

ISMC 2022
17th International Strategic Management Conference**MEDIATING EFFECT OF WORK ENGAGEMENT BETWEEN
GREEN HUMAN RESOURCES MANAGEMENT AND
RESILIENCE**Osman Bayraktar (a)*, Elif Baykal (b)
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Abstract

In this study, we assume that Green Human Resources Management will boost work engagement of employees and this will result in greater individual level resilience which will contribute to social sustainability in the long run. In this study, we supposed that in an organization wherein GHRM practices are adopted, the company will create a positive perception regarding its corporate social responsibilities. This will create an organizational atmosphere wherein people feel proud about their organization since it contributes to both internal and external stakeholders by its green practices. Moreover, employees that are proud about their organization will feel greater work engagement that leads to higher individual level resilience during work. We also supposed that, work engagement may act as a mediator in the relationship between GHRM and resilience. Thus, in this study in order to test the above-mentioned relationship we collected data from Turkish white collar workers and results of our study have been analysed with SPSS, AMOS and Hayes PROCESS Macro programs. Results revealed that work engagement of employees act as a mediator in the relationship between GHRM and psychological resilience.

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Keywords: GHRM, green management, resilience, work engagement

1. Introduction

Change, as an inevitable feature of daily life, often creates chaotic situations for both individuals and organizations (Baykal, 2019). 21st century has specifically been an era of heightened interest in the environmental concerns owing to changes in politics, public and business (Ahmad, 2015). In this era, ensuring sustainability can be possible through creating awareness by incorporating “green” into the corporate strategy (Wirtenberg et al., 2007). Ever increasing awareness regarding environmental sustainability has created GHRM (Ren et al., 2018). This management model integrates corporate sustainability into operational activities and decision-making models (Howard-Grenville et al., 2014).

In parallel to this developments, green human resources management has also gained importance. In general, Human Resources Management (HRM) includes processes, practices and functions that enable the effective and efficient management of human resources in order for companies to achieve their goals and objectives. Green HR is significant for wakening green awareness in both external and internal stakeholders. Besides that, in contemporary business environment, where change and uncertainty threaten organizations to achieve their corporate level goals, it is also significant for organizations to have resilience capacity. HR can be very critical for organizations in creating resilience (Lengnick-Hall et al., 2011).

2. Literature Review

2.1. Green Human Resources Management

Greening of companies is brand new topic gaining greater significance on the agenda of global organizations (Guerci et al., 2016). According to Ren et al. (2018), the alignment of HR with organization’s green practices has given way to ‘Green Human Resource Management’. GHRM has become more popular after 1990s and emphasizes human resources aspects of green management practices. GHRM refers to all kind of activities making employees environment friendly. It targets changing employees into pro-environment individuals so that they start to feel obliged to engage in green issues (Arulrajah et al., 2015). GHRM explains all kind of practices focusing on improving employees' green abilities. The contribution of employees is important for the realization GHRM principles (Ali et al., 2020). In GHRM approach workers so can make pro-environmental recommendations (Ali et al., 2020). As to Longoni et al. (2018), GHRM attempts to achieve environmental sustainability. It responds to stakeholder pressures about environmental issues, improving the efficiency of employees, reducing loss of time and promoting green management strategies. GHRM boosts green competencies through green recruitment practices, green wage management, green job design and performance appraisal and training. For instance, green recruitment attempts to attract candidates with proenvironmental sensitivity (Tang et al., 2018). On the one hand, green training attempts to create emotional involvement of individuals towards green goals (Zibarras & Coan, 2015) and green performance management targets rewarding pro-environmental contribution of individuals (Úbeda-García et al., 2021). To sum up, GHMR aims motivating individuals by encouraging green performance and increasing individuals' involvement by empowerment and creating a pro-environment climate (Ansari et al., 2021).

2.2. Resilience

During a normal life span, people experience lots of difficult events. Although the number of these situations is high, only a small segment of them cause significant psychological illnesses (Zehir & Narcikara, 2016). In fact, many people have the necessary amount of psychological resilience that makes them powerful in the face of difficulties. Actually, according to Bonanno (2004), psychological resilience is individual's power to bounce back and even get better in response to a difficulty. As explained by Sutcliffe and Vogus (2003), resilience is the ability to struggle unexpected situations and crises.

It is a personality trait reflecting one's ability to adapt to novel situations by identifying opportunities, and getting rid of problems. In turbulent environments, a resilient organization capable of responding positively and competently is significant for sustainability (Wang et al., 2014).

Psychological resilience is positively affected by factors such as personal control, positive perspective, optimism and perceived social support (Dantzer et al., 2018). As to Tugade et al. (2004), individuals with high psychological resilience not only enjoy positive emotions and intrinsic motivation, but also convey this positivity to other people, which creates a supportive social network to assist the coping process with negativity.

Even though resilience is used in myriad disciplines, two basic antecedents always remain stable: a systematic approach and an emphasis on flexibility (DesJardine et al., 2019). Actually, individual resilience is an important topic described by positive organizational scholars. Positive organizational behavior approach explained this new kind of capital as an individual asset consisting of psychological resilience, self-efficacy, hope and optimism. Actually, psychological capital is a mechanism bringing these four capacities together on a common ground harmoniously (Narcikara, 2017). In this point, Luthans (2012) explained resilience as one of these psychological capitals, that can be developed enabling individuals to cope with stressful situations.

On the one hand, resilience should not be accepted as merely a commonplace adaptation. It is also a reservoir increasing possibility of further adaptation. Furthermore, resilience in a specific period of life can create the potential to give way to higher levels of resilience in the future (Baykal, 2018). Factors such as high internal locus of control, experience and skill in one's own job, self-efficacy, self-esteem and optimism are all types of personality factors that contribute to resilience. The brain structure that develops in challenging environments at an early age can lead to higher levels of resilience by increasing its functionality and affecting neurobiological systems (Herrman et al., 2011). This capacity is more likely to be seen when individuals have access to other capitals that will enable them to develop their competencies such as social capital, emotional capital and material capital.

2.3. Work Engagement

As to Schaufeli et al. (2006) suggest, work engagement is a motivational state of satisfaction and happiness at work encompassing vigor, dedication and absorption. It encompasses three main components: vigor, dedication and absorption (Gómez-Salgado et al., 2021). Engaged individuals have high levels of energy, they are enthusiastic, and dedicated to their work and in this context vigor is about motivation and resilience (Schaufeli et al., 2006).

Moreover, work engagement is affected by organizational culture, job resources, psychological capacities (Keyko et al., 2016). As Rollins et al. (2021) explains, a work climate prioritizing person-centered care, healthy managerial skills and practices overcoming bureaucracy, and opportunities for individual's professional improvement and self-care can boost employee work engagement.

3. Methodology

Online surveys were used for collecting data for this study. Survey items were responded to on five-point Likert scales. In the data collection process, convenience sampling has been preferred. 840 surveys were disseminated. Surveys were collected between October 2021 and February 2022. Companies functioning in manufacturing sector with more than 1,000 employees have been chosen for collecting data. Assuming that white collar workers know more details and have greater awareness about their organization's HR practices we collected data merely from white-collar workers. At the end, we ended up with 263 usable surveys. With the removal of 13 questionnaires, the analyzes continued on the data of 250 participants. In our data set, 42% of the participants work in production, 25% in service and 33% in other sectors. 52% of the participants are men and 48% are women. The highest age group is in the 30-40 age group with 41%. The majority of the participants (71.4%) work in the managerial position.

Moreover, in this study, Green human resource management (GHRM) was measured by 20 items of GHRM scale developed by Kesen and Öselmiş (2021). Utrecht work engagement scale developed by Schaufeli et al. (2009) has been used for measuring work engagement and resilience items of Luthans et al. (2008) have been used for measuring psychological resilience of individuals.

3.1. Research Model and Hypotheses

The model shown in Figure 1 is based on the hypotheses expressed in this study and the effect of variables, which are hypothesized to influence the linkage of three essential variables our concern. This model explains GHRM-resilience (R)-work engagement (WE) relationship.

H1. Green human resources management is positively related to resilience.

H2. Work engagement is positively related to work engagement.

H3. Work engagement is positively related to resilience.

H4. Work engagement acts as a mediator in the relationship between green human resources management and resilience.

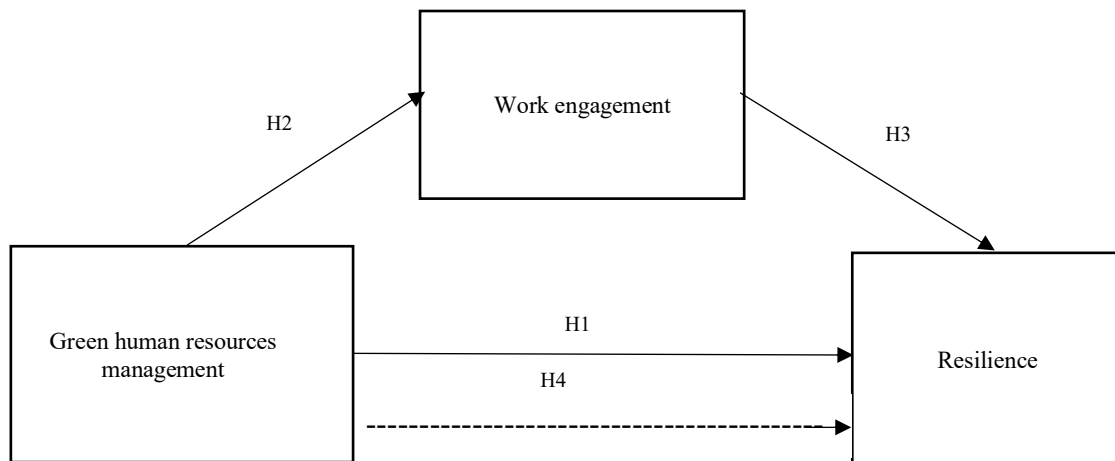


Figure 1. Research model

3.2. Validity and Reliability of the Questionnaire

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) have been used in order to see if the observed variables theoretically loaded together and to evaluate construct, convergent, and discriminant validity and reliability values. Later, the research model has been analyzed by using the Structural Equation Modelling technique (see Table 1).

Table 1. Factor loadings

Construct	Items	Factor Loading			Scale Reliability
		EFA	1st order CFA	2nd order CFA	
Green job design	1	0,860	0,860	0,871	Cronbach α : 0,952 SCR: 0,945 AVE: 0,812
	2	0,894	0,921	0,923	
	3	0,871	0,937	0,939	
	4	0,857	0,884	0,885	
	5	0,879	0,933	0,920	
Green selection	6	0,899	0,951	0,954	Cronbach α : 0,950 SCR: 0,951 AVE: 0,866
	7	0,881	0,908	0,903	
Green training and development	8	0,858	0,882	0,878	Cronbach α : 0,932 SCR: 0,908 AVE: 0,767
	9	0,776	0,806	0,806	
	10	0,897	0,935	0,934	
	12	0,894	0,001	0,909	
Green performance management	13	0,875	0,913	0,912	Cronbach α : 0,949 CR: 0,949 AVE: 0,825
	14	0,900	0,938	0,939	
	15	0,849	0,879	0,864	
Green payment	16	0,794	0,887	0,906	Cronbach α : 0,950 SCR: 0,951 AVE: 0,796
	17	0,903	0,961	0,966	
	18	0,909	0,950	0,957	
	19	0,751	0,829	0,845	
Resilience	20	0,791	0,826	0,843	Cronbach α : 0,701 SCR: 0,786 AVE: 0,557
	4	0,549	0,504	0,499	
	5	0,779	0,860	0,869	
	6	0,798	0,739	0,733	

	1	0,836	0,739	0,736	Cronbach α : 0,829
	2	0,875	0,806	0,803	SCR: 0,866
Engagement	3	0,857	0,862	0,859	AVE: 0,562
	4	0,850	0,879	0,884	
	5	0,507	0,316	0,314	
Notes	(i) Principal Component Analysis with Varimax Rotation				
	(ii) KMO = 0.945, Bartlett Test; $p < 0.001$				
	(iii) Total Variance Explained (%); 75.923				
	(iv) All CFA Paths are statistically significant at $p < 0.001$				
1st Order CFA	$\chi^2/df = 1.767$, $SRMR = 0.037$, $TLI = 0.962$, $CFI = 0.967$, $RMSEA = 0.056$				
2nd Order CFA	$\chi^2/df = 2.012$, $SRMR = 0.052$, $TLI = 0.950$, $CFI = 0.950$, $RMSEA = 0.042$				

Moreover, EFA was conducted in order to see if the observed variables have been loaded together adequately. With the aim of testing the congruence of the data set, Kaiser-Meyer-Olkin (KMO) analysis and Bartlett's test have been conducted. KMO has found to be 0.945 which is above the desired level and Bartlett's test was found to be at 0.001 significance level. Hence, it was deduced that we can continue with factor analysis. Each Cronbach's alpha value was above 0.7 that can be accepted as a proof for internal validity.

