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Voluntary vs. compulsory: examining the consequences of two forms of employee green behaviors

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Abstract

Environmental sustainability has become an increasingly urgent concern for organizations. While research explores various methods for promoting employee green behaviors (EGBs), the impact of these behaviors on employees themselves remains under-investigated. This study reveals that the interpersonal impacts of voluntary and compulsory EGBs differ significantly, despite their seemingly equivalent function. Drawing upon self-determination theory and utilizing three-wave data from 231 employees, we propose and test a process model that delineates how these two EGB forms exert contrasting effects on job engagement, burnout, and fatigue through affective organizational commitment and perceptions of environmental policies hindering productivity. Our findings offer a deeper understanding of the motivational underpinnings and downstream outcomes of EGBs. They also highlight the potential for negative consequences when organizations fail to distinguish between EGBs arising from voluntary endorsement and those driven by external compliance. As organizations strive to embed sustainability within their operations, they must prioritize fostering voluntary EGBs, aligning efforts with employees' personal values, rather than resorting to coercive measures.

Keywords Voluntary green behavior · Compulsory green behavior · Job engagement · Green fatigue · Job burnout

Introduction

Employee green behaviors (EGBs), defined as actions employees take to benefit the natural environment and contribute to sustainability (Ones & Dilchert, 2013), are becoming increasingly prevalent within organizations as environmental sustainability rises to the forefront of global concern. This shift manifests in two primary forms: compulsory and voluntary EGBs (Norton et al., 2015). Compulsory EGBs are explicitly required by the organization, often codified in official policies or procedures. Examples include adhering to energy-saving protocols, using eco-friendly materials, and participating in recycling programs (Unsworth et al., 2021). Voluntary EGBs, on the other hand, are independently initiated by employees, driven by personal values, environmental awareness, or intrinsic motivation. These include actions like bringing reusable containers, carpooling to work, and initiating sustainability projects.

While previous research has greatly enriched our understanding of how EGBs can benefit companies and various approaches to promote EGBs, the potential outcomes of EGBs for employees remain relatively unexplored (Norton et al., 2015). For example, EGB can benefit companies

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by presenting an excellent external image, reducing costs, ensuring sustainable operations, and increasing employee satisfaction and loyalty (Bilynets & Cvelbar, 2022). Different promoting approaches include individual traits (Cai & Ye, 2020), organizational policies (Chaudhary, 2020; Yang et al., 2023), and leadership and policies (Ahmed et al., 2023). In addition, existing studies investigating howemployees often fail to differentiate between compulsory and voluntary EGBs, neglecting the potential for unique outcomes associated with each form due to their differing motivational underpinnings, as outlined in Norton et al., (2015). Specifically, there are two distinct motivational forces driving EGBs: autonomous and controlled motivation (Graves et al., 2013). Autonomous motivation fuels voluntary EGBs, characterized by the desire to contribute positively to the environment while aligning with personal values and beliefs. Conversely, controlled motivation drives mandatory or compulsory EGBs, arising from external pressures such as organizational policies, regulations, or performance expectations. These contrasting motivational drivers lead to distinct psychological and behavioral outcomes, according to self-determination theory (SDT) (Ryan & Deci 2000). Autonomous motivation fosters positive emotions like satisfaction, competence, and enjoyment, which in turn enhance engagement, performance, and well-being. In contrast, controlled motivation often generates negative emotions like frustration, resentment, and fatigue, potentially leading to decreased engagement, performance, and job satisfaction.

This study addresses the highlighted gaps in existing research by investigating the distinct impacts of voluntary and compulsory EGBs on employees' psychological and behavioral outcomes, as well as the mediating mechanisms involved. Drawing upon SDT, we explore both the positive (affective organizational commitment, AOC) and negative (green behaviors interference with job, GBIJ) mediating mechanisms through which EGBs influence employee engagement, burnout, and fatigue. Utilizing data collected from 231 employees across three time points, our findings reveal that voluntary EGBs can increase employee work engagement while reducing job burnout and green fatigue. This occurs through fostering enhanced affective organizational commitment and mitigating negative perceptions towards green behaviors. Conversely, compulsory EGBs were found to negatively impact employee outcomes. This study contributes to the existing literature by differentiating these two forms of EGBs and exploring their unique impact on employee well-being and performance. This research offers valuable insights for organizations seeking to promote sustainable practices while safeguarding employee well-being.

Literature review and hypotheses

Voluntary EGBs and mediators

Self-determination theory (SDT) provides a well-established framework for comprehending the outcomes of employees' engagement in green behaviors (EGBs). SDT theorists posit that the motivating factors behind behavioral engagement exist along a continuum from autonomous (driven by interest and values) to controlled (prompted by external pressures and demands) forms of motivation (Gagné & Deci 2005). Research based on self-determination theory suggests that behaviors fueled by autonomous motivation have fundamentally different implications for attitudes and performance compared to those driven by controlled motivation (Lam & Gurland, 2008).

Autonomous motivation drives individuals to pursue activities due to intrinsic interest, personal meaning, or alignment with their values. This encompasses both intrinsic and identified motivation. Intrinsic motivation involves engaging in activities purely for the inherent enjoyment or satisfaction they offer. Identified motivation, on the other hand, arises from activities that align with one's values and personal goals. Research suggests that autonomous motivation serves as a key driver of discretionary behaviors, which go beyond minimum expectations and demonstrate personal initiative (Lam & Gurland, 2008). Accordingly, voluntary EGBs stem from autonomous motivation, because they are driven by identified alignment of green conduct with personal environmental values (identified motivation), or psychological enjoyment while performing these behaviors (intrinsic motivation). This suggests voluntary green behaviors at work will relate positively to affective organizational commitment, defined as the emotional bond employees form with their company when they internalize its goals and values as their own (Meyer et al., 2004). By acting in line with personal green values, employees likely incorporate sustainability further into their identities and strengthen their commitment to green-focused organizations.

In addition to the positive mechanism, such as affective attachment to the organization, we are also interested in the negative mechanisms through which EGBs impact employees. Specifically, we propose the concept of green behavior interference with job (GBIJ) to capture employees' perception that the demand to carry out environmentally-friendly actions interferes with fulfilling their regular job responsibilities. GBIJ may arise from the role conflict caused by the demands, time commitment, and strain associated with employees' green behaviors. Based on the SDT framework, because voluntary EGBs are fueled by intrinsic motivation and spurred by interest or meaning

rather than external demands, they are less likely to cause employees to feel draining or to interfer with normal work. Hