, motivation, and engagement in PEB.

Research indeed demonstrated that QJIS eroded job embeddedness, impaired employee voice behavior, diminished job satisfaction, physical health, and mental health, and aggravated proclivity to quit (Dogantekin et al., 2022; Hellgren et al., 1999; Medina et al., 2023). In the present paper, we contend that organizational members suffering from the threat of QJIS would not be involved in ecological behaviors and help the firm to attain its ES goals. In such a workplace where employees are prone to the risk of potential loss of valued job characteristics (Medina et al., 2023), QJIS is likely to mitigate the positive influence of MCEE on their HEP and the indirect positive effect of MCEE on their proactive PEBs, which denote employees' willingness to engage in ecological behaviors that exceed the requirements of the job (Bissing-Olson et al., 2013). That is, our study focuses on how HEP fosters proactive PEB for ES within organizations rather than voluntary acts for organizational performance in general.

By focusing on said relationships, our paper contributes and adds to the current hospitality literature. First, there is convincing evidence that employee engagement in PEB is of great importance to the accomplishment of the firm's ES goals. However, there are challenges and barriers that impede the successful implementation of green practices. For example, "...environmental concerns internally required from top-bottom and bottom-top approach...and... budget and cost that remain an issue for the top management..." are among these barriers (Tanveer et al., 2024). Despite this, very little is known about the firm's investment in the cultivation of workers' green capabilities through MCEE (Haldorai et al., 2022; Wei et al., 2023). More importantly, our detailed search of the pertinent literature signifies the absence of empirical research about the serial mediating mechanisms relating MCEE to the potential green behaviors. Although there are empirical pieces about MCEE, HEP, or employees' environmentally friendly behaviors (Aboramadan et al., 2022; Farrukh et al., 2023; Tuan, 2022), we still do not know whether MCEE fosters employees' proactive PEBs by motivating them to display task-related PEB, which shows employees' daily tasks to be performed in an eco-friendly way (Bissing-Olson et al., 2013). This is surprising because the ones employed in a firm where there is MCEE can display HEP that would result in better daily eco-friendly behaviors and, therefore, foster proactive PEB. Realizing the void in the hospitality knowledge base, we test HEP and task-related PEB as the *serial mediators* of the influence of MCEE on proactive PEB. This is the first empirical piece exploring the aforementioned association in the hospitality literature.

Second, when compared with empirical pieces on quantitative job insecurity, QJIS is one of the most critical job stressors that has been subjected to limited empirical inquiry (Currie et al., 2023; Dogantekin et al., 2022; Li et al., 2023). Though the pertinent literature demonstrates few studies about the relationship of job insecurity to PEB (Hur et al., 2024), there is no empirical research in the current literature showing that *employees' perceptions of an anticipated loss of valued aspects of the job* (QJIS) will erode their motivation to display eco-friendly behaviors. This is the first of its kind to explore the role of QJIS in MCEE, HEP, task-related PEB, and proactive PEB. On the one hand, management expects its employees to help achieve the firm's ES goals (Paillé, 2020). On the other hand, the risk of disrupted quality in the employee-employer relationship, such as lack of career opportunities, demotion, and salary decreases, would be the specific sign of QJIS (Nikolova et al., 2023a, b). With this recognition, we seek to understand whether QJIS mitigates the positive effect of MCEE on hotel workers' HEP and reduces the indirect positive effect of MCEE on their proactive PEBs via HEP and task-related PEB. In addition, investigating these

associations is *novel* since the hospitality literature is devoid of evidence that denotes QJIS as a stressor eroding the positive effect of MCEE on HEP and mitigating its positive impact on proactive PEBs via HEP and task-related PEB. Zaidi and Azmi's (2024) recent review and Katz et al.'s (2022) meta-analysis on workplace/worker PEB implicitly denotes the absence of the abovementioned associations in the pertinent literature.

Lastly, our research is in congruence with the United Nations' sustainable development goals 9 ("industry", "innovation", and "infrastructure"). This is because of the fact that MCEE, employees' HEP, and task-related and proactive PEBs can be considered as effective tools for the attainment of the firm's ES goals that would contribute to the wellbeing of the society and the globe.

Against the above backdrop, the current paper develops the following associations and tests them in a moderated serial mediation model. It assesses: (1) the link between MCEE and proactive PEB; (2) HEP as a mediator between MCEE and proactive PEB; (3) task-related PEB as a mediator of the association between MCEE and proactive PEB; (4) HEP and task-related PEB as the serial mediators relating MCEE to proactive PEB; (5) QJIS as a moderator of the impact of MCEE on HEP; and (6) the moderating role of QJIS on the indirect positive association of MCEE on proactive PEB through HEP and task-related PEB.

By exploring the abovementioned associations, our study addresses six decidedly research questions: (1) Does MCEE influence proactive PEB directly?; (2) Does HEP mediate the link between MCEE and proactive PEB; (3) Does task-related PEB mediate the influence of MCEE on proactive PEB?; (4) Do HEP and task-related PEB act as the serial mediators of the impact of MCEE on proactive PEB?; (5) Does QJIS moderate the effect of MCEE on HEP?; (6) Does QJIS moderate the indirect influence of MCEE on proactive PEB via HEP and task-related PEB?

2. Hypotheses development and research model

2.1. MCEE and proactive PEB

Signaling theory proposes, "...one party, the sender, must choose whether and how to communicate (or signal) that information, and the other party, the receiver, must choose how to interpret the signal" (Connelly et al., 2011). Therefore, we surmise that hotel top management's environmental practices are signals of commitment to the ecological environment, and these signals are transmitted to employees via top management. Workers, as the receivers of these signals, interpret them as the hotel's investment in ES. These workers' positive appraisal of the firm's environmental and green practices would trigger their involvement in proactive PEB.

In addition, top management's knowledge sharing about the ES program would ease the implementation process and encourage employees to get involved in ecological behaviors (Tanveer et al., 2024). Specifically, MCEE is a sign of human resource practices targeting at the advancement of workers' green knowledge and green skills (Haldorai et al., 2022). For instance, in a workplace where management shows its commitment to the ecological environment, employees avail themselves of green training programs, green rewards, and/or green teamwork (cf. Karatepe et al., 2022). Consequently, hotel workers with favorable perceptions of MCEE would enable the organization to succeed and survive via their engagement in PEB or voluntary environmental practices. Simply put, when employees sense an organization's commitment to the ecological environment, they are more likely to engage in PEBs beyond their assigned duties (Graves et al., 2019). Accordingly, it is advanced that:

H1. MCEE relates positively to proactive PEB.

2.2. HEP as a mediator

The motivational pathway in JD-R theory proposes that job resources, due to their intrinsic and motivational roles, bolster employees'

learning efforts and are instrumental in the attainment of work goals (Bakker and Demerouti, 2017). Such employees are motivated to demonstrate positive affective and behavioral consequences. This signifies the job resources – motivation – outcomes linkage. Empirical studies have also reported evidence about this linkage (e.g., Ozturk et al., 2021; Radic et al., 2020).

In light of the information given above, we surmise that the presence of green work-associated resources such as green training and green rewards as well as green teamwork emanating from MCEE would trigger employees' motivation (HEP) to participate in solving environmental problems and engage in ecological behaviors. Without MCEE, no one can expect employees to demonstrate personal initiatives and a self-initiated pro-environmental approach that is not formally required for the position in the workplace. The pertinent empirical pieces illustrated that HEP had a mediating role in the linkage between green leadership styles and PEB (Li et al., 2020; Peng et al., 2021; Robertson and Barling, 2013). In view of the information given above, the following hypothesis is propounded:

H2. HEP mediates the effect of MCEE on proactive PEB.