In order to validate the EFA results. Maximum Likelihood method confirmatory factor analyses has also been applied. Moreover, standardized residual covariance values have been analyzed and a single item has been eliminated with the aim of improving the model fit. Also, modification indexes have been analyzed and high modification value errors have been covaried. Fit indexes have found to be $\chi^2/df = 1,767$, $SRMR = 0.037$, $TLI = 0.962$, $CFI = 0.967$, $RMSEA = 0,056$. Moreover, since a second-order factor analysis including five-dimensions of green human resources management were used in the analysis, another second factor analysis was conducted. Model fit indexes of this structure were: $\chi^2/df = 2.012$, $SRMR = 0.052$, $TLI = 0.950$, $CFI = 0.950$, $RMSEA = 0.042$. Hence, we made the conclusion that fit indexes can be considered as being in the desired level (Cho et al. 2020; Hu & Bentler, 1999; Schumacker & Lomax, 2010). Furthermore, unidimensionality was ensured owing to the fact that all factor loadings were above the desired level – above 0.7 – and convergent validity and model fit indexes were at the desired levels (Anderson & Gerbing, 1988). As a result of factor analysis, factor load of variable number 5 in the work engagement scale remained within the limit of 0.314.

On the one hand, for testing the reliability of factor structures, AVE (Average Variance Extracted) (Fornell & Larcker, 1981) and SCR (Scale Composite Reliability) values have been used (Bagozzi & Yi, 1988). In case the AVE value is above 0.5 and the CR value is above 0.70, it is meaningful to consider that related factors ensure validity and reliability (Bagozzi & Yi, 1988). Our values are presented in Table 2. And they are at the desired levels. Moreover, as seen in Table 2 discriminant validity is examined and it can be deduced that there is differential validity among factors (Hair et al., 2012).

Table 2. Correlation matrix between variables

Construct	1	2	3	4	5	6	7	8
1 GRHM	0.905							
2 Job design	,894**	0,901						
3 Selection	,918**	,871**	0.931					
4 Training	,148*	,204**	,169**	0.876				
5 Performance man	,932**	,796**	,830**	0,112	0.908			
6 Payment	,909**	,709**	,744**	0,063	,867**	0.892		
7 Engagement	,308**	,359**	,325**	,509**	,251**	,181**	0.746	
8 Resilience	,272**	,308**	,259**	,324**	,261**	,195**	,507**	0.750

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

* . Correlation is significant at the 0.05 level (2-tailed).

Note: Squared AVE values are represented in diagonals for Discriminant Validity

4. Results

In general, the correlation coefficient between 0.1 and 0.3 is weak; the correlation between 0.3 and 0.5 is moderate; the correlation between 0.5 and 0.8 is strong; A correlation greater than 0.8 is considered a strong correlation (İslamoğlu & Alnıaçık, 2019). According to the data in Table 2, there are significant and positive correlations between all the variables in the research model.

Baron and Kenny (1986), in order to perform the mediation test; independent variable should affect the dependent variable significantly (path c), the independent variable should affect the mediating variable significantly (path a) and the mediating variable should affect the dependent variable significantly (Gürbüz & Bayık, 2018). H1, H2 and H3 hypotheses, which are prerequisites for the mediation test, were tested using linear regression in the SPSS program. Before the analysis, the fulfilment of the preconditions was questioned, and it was observed that the values calculated in terms of tolerance and VIF values and Durbin-Watson test results remained between the criteria values.

Green human resource management - work engagement relationship. The regression model is statistically significant ($R^2 = 0.10$, $F(1, 248) = 26.029$, $p < .001$). GHRM significantly predicted change in work engagement ($\beta = .31$, $p < .001$). According to this result, H1 was confirmed.

The effects of GHRM sub-dimensions on the mediating variable work engagement are shown in Table 3.