2.3. Task-related PEB as a mediator

Tang et al.'s (2023) review implicitly demonstrates that employees' green behaviors are considered as a part of human resource management, and the firm's investment in human resource practices boosts workers' green capabilities. Establishing green standards through the ES program, defining clear green goals employees can accomplish, and allowing employees to contribute to the ES program independently would indicate management's commitment to ES (cf. Patwary et al., 2023). Accordingly, we surmise that MCEE encourages employees to view routine tasks through an eco-friendly lens. The organizational emphasis on the ES program, which is established by green standards and clear goals, instills a sense of responsibility in employees to complete routine tasks in an environmentally conscious manner (cf. Haldorai et al., 2022). Employees, under the influence of MCEE and the established green standards, not only fulfill routine tasks in an eco-friendly way but also actively contribute to the overarching goals of the ES program. The alignment of individual tasks with the hotel's environmental goals would become a natural extension of MCEE, fostering engagement in proactive PEBs.

As highlighted by human capital theory (Ployhart and Moliterno, 2011), employees' task-related PEB is enabled by the firm's proclivity to cultivate workers' green knowledge and green skills. This is important because employees' green human capital, which is "a valuable, rare, and inimitable resource" (Tang et al., 2023, p. 302), would trigger the firms' green competitive advantage. These employees would, in turn, seek to engage in proactive PEB to help the firm achieve ES goals. Thus, the following hypothesis is advanced:

H3. Task-related PEB mediates the effect of MCEE on proactive PEB.

2.4. HEP and task-related PEB as the serial mediators

Hypotheses 1–3 implicitly suggest that HEP and task-related PEB serially mediate the influence of MCEE on proactive PEB. Specifically, to accomplish ES goals, management should be the unyielding and persistent champion of commitment to ES (Haldorai et al., 2022). Based on signaling theory (Connelly, 2011), we posit that the hotel top management's environmental or green practices would be the signals of its commitment to the ecological environment. In congruence with JD-R theory (Bakker and Demerouti, 2017), workers' favorable perceptions of MCEE would trigger their motivation to exhibit engagement in proactive PEBs. Not surprisingly, such individuals are ready to contribute to the hotel via their novel green ideas for improvement in eco-friendly services and proactive PEB (cf. Farrukh et al., 2024). The presence of work-associated resources arising from MCEE fosters employees'

harmonious passion for the environment that would result in elevated levels of proactive PEBs.

As asserted by human capital theory (Ployhart and Moliterno, 2011), employees would be ready to display proactive PEB when they have positive perceptions of MCEE that would be associated with management's investment in the cultivation of workers' green capabilities. That is, task-related PEB is enabled by the hotel's propensity to provide green knowledge and skills to employees. Employees high on harmonious passion for the environment would be willing to display task-related PEB as a result of the hotel's investment in the development of employees' green capabilities. Under these conditions, such employees would exhibit high levels of proactive PEB. Hence, the following hypothesis is proposed:

H4. HEP and task-related PEB serially mediate the influence of MCEE on proactive PEB.

2.5. QJIS as a moderator

Employees' unfavorable perceptions of QJIS reduce the positive effect of MCEE on their HEP. Specifically, QJIS, which denotes employees' fear of the potential loss of their job's valued aspects such as absence or lack of career opportunities, deteriorating working conditions, and diminished salary increase (Hellgren et al., 1999; De Witte and Näswall, 2003), is a sign of psychological contract breach (Costa and Neves, 2017).

According to psychological contract theory (Aselage and Eisenberger, 2003; Morrison and Robinson, 1997), employees obtaining valuable resources based on the norm of reciprocity (e.g., training and development) from the firm would feel obliged to help the firm to reach its goals. However, the presence of QJIS in an organization demonstrates that the firm or management has failed to fulfill its promises or obligations and maintain a long-term employment, which highlights "reneging" (Kaya and Karatepe, 2020; Morrison and Robinson, 1997). Reneging erodes employees' perceptions of trust in their organization, where they are expected to be involved in ecological behaviors for the attainment of ES goals. Jiang et al.'s (2021) meta-analytic work also underscored the importance of organizational trust in diminishing QJIS. Under these conditions, QJIS would reduce the positive impact of MCEE on employees' motivational resources or HEP and impede their ecological behaviors. Surprisingly, there is no evidence in the pertinent literature assessing QJIS as a moderator on the link between MCEE and HEP. Thus, we propose that:

H5. QJIS mitigates the positive effect of MCEE on HEP such that the positive effect is lower among hotel employees with high QJIS than among hotel employees with low QJIS.

2.6. Moderated serial mediation effect

Human capital denotes the organization's/department's composition of workers' knowledge, skills, and abilities as well as other characteristics (Ployhart and Moliterno, 2011). Organizational members assembled for a common purpose are expected to engage in ecological behaviors since management establishes an environment that promotes green capabilities among employees using green training and development and green teamwork. Management commitment to ES is a driver of employees' PEBs (Graves et al., 2019) and cultivates employees' green employees' behaviors via a bundle of green practices (Tang et al., 2023).

In addition, the signs of management commitment to ES motivate employees or foster their HEP to display proactive PEBs. Green work-associated resources offered by management as a result of its commitment to the ecological environment result in better motivational resources such as HEP that in turn give rise to elevated proactive PEBs. However, if employees are prone to the threat of potential loss of critical job features (e.g., concerns about the person-organization fit, loss of autonomy, and salary decreases), their motivation/willingness to

exhibit PEBs despite the signs of the firm’s commitment to ES would reduce. This is also observed in organizations where employees are not motivated to demonstrate job performance due to the negative messages received from QJIS (Chirumbolo et al., 2020). Under these conditions, it would be very difficult to restore the workers’ sense of belongingness to the firm. In short, QJIS decreases the indirect positive influence of MCEE on proactive PEB vis HEP and task-related PEB. Hence, it is hypothesized that:

H6. QJIS mitigates the indirect positive effect of MCEE on proactive PEB through HEP and task-related PEB such that the indirect positive effect is lower among hotel employees with high QJIS than among hotel employees with low QJIS.

Fig. 1 shows the research model that consists of the direct, mediating, serial mediating, moderating, and serial moderated mediating impacts. Gender and organization tenure were the controls in this study.

3. Method

3.1. Sample and data collection

Data were collected from full-time hotel customer-contact employees in Ankara, the capital city of Türkiye. The judgmental sampling technique was employed to ascertain the hotels and employees. Specifically, 4- and 5-star hotels were chosen due to the fact that they invested in greening of the workplace and ES. This is consistent with the work of Hsiao et al. (2018). Employees with frequent interactions with customers were invited to partake in the study because they are the brand ambassadors of the firm and should satisfy management and customers and meet the firm’s ES goals (Karatepe et al., 2021). As a result of the researchers’ professional network, 2 4-star and 11 5-star hotels partook in our research.

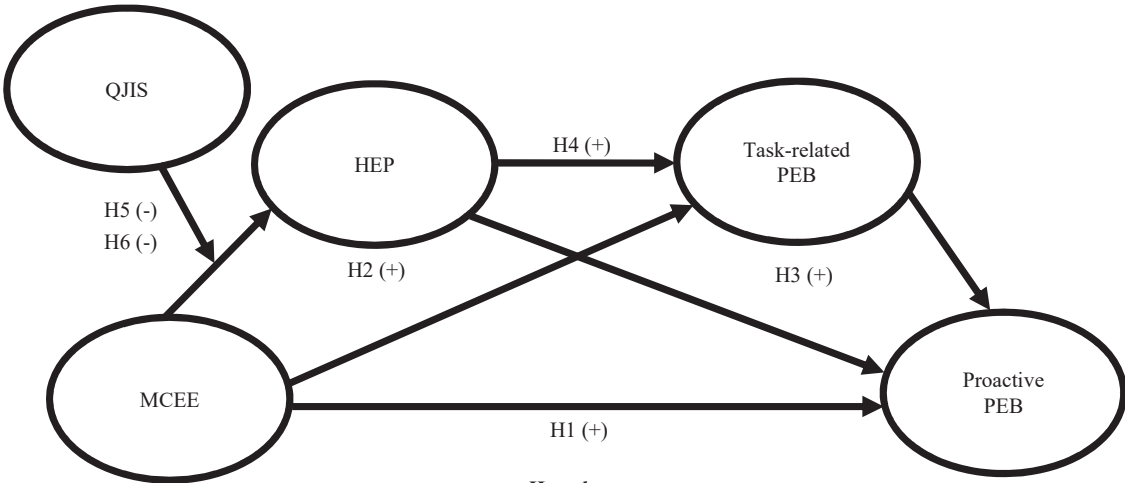
The representatives in each hotel distributed the surveys to employees. Of the 300 questionnaires distributed, 200 were returned.

However, 21 questionnaires were discarded because of missing data in various items. One hundred and seventy-nine questionnaires were included in the analysis. We reached a response rate of 59.7%. Table 1 depicts the respondents’ profile.

This work was designed to understand the relationships between the study variables based on an employee-level analysis. Consonant with this approach, employee self-report data were used. Since this system can incur problems related to common method variance, procedural and statistical remedies were used in view of Podsakoff et al.’s (2003) recommendations. For procedural remedies, the first page of the survey consisted of such information: “Management of your hotel fully endorses participation,” “Participation is voluntary but encouraged,” “There are no right or wrong answers in this questionnaire”, “Any sort of information collected during our research will be kept confidential”, and “Agreeing to fill out this questionnaire shows your consent.” Each

Table 1
Sample characteristics (n=179).

Variables	Frequency (%)
Gender	
Female/Male	58(32.4)/121(67.6)
Age	
18–27/28–37/38–47/48–57/ 58–67	37(20.7)/66(36.9)/55(40.7)/16(8.9)/5(2.8)
Organizational tenure	
<1/1–5/6–10/11–15/ 16–20/>20	30(16.8)/88(49.2)/36(20.1)/13(7.3)/6(3.3)/6(3.3)
Hotel star rating	
4-star/5-star	31(17.3)/148(82.7)
Education	
Primary school	8(4.5)
Secondary and high school	45(25.1)
2-year college degree	37(20.7)
4-year college degree	79(44.1)
Graduate degree	10(5.6)



Hypotheses

- H1:** MCEE relates positively to proactive PEB.
- H2:** HEP mediates the effect of MCEE on proactive PEB.
- H3:** Task-related PEB mediates the effect of MCEE on proactive PEB.
- H4:** HEP and task-related PEB serially mediate the influence of MCEE on proactive PEB.
- H5:** QJIS mitigates the positive effect of MCEE on HEP such that the positive effect is lower among hotel employees with high QJIS than among hotel employees with low QJIS.
- H6:** QJIS mitigates the indirect positive effect of MCEE on proactive PEB through HEP and task-related PEB such that the indirect positive effect is lower among hotel employees with high QJIS than among hotel employees with low QJIS.

MCEE=Management Commitment to the Ecological Environment; HEP=Harmonious Environmental Passion; PEB=Proactive Pro-Environmental Behavior QJIS=Qualitative job insecurity.

Fig. 1. Research model.

respondent returned the survey in a sealed envelope.

Regarding the statistical remedies, two complementary methods were used. On one hand, we employed Harman’s single factor test. The finding from the unrotated exploratory factor analysis demonstrated that the first factor explained 32.29% of the total variance. It was much lower than the 50% threshold (Podsakoff et al., 2003). Along with the above, we measured the latent marker variable technique (Rönkkö and Ylitalo, 2011). This technique proposes the addition of a theoretically unrelated variable to the model. The (non)significance of the correlation effects did not show amendments with or without the marker variable. These findings denoted that common method variance was not a concern in the paper.

Finally, we sought to confirm that the sample size reached sufficient statistical power to test the relationships included in the proposed theoretical model. We conducted a statistical F-test based on these parameters: medium effect size ($f^2=0.150$), α error probability at a level of 0.05, and power (1- β error probability) at a level of 0.95. Additionally, the most complex multiple regression of the model included 5 paths directed to the latent dependent variable proactive PEB. This test yielded evidence that a sample of, at least, 138 cases was necessary to determine the proposed relationships. Additionally, to estimate the minimum sample size, we use a method that meets the most current recommendations for an analysis based on partial least squares (PLS) structural equation modeling (e.g., Guenther et al., 2023; Hair et al., 2024). That is, we utilized the inverse square root method developed by Kock and Hadaya (2018). Following these authors’ recommendation for a significance level determined at 5%, the minimum sample size was calculated as:

$$n_{min} > \left(\frac{2,486}{|0,208|} \right)^2 = 142.848$$

Therefore, a sample composed of more than 143 cases is sufficient to reliably estimate the model proposed in our research. Given that the sample used was made up of 179 respondents, we confirmed adequate statistical power to test the proposed theoretical model.

3.2. Measures

We used the back-translation method to prepare the survey instrument, which was tested via a pilot sample 10 employees in customer-contact positions regarding the comprehensibility of the items. There was no compelling reason to make changes in the survey instrument. Responses to the items in MCEE were recorded via “7 = strongly agree” to “1 = strongly disagree”, while responses to the items in HEP and QJIS were rated via “5 = strongly agree” to “1 = strongly disagree”. Responses in task-related and proactive PEBs were elicited on “5 = always” and “1 = never”.

We borrowed 6 items from Erdogan et al. (2015) to measure MCEE. An example item is “My hotel is committed to preserving and protecting the environment”. Eight items from Brondino et al. (2020) were tapped to measure QJIS. One of the items used is “I worry I might get another supervisor in the future”. HEP was assessed via 9 items from Robertson and Barling (2013). An example item is “I am passionate about the environment”. Task-related PEB was measured using 3 items. Proactive PEB was also operationalized utilizing 3 items; each of these was received from Bissing-Olson et al. (2013). A sample item for task-related PEB is “I adequately complete assigned duties in environmentally-friendly ways”. A sample item for proactive PEB is “I take a chance to get actively involved in environmental protection at work”.

We controlled for gender and organizational tenure on the basis of recent empirical pieces (Agrawal and Pradhan, 2023; Karatepe et al., 2022). Organizational tenure was measured in years, while gender was coded as “0 = male” and “1 = female”.

3.3. Data analysis

The proposed model was tested by structural equation modeling using PLS technique. PLS is a suitable technique for several reasons. First, our research aimed to prove the existence of both serial mediation and moderated serial mediation relationships. It has been pointed out that PLS is a robust and adequate technique when the theorized model is complex from the proposed relationships point of view (Hair et al., 2024, 2019). Second, all variables included in the model represented employee behaviors or perceptions. Following the recommendations of previous research, these behavioral composites were specified as reflective, where the indicators did not compose the composite but reflected it (Hair et al., 2024). PLS can consistently estimate models composed entirely of unobservable composites measured in reflexive mode (Henseler et al., 2016). Finally, since PLS has shown equally robust results from samples that follow both a normal and non-normal distribution (Hair et al., 2024), this study made no assumptions about the distribution of the data. Our assessment of both measurement and structural models were performed using SmartPLS V.4 software.