Table 3. GHRM Sub-dimensions – work engagement relationship

Construct	R^2	β	SE	F	p
Job design	.12	,29*	.048	36.761	.000
Selection	.11	.33*	.063	29.363	.000
Training	.09	.31*	.051	25.607	.000
Performance	.06	.25*	.050	16.630	.000
Payment	.03	.16*	.043	6.513	.01

* $p < 0.01$, standardized values are reported.

According to these results all sub-dimensions of GHRM significantly predict change in work engagement.

Green human resource management-resilience relationship. The regression model is statistically significant ($R^2 = 0.08$, $F(1, 248) = 19.857$, $p < .001$). GHRM significantly predicted change in work resilience ($\beta = .27$, $p < .001$). According to this result, H3 was confirmed.

The effects of GHRM sub-dimensions on the dependant variable resilience are shown in Table 4.

Table 4. GHRM Sub-dimensions – resilience relationship

Construct	R^2	β	SE	F	p
Job design	.15	.31*	.006	26.051	.000
Selection	.06	.26*	.008	17.853	.000
Training	.15	.27*	.006	19.836	.000
Performance	.06	.26*	.006	18.064	.000
Payment	.03	.19*	.005	8.902	.003

* $p < 0.01$, standardized values are reported.

According to these results all sub-dimensions of GHRM significantly predict change in resilience.

Work engagement - resilience relationship. The regression model was statistically significant ($R^2 = 0.27$, $F(2, 247) = 46.106$, $p < .001$). When the GHRM and work engagement model were included together, the work engagement impact value was ($\beta = .47$, $p < .001$). The effect value of GHRM did not turn negative, but decreased ($\beta = .13$, $p < .05$). According to this result, hypothesis H2 was confirmed.

In order to test the mediation effect of work engagement on the relationship between resilience and GHRM, the PROCESS macro (Model 4), which is compatible with the SPSS program developed by Hayes (2022) was used. Using this macro, 5000 bootstrapping at a 95% confidence interval (CI) was used to test the mediating effect of work engagement on the relationship between GHRM and resilience. According to this analysis, in order for the mediation effect to be considered statistically significant, there should be no zero between the two extreme values of the confidence interval (Hayes, 2022). The mediation results obtained are shown in Table 5.

Table 5. Testing pathways of mediation model

Direct Effect Model				
Predictor	Outcome = Engagement			
	β	SE	95%Boot LLCI	95%Boot ULCI
GHRM	0,19	0.04	0.23	0,26
Constant	3.43	0.12	3.20	2.08
Direct Effect Model				
Predictor	Outcome = Resilience			
	β	SE		
GHRM	0.06	0.03	0,01	0,11
Work engagement	0,66	0,08	0,49	0,79
Constant	2.28	0.16	1,96	2,59
Total Effect Model				
Predictor	Outcome = Work engagement			
	β	SE		
GHRM	0.12	0.03	0.06	0.17
Bootstrap Results for Indirect Effect of X on Y				
Effect	0.06	0.02	0.04	0.10

Note: $n = 250$; β = Unstandardized Regression Coefficient; SE = Standard Error; Bootstrap Sample Size = 5000; LL = Lower Limit; CI = Confidence Interval; UL = Upper Limit

Analysis results show that GHRM practices predict resistance through work engagement. Work engagement was positively associated with GHRM (path a) ($\beta = 0.19$, $SE = 0.04$, $p < .01$). Likewise, work engagement ($\beta = .06$, $SH = 0.03$, $p < 0.01$) was positively associated with resistance (path b).

Both the total effect ($\beta = 0.12$, $SH = .03$, $p = 0.01$ (path c) and the direct effect independent of mediator variable (path c') of GHRM treatments) on resistance through work engagement were significant ($\beta = 0.06$, $SH = .03$, $p < .01$) In this case, Hypothesis 4, which suggests that work engagement mediates the relationship between GHRM and resilience, is supported. The results for the conceptual model are shown in Figure 2.