4. Results

Since our research has a confirmatory objective, we consider the global goodness of fit of the model as the starting point of our analysis (Henseler et al., 2016). We start by evaluating the standardized root mean square residual (SRMR) index. From a broad point of view, a maximum threshold of 0.08 for SRMR has been proposed as a way to approximate a model fit (Hair et al., 2024). From a stricter point of view, it has also been suggested that confirmatory studies should ensure an exact fit of the model by means of inferential statistics (Henseler et al., 2016). Therefore, we use 3 exact fit criteria: SRMR, d_{ULS} (“Unweighted Least Squares distance”), and d_G (“Geodesic distance”). These tests rely on the bootstrap process to determine the probability of obtaining discrepancies between the implicit correlation matrix in this study’s model and the correlation matrix (Henseler et al., 2016).

Following the criterion proposed by Henseler et al. (2016), the value obtained from the bootstrap test for the three discrepancy criteria must be less than the limit set by the 95th quantile from a strict point of view. In our data, the values obtained for “SRMR”, “ d_{ULS} ” and “ d_G ” were lower than the 95th quantile (HI_{95}) in both the saturated and estimated models (see Table 2). These results suggest that the data does not consist of more information than that proposed in the model. Hence, it cannot be rejected from a confirmatory perspective (Henseler et al., 2016).

4.1. Test of the measurement model

We follow the guidelines proposed by Hair et al. (2019). Construct reliability is the first criterion to be evaluated. We jointly use Cronbach’s Alpha (α), composite reliability (CR), and Dijkstra-Henseler’s statistics (ρ_A). Because α is a conservative measure of reliability (lower threshold) and CR tends to produce overestimates (upper threshold), Hair et al. (2024) have recommended reporting them jointly, assuming that the real reliability is normally between both values. As given in Table 3, the values obtained for these 3 statistics were above the 0.707 threshold,

Table 2
Model global fit evaluation.

Discrepancy	Saturated Model			Estimated Model		
	Value	HI_{95}	Conclusion	Value	HI_{95}	Conclusion
SRMR	0.053	0.060	Supported	0.055	0.061	Supported
d_{ULS}	1.052	1.364	Supported	1.127	1.401	Supported
d_G	0.542	0.674	Supported	0.545	0.675	Supported

SRMR=Standardized Square Root Mean Residual; d_{ULS} =Unweighted Least Squares distance; d_G =Geodesic distance; HI = High interval limit within the confidence interval.

Table 3
Reliability and convergent validity check.

Item Code	Factor Loading	α	ρ_A	CR	AVE
Management Commitment to the Ecological Environment					
MCEE1	0.928	0.958	0.964	0.966	0.825
MCEE2	0.922				
MCEE3	0.912				
MCEE4	0.929				
MCEE5	0.865				
MCEE6	0.891				
Harmonious Environmental Passion					
HEP1	0.781	0.927	0.935	0.939	0.633
HEP2	0.861				
HEP3	0.857				
HEP4	0.782				
HEP5	0.822				
HEP6	0.826				
HEP7	0.839				
HEP8	0.637				
HEP9	0.730				
Task-related Pro-Environmental Behavior					
Task-related_PEB1	0.860	0.882	0.904	0.927	0.808
Task-related_PEB2	0.934				
Task-related_PEB3	0.901				
Proactive Pro-Environmental Behavior					
Proactive_PEB1	0.897	0.899	0.900	0.937	0.832
Proactive_PEB2	0.945				
Proactive_PEB3	0.894				
Qualitative job insecurity					
QUAL1	Dropped	0.858	0.858	0.884	0.561
QUAL2	Dropped				
QUAL3	0.763				
QUAL4	0.710				
QUAL5	0.669				
QUAL6	0.669				
QUAL7	0.832				
QUAL8	0.806				

α =Cronbach's Alpha; ρ_A =Dijkstra-Henseler's statistic; CR=Composite Reliability; AVE=Average Variance Extracted.

Factor loadings (one-tailed test) are significant at the 0.01 level or better.

ensuring the reliability of the construct (Hair et al., 2024, 2019).

In addition, we used factor loadings to gauge the reliability of the indicators. The general criterion assumes that the loadings of all indicators of a reflective construct must be greater than 0.7 and statistically significant (Hair et al., 2019). As Table 3 shows, factor loadings for the items in our study generally met these criteria. Decisions to keep or remove items that did not meet the threshold were made following the criteria described in Hair et al. (2024). Thus, 2 items whose factor loadings were less than 0.4 were eliminated, while the convenience of eliminating items with significant loadings greater than 0.4 and less than 0.7 was considered on a case-by-case basis according to its impact on the composite reliability values. Following Hair et al.'s (2024) recommendations, 3 items with values 0.637, 0.669, and 0.699 were maintained since their removal did not increase the reliability values and considering their contribution to content validity. Finally, convergent validity was analyzed through average variance extracted (AVE). As demonstrated in Table 3, all the constructs reached values higher than the 0.50 threshold (Hair et al., 2019). Hence, discriminant validity was corroborated.

Table 4
Discriminant validity check.

Variables	Fornell-Larcker's Criterion					Heterotrait-Monotrait Criterion				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
(1)Management commitment to the ecological environment	0.908									
(2)Harmonious environmental passion	0.367	0.796				0.382				
(3)Task-related pro-environmental behavior	0.465	0.533	0.899			0.488	0.578			
(4)Proactive pro-environmental behavior	0.422	0.634	0.654	0.912		0.450	0.693	0.717		
(5)Qualitative job insecurity	-0.253	-0.089	-0.101	-0.032	0.749	0.278	0.094	0.101	0.073	

To assess discriminant validity, 2 complementary criteria were utilized. First, we used Fornell and Larcker's method (Fornell and Larcker, 1981). As illustrated in Table 4, $\sqrt{\text{AVE}}$ of the AVE of each construct was larger than its correlation with any other constructs. On the other hand, we tapped the Heterotrait-Monotrait (HTMT) criterion. Different authors have suggested that HTMT is the most appropriate method to assess discriminant validity in a PLS context (Hair et al., 2024). Table 4 denoted that all HTMT values were below the conservative threshold set at 0.85 to ensure that each model construct captured different phenomena (Henseler et al., 2015). In short, discriminant validity was verified. Summary statistics and correlations were given in the Appendix.

4.2. Test of the structural model

Prior to the test of the structural model, analyses based on the variance inflation factor (VIF) should be performed to eliminate the possibility of collinearity among the variables. In our results, the VIF values for all the constructs were in the range between 1.003 and 1.581. It has been pointed out that values greater than 3 could reveal the existence of collinearity problems between the variables (Hair et al., 2019). Since our data yielded values far outside this threshold, multicollinearity was not a concern in our data, and no further testing was necessary.

The hypotheses test included in the proposed model was carried out by bootstrapping test from 5000 samples (one-tail test). We assessed the significance, algebraic sign, and magnitude of the regression coefficients, the effect size (f^2), and the values of explained variance (R^2) for each endogenous composite. We presented the results obtained for this test in Table 5.

Our results illustrated that MCEE was not significantly related to proactive PEB ($\beta=0.092$, $p_{\text{one-tailed}}>0.073$). Therefore, hypothesis 1 was not supported. The analysis of the mediation and serial mediation hypotheses (hypotheses 2–4) was carried out following the guidelines recommended by Carrion et al. (2017). Results for the direct effects (a_1 , a_2 , a_3 , b_1 , b_2 y c') that explained the mediated effects were included in Table 5 for the greater transparency of the results. Thus, our data confirmed that HEP positively mediated the relationship between MCEE and proactive PEB ($\beta=0.143$, $p_{\text{one-tailed}}<0.000$), confirming hypothesis 2 (a_1b_1). In the same way, we confirmed the mediating effect of task-related PEB ($\beta=0.127$, $p_{\text{one-tailed}}<0.001$) in the association between MCEE and proactive PEB proposed in hypothesis 3 (a_2b_2). Finally, hypothesis 4 suggested that HEP and task-related PEB would act as serial mediators between MCEE and proactive PEB (that is, $a_1a_3b_2$). The test results ($\beta=0.063$, $p_{\text{one-tailed}}<0.001$) verified hypothesis 4. In summary, MCEE did not have a direct effect on proactive PEB, which revealed that HEP or task-related PEB completely mediated the linkage between MCEE and proactive PEB and HEP and task-related PEB completely mediated the association between MCEE and proactive PEB in a serial manner.

To gauge the proposed moderation effects in hypotheses 5 and 6, we introduced an MCEE*QJIS interaction term in the model. In our results (Table 5), the moderating effect of QJIS on the relationship between MCEE and proactive PEB was significant and negative ($\beta=-0.208$, $p_{\text{one-tailed}}<0.024$), confirming hypothesis 5. This moderating effect was also

Table 5

Results: test of hypotheses.

	Path Coefficient (p-values)	t-values	CI	f ²	Conclusion
Direct effects test					
a ₁ :MCEE->HEP	0.373 (0.000)	4.740	0.243;0.500	0.159	
a ₂ :MCEE->Task-related PEB	0.311 (0.000)	3.880	0.174;0.438	0.148	
a ₃ :HEP->Task-related PEB	0.419 (0.000)	5.905	0.294;0.528	0.240	
b ₁ :HEP->Proactive PEB	0.383 (0.000)	5.677	0.270;0.491	0.227	
b ₂ :Task-related PEB->Proactive PEB	0.407 (0.000)	5.473	0.277;0.520	0.232	
c':MCEE->Proactive PEB (H1)	0.092 (0.073)	1.453	-0.010;0.197	0.014	Not supported
Mediating effects test					
a ₁ b ₁ :MCEE->HEP->Proactive PEB (H2)	0.143 (0.000)	3.791	0.090;0.217		Supported
a ₂ b ₂ :MCEE->Task-related PEB->Proactive PEB (H3)	0.127 (0.001)	3.204	0.069;0.196		Supported
a ₁ a ₃ b ₂ :MCEE->HEP->Task-related PEB->Proactive PEB (H4)	0.063 (0.001)	2.996	0.038;0.108		Supported
Total Indirect Effects (MCEE on Proactive PEB)	0.333 (0.000)	6.795	0.255;0.415		
Total Effects (MCEE on Proactive PEB)	0.425 (0.000)	6.124	0.305;0.534		
Moderating effects test					
MCEE*QJIS->HEP (H5)	-0.208 (0.024)	-1.975	-0.351;-0.062	0.060	Supported
MCEE*QJIS->HEP->Task-related PEB->Proactive PEB (H6)	-0.021 (0.044)	-1.702	-0.078;-0.011		Supported
Control variable effect					
Gender->Proactive PEB	-0.121 (0.316)	-1.003	-0.346;0.126	0.007	
Organizational tenure->Proactive PEB	-0.086 (0.040)	-2.056	-0.166;-0.002	0.014	
Endogenous variable					
	R ²		Adjusted R ²		
HEP	0.184		0.170		
Task-related PEB	0.368		0.360		
Proactive PEB	0.548		0.540		

MCEE=Management Commitment to the Ecological Environment; HEP=Harmonious Environmental Passion; PEB=Proactive Pro-Environmental Behavior; QJIS=Qualitative job insecurity. CI=Bootstrapping Confidence

Interval based on t[9999] one-tailed test; Control variable test based on t[9999] two-tailed.

shown through the slope graph for high and low levels of QJIS (Fig. 2). Thus, it is possible to observe how the relationship between MCEE and proactive PEB maintains a steep positive slope for low QJIS values, while high values of the moderator (QJIS) change the main relationship, which now has only a slightly positive slope (dotted line).

We assessed the effect of moderated serial mediation proposed in hypothesis 6. Our data showed a significant and negative effect when considering QJIS as a moderator on the relationship between MCEE and proactive PEB serially mediated by HEP and TPBE ($\beta=-0.021$, $p_{one-tailed}<0.044$). This confirmed hypothesis 6. That is, the indirect effect of the serial mediation was conditioned by the values of the moderator. It is possible to observe this conditioned effect from the slope graph represented in Fig. 3 for high and low values of QJIS.

An examination of R² helped us determine the explanatory power of the variables included in the model. Different authors have shown their agreement in determining that a threshold of around 0.200 is recommended when employee behaviors or attitudes are analyzed (Chin, 2010; Hair et al., 2024). Table 5 indicated that the value of R² for all the variables was always in accordance with this threshold. To test the effect size (f²), we tapped the criteria indicated by Cohen (1992). More specifically, the f² values for H1(c') were below 0.02, confirming that MCEE had no effect on proactive PEB. For the associations tested in hypotheses 2, 3, 4, and 6 (that is, a₁, a₂, a₃, b₁, and b₂), the values of f² ranged between 0.148 and 0.240 (see Table 5). These values should be considered as a medium effect in light of Cohen's (1992) classification. Since hypothesis 5 has presented an interaction hypothesis, some different considerations must be considered when evaluating its value of f² to avoid underestimating its effect. Different scholars have shown that when testing interactive relationships, a more adequate criterion to classify the effect size could be greater than 0.005 for a small effect, 0.01 for a medium effect, and 0.025 for a large effect (e.g., Aguinis et al., 2005; Hair et al., 2024) because the average value of f² in this type of relationship is around 0.009. Therefore, since in our results, hypothesis 5 had a value of 0.060 for f², its effect should be classified as large.

Regarding the control variables, gender did not show a significant effect ($\beta=-0.121$, $p_{two-tailed}>0.316$). Although the relationship between organizational tenure and the result variable of the model was significant ($\beta=-0.086$, $p_{two-tailed}<0.040$), a value for f² of 0.014 showed that organizational tenure had no effect on proactive PEB (Cohen, 1992). Despite this lack of effect, complementary analyses were performed to rule out that organizational tenure could be a boundary condition in determining the findings of our model. Therefore, the possible moderating role of this control variable on all the hypothesized relationships was analyzed. None of these analyses confirmed the moderating capacity of organizational tenure.

4.3. Importance-performance map analysis

To broaden our understanding about the impact of the different variables of the model on the dependent variable (proactive PEB), complementary analyses were carried out in terms of importance-performance. Importance-performance map analysis (IPMA) was used to extend the standard reporting of PLS results (Hair et al., 2024). In IPMA, the total direct and indirect effects of each predictor construct on the target construct (importance) were compared with the mean scores of each latent variable readjusted to a scale of 0–100 (performance). To develop this analysis, we followed the procedure described by Ringle and Sarstedt (2016), capturing the importance-performance data of our model in various scatter plots (maps) that helped us interpret its impact.