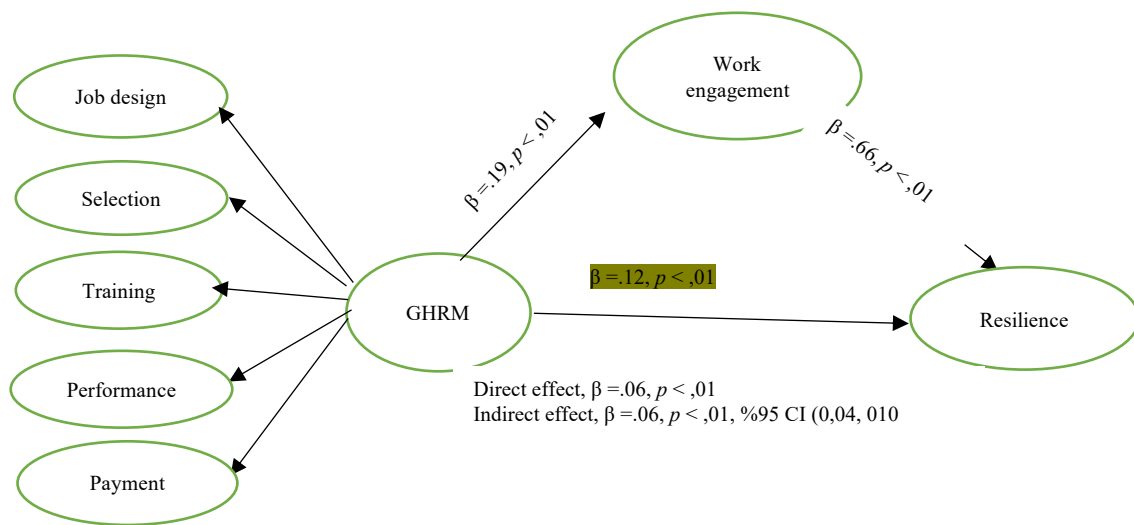


Figure 2. Mediating model

5. Discussion

As mentioned before, creating a mix of environmental sensitivity with effective HRM practices is known as GHRM (Nawangarsi & Sutawidjaya 2019). Embracing GHRM practices is vital in going green. As Ali et al. (2020) suggest being a member of a green company is considered as an advantage for many employees. Individuals working in companies wherein GHRM is embraced are more participatory in decision making processes. Supporting this view, Masri and Jaaron (2017) revealed the positive impact of GHRM on more autonomous and empowered employees especially regarding environmental issues. In this study, it is assumed that GHRM will create greater resilience and resilient individuals will feel greater work engagement. Our findings are also parallel with previous studies showing the effect of green human resources management on work engagement of employees (Bhutto et al., 2021; Waqas et al., 2021). This study is also parallel with the extant literature explaining the positive effect of work engagement on resilience (Blaique et al., 2022; Cao & Chen 2021).

Our study is unique in revealing positive effect of GHRM on individual resilience and in showing the mediator effect of work engagement in the relationship between GHRM and resilience.

6. Conclusion

As mentioned before, putting environmental sensitiveness and HRM practices into the same pot is known as Green Human Resources Management (Nawangarsi & Sutawidjaya 2019). Embracing GHRM practices is vital in going green. As Ali et al. (2020) suggest being a member of a green company is considered as an advantage for many employees. Individuals working in companies wherein GHRM is embraced are more participatory in decision making processes. Supporting this view, Masri and Jaaron (2017) revealed the positive impact of GHRM on more autonomous and empowered employees especially regarding environmental issues. In this paper, we supposed that GHRM will create greater resilience and resilient individuals will fee greater work engagement. Our findings are also parallel with previous studies showing the effect of green human resources management on work engagement of employees (Bhutto et al., 2021; Waqas et al., 2021). Moreover, this study is also compatible with previous researches revealing this positive impact of work engagement on resilience (Blaique et al., 2022; Cao & Chen 2021).

Our study is unique in revealing positive effect of GHRM on individual resilience and in showing the mediator effect of work engagement in the relationship between GHRM and resilience.

7. Managerial Implications and Further Studies

Creating green awareness in employees creates a win-win relationship that benefits both the environment, the employee and the company. In this sense, using green human resources practices is an important motivation tool that companies can use to ensure individual resilience and commitment of human resources managers. Giving the opportunity to employees to express themselves about green issues and employing people with high green awareness can boost a greener atmosphere wherein employees feel more empowered and resilient especially regarding green management issues. In future studies, this research can also be tested on blue-collar workers, renewed in different geographies and cross-cultural comparisons can be made.

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