In our data, IPMA at the construct level (Fig. 4) revealed that QJIS performed relatively poorly compared to the rest of the constructs in the model. However, the rest of the variables (MCEE, HEP, and TPBE) were located within, or very close to, the upper right quadrant of the map,

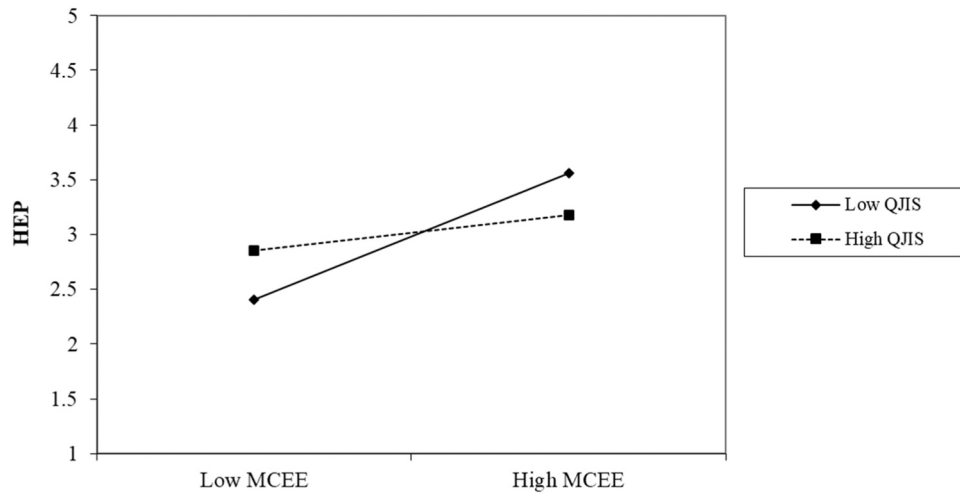


Fig. 2. Qualitative job insecurity (QJIS) as a moderator of the association between management commitment to the ecological environment (MCEE) and harmonious environmental passion (HEP).

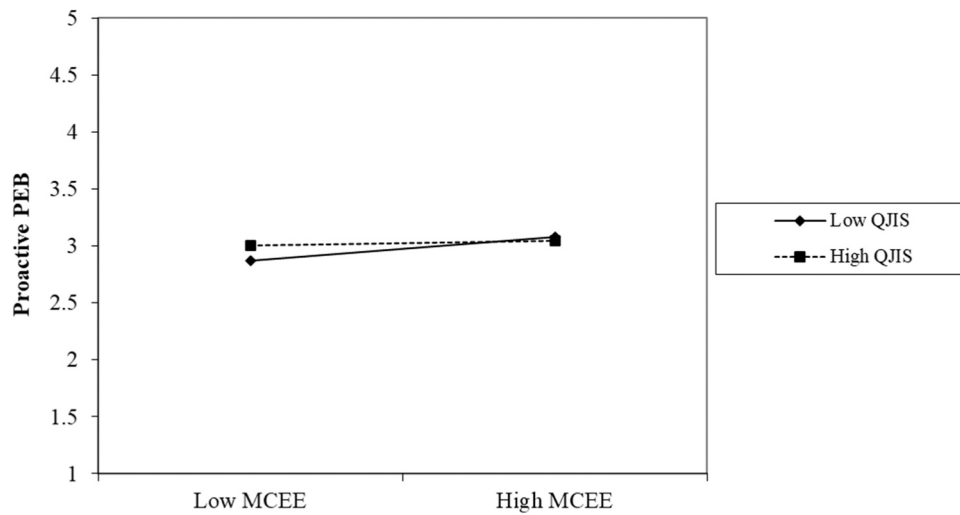


Fig. 3. Qualitative job insecurity (QJIS) as a moderator of the indirect serial relationship between management commitment to the ecological environment (MCEE) and proactive pro-environmental behavior (PEB).

which denoted high importance and high performance. Specifically, the HEP performance was slightly below the limit indicated by the mean values for all the constructs (represented by the horizontal line). On the other hand, with a total effect of 0.554, this was a particularly important construct for the model. That is, achieving an increase in the scores of the employees when assessing this construct in one unit (this was an increase in the performance of HEP from the current 50.4–51.4) would result in an increase in the performance of the objective variable proactive PEB in 0.554 points. In short, in terms of importance-performance, working on HEP would provide the best results on proactive PEB. The same analysis was carried out at the indicator level for the model variables that had a significant impact (MCEE, HEP, and task-related PEB) on proactive PEB. These analyses were presented in Figs. 5, 6, and 7 that allowed us to understand which indicators included in each construct were particularly impactful for proactive PEB. For instance, in the case of HEP (Fig. 6), it would be especially interesting to work on HEP2, HEP3, HEP6 and HEP7 to achieve an efficient increase in proactive PEB.

5. Discussion

5.1. General findings

We assessed a moderated serial mediation model that consisted of direct, mediating, serial mediating, moderating, and moderated serial mediating effects. Results delineated support for the hypotheses, excluding the one associated with the direct effect of MCEE on proactive PEB. Accordingly, the research model we proposed in the present paper was viable. The lack of significant association between MCEE and proactive PEB highlights the need for a mediating mechanism. Employees are likely to have the motivational resource or the positive emotion to perform green tasks beyond the expectations of the job. In congruence with JD-R theory (Bakker and Demerouti, 2017), green work-associated resources emanating from MCEE would foster employees' HEP that would in turn result in better proactive PEB. Consistent with human capital theory (Ployhart and Moliterno, 2011), the hotel's propensity to develop workers' green knowledge and green skills would enable them to exhibit task-related PEB (Tang et al., 2023). This finding denotes the critical role of MCEE in the enhancement of task-related PEB, giving rise to elevated proactive PEB.

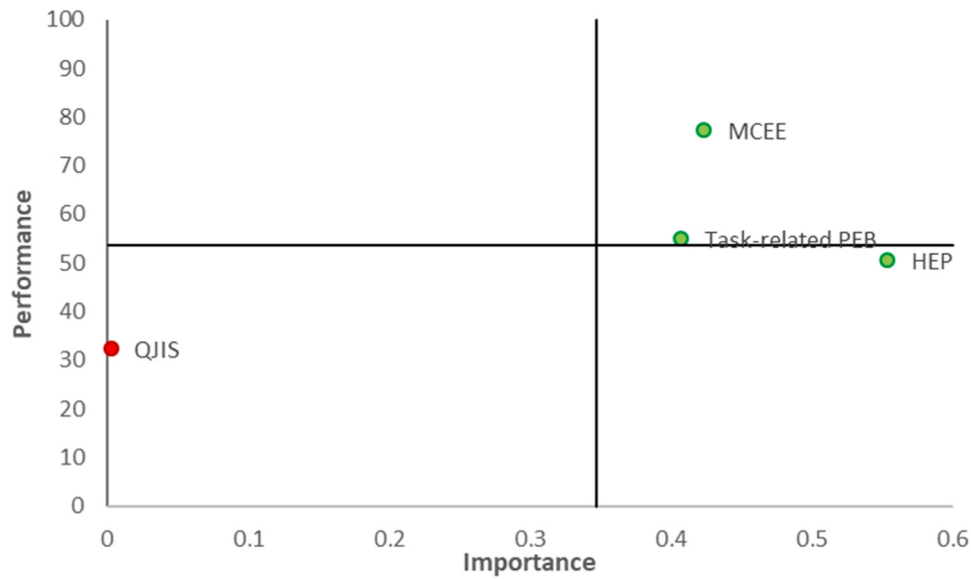


Fig. 4. Importance-Performance map at the construct level on the dependent variable Proactive PEB (proactive pro-environmental behavior).

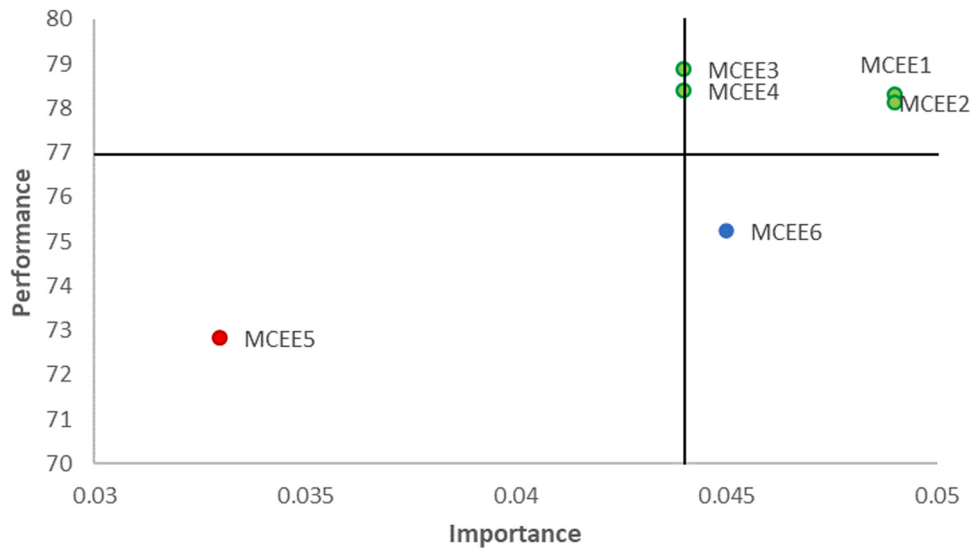


Fig. 5. Importance-Performance map for MCEE (management commitment to the ecological environment) items on the dependent variable Proactive PEB (proactive pro-environmental behavior).

The findings suggest that QJIS reduces the positive impact of MCEE on HEP. QJIS is evident in organizations that feed the risk of disrupted quality in employee-firm relationships (Nikolova et al., 2023a, b). Employees suffering from QJIS in the hotel are unlikely to have favorable perceptions of MCEE and, therefore, would be low on HEP. This is actually a sign of a psychological contract breach where the hotel has failed to keep its promises and maintain long-term employment (Kaya and Karatepe, 2020). More importantly, QJIS mitigates the indirect positive impact of MCEE on proactive PEB through HEP and task-related PEB. Again, breaches in psychological contracts erode employees' HEP and hinder ecological behaviors, though the hotel shows good intentions towards ES and greening of the work environment. In short, QJIS is a barrier against the effective implementation of the hotel's ES program and distorts workers' ecological behaviors despite the existence of MCEE.

5.2. Theoretical implications

Our research contributes to the hospitality literature and enriches the compendium of knowledge on the outcomes, mediators, and moderators of MCEE. First, we developed hypotheses regarding several important mediating and serial mediating effects under the umbrella of signaling (Connelly et al., 2011), human capital (Ployhart and Moliterno, 2011), and JD-R theories (Bakker and Demerouti, 2017). The findings suggest that MCEE does not depict a significant association with proactive PEB. This underscores the need for the intervening mechanism that would relate MCEE to proactive PEB. Hotel workers with favorable perceptions of MCEE or the firm's ES program would possess the motivational resource to display ecological behaviors. Alternatively, individuals with favorable perceptions of MCEE would engage in the performance of daily green tasks that would in turn result in proactive PEB. More importantly, such employees would have the motivational resource that would make them exhibit elevated proactive PEB. Unlike recent empirical pieces (e.g., Farrukh et al., 2023; Tuan, 2022), our research

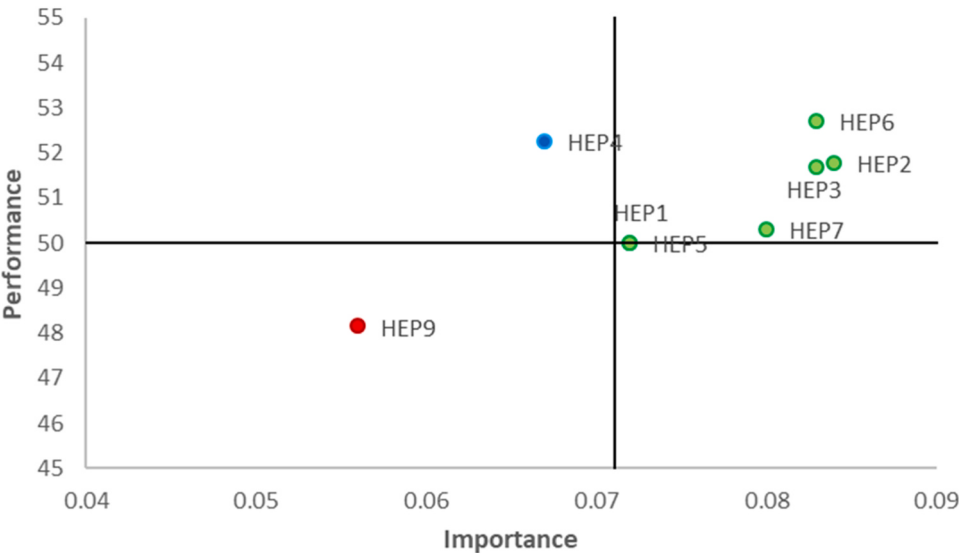


Fig. 6. Importance-Performance map for HEP (harmonious environmental passion) items on the dependent variable Proactive PEB (proactive pro-environmental behavior).

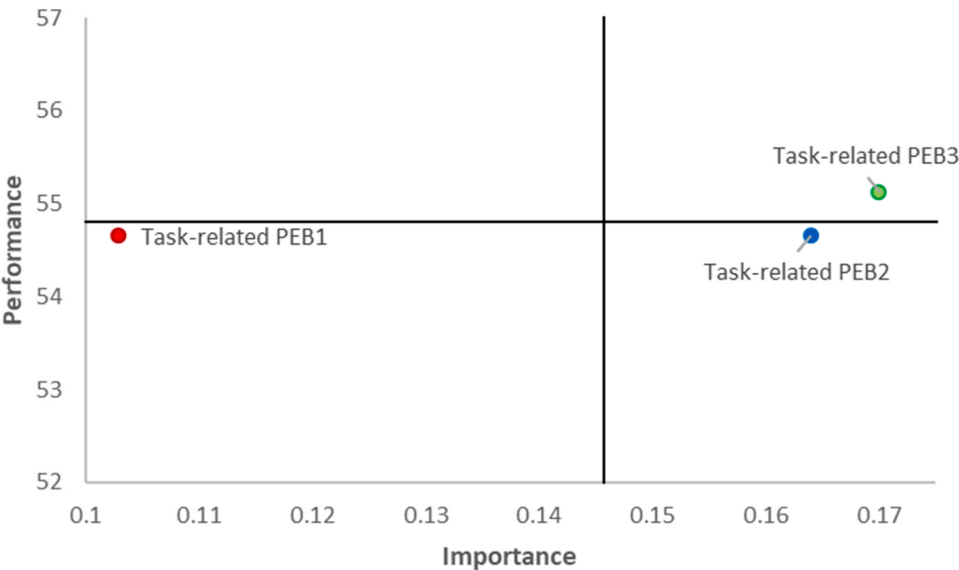


Fig. 7. Importance-Performance map for Task-related PEB (task-related pro-environmental behavior) items on the dependent variable Proactive PEB (proactive pro-environmental behavior).

fills in a significant lacuna by testing the aforesaid mediating and serial mediating impacts.

Second, we developed hypotheses concerning two critical moderating and moderated serial mediating impacts via psychological contract theory (Morrison and Robinson, 1997). Though limited research indicates that job insecurity exerts an adverse effect on hotel employees' proactive PEBs (Karatepe et al., 2023) or QJIS indirectly erodes employee proactive PEB (Darvishmotevali et al., 2024), to the best of the authors' knowledge, this is the first study investigating QJIS as a moderator of the impact of MCEE on HEP and examining QJIS as a moderator of the indirect positive association between MCEE and proactive PEB via HEP and task-related PEB. This is also true for the aforementioned serial mediation effect. Our research not only augments knowledge on the moderators and moderated mediation of MCEE but also contributes to the current knowledge on QJIS. Our research implicitly suggests that QJIS is a severe job stressor that would erode employees' HEP and impede their PEBs in spite of management's good

intentions towards ES and greening of the firm. On a closing note, an exploration of the abovementioned effects is so important because the hotel's environmental performance largely depends on its employees' proactive PEBs (Yuriev et al., 2018).

Third, our research is consonant with the United Nations's sustainable goals ("industry", "innovation", and infrastructure) and creates awareness about the wellbeing of society and the globe via firms' ES programs. This is especially important in an industry where hotels and restaurants are considered among the high water and energy consumers (Yoon et al., 2022).

5.3. Managerial implications

Our research has important recommendations for managerial guidance. First, QJIS is a significant threat and barrier against the attainment of ES goals. Once employees feel that there is a threat of the potential loss of their job features, they would presumably lose their motivation to

help the firm achieve its ES goals. For this reason, management should create and promote an environment that is free of uncertainties about the valued aspects of talented employees' jobs. Otherwise, the presence of a psychological contract breach would impede positive green consequences needed for ES. With this in mind, to send strong messages to employees, management should organize green training and development programs to advance employees' green capabilities needed for the display of task-related and proactive PEBs. In such programs, management can take advantage of case studies that would enable the participants to share their novel ideas regarding the achievement of the hotel's ES program. Consequently, such efforts would help management to reduce employees' perceptions of QJIS.

Second, hotel managers should hire the individuals high on HEP and the ones who are willing to help the firm to reach its ES goals. To do this, management should use strict selection criteria. Specifically, during the hiring process, management can utilize the HEP scale and mini experiential exercises to ascertain whether the candidates are pro-environmentalists and are willing to contribute to the hotel's ES program. This will establish a good fit between new hires and the organization. That is, the capabilities and values of new hires would fit well with the green expectations and values of the hotel. Expecting these individuals to display ecological behaviors based on support provided by management commitment to ES is possible.

Third, there is evidence that hotels taking advantage of social media marketing in the communication of sustainability efforts promote electronic word-of-mouth-communication and increase guests' proclivity to accommodate (Clark et al., 2023). Therefore, management should share significant information about the hotel's ES program, green technology used within the hotel, investment made in the advancement of employees' green capabilities, and greening of the organization with the stakeholders via social media and the official web page of the hotel. This would be an important sign of MCEE. Content may consist of videos showcasing eco-friendly practices, employee-driven success narratives, or interactive polls and quizzes to promote environmental awareness. Hotel managers can improve stakeholder engagement and motivation for eco-friendly accommodations by analyzing and replicating effective social media campaigns and content techniques in the hospitality sector. This can be accomplished by inspiring employees and encouraging potential guests to prioritize ecologically friendly accommodations. These practices would also motivate employees to be pro-environmentalists and trigger prospective buyers' desire to prefer the hotel.

Fourth, management can reward high-performing employees to boost their ecological behaviors. For instance, a healthy competition can be organized, and the most successful employee's name can be given to a green room. Hotels can implement innovative award programs centered on ES, such as the "Green Champion" initiative. This project aligns with our study on fostering a supportive organizational culture for ES. Moreover, hotels have the potential to instill motivation among employees, mitigate job insecurity, and reinforce the organization's commitment to sustainability by integrating novel approaches, such as gamification components and specific case studies of sustainability initiatives.

If effectively implemented, the aforementioned implications would help the hotel to promote its ES program and show that the hotel has a high level of commitment towards the conservation of the ecological environment. These implications would also motivate employees to contribute to the hotel via their task-related and proactive PEBs.

APPENDIX

Summary statistics and correlations of latent constructs.

5.4. Limitations and future research

Limitations associated with our research are noted, and their important future research avenues are provided. Specifically, we used cross-sectional data to assess the associations in the structural model. Such data precludes us from making causal inferences. With this recognition, utilizing cross-lagged panel design would help researchers present evidence regarding the potential reversed impacts. Specifically, HEP in Time 2 may significantly influence proactive PEB in Time 3, and proactive PEB in Time 2 may predict HEP in Time 3. In addition, tapping self-report data is prone to common method variance. We used both procedural and statistical remedies to control the menace of common method variance. Though it was not an issue in the present paper, gathering data based on time-lagged research design and obtaining data regarding employees' green work outcomes via supervisor ratings would be more illuminating.

Results surfacing from the present paper may not be generalizable to the entire hotel industry in Türkiye and other countries. Therefore, collecting cross-national data in resort and boutique hotels in Türkiye and various countries such as the United Kingdom and Nigeria would augment the current knowledge about the effects gauged in the study's moderated serial mediation model. In addition, future research can use data gathered from employees in hotels with different sizes and ratings as well as those in different locations via the simple random sampling approach to broaden the database.

In closing, in future studies, adding other critical green consequences such as green adaptive performance and green promotive and prohibitive voice behaviors to the moderated serial mediation model would enable the researchers to investigate QJIS as a moderator of the influence of MCEE on the aforesaid consequences via HEP and task-related PEB.

CRedit authorship contribution statement

Osman M. Karatepe: Conceptualization, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Ali Oztüren:** Conceptualization, Supervision, Writing – original draft, Writing – review & editing. **M. Mithat Uner:** Conceptualization, Data curation, Supervision, Writing – original draft, Writing – review & editing. **Tae-goo Terry Kim:** Conceptualization, Methodology, Writing – original draft, Writing – review & editing. **Elisa Rescalvo-Martin:** Conceptualization, Formal analysis, Software, Writing – original draft, Writing – review & editing. **Tuna Karatepe:** Conceptualization, Data curation, Methodology, Resources, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

None

Data availability

Data will be made available on request.

Acknowledgment

This paper was prepared using the dataset of the first author's doctoral dissertation, and its data came from part of a larger project.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Management commitment to the ecological environmnet	1							
(2) Harmonious environmental passion	0.367***	1						
(3) Task-related pro-environmental behavior	0.465***	0.533***	1					
(4) Proactive pro-environmental behavior	0.422***	0.634***	0.654***	1				
(5) Qualitative job insecurity	-0.257**	-0.097	-0.100	-0.042	1			
(6) Gender	-0.003	-0.075	-0.063	-0.093	-0.033	1		
(7) Organizational tenure	0.290***	0.243***	0.280***	0.169**	-0.084	-0.228***	1	
(8) Marker variable	-0.001	0.054	-0.035	0.040	0.065	-0.018	-0.025	1
Mean	5.62	4.00	4.29	4.15	2.99	0.32	2.41	0.36
Standard Deviation	1.38	0.75	0.82	0.87	1.01	0.47	1.15	0.48

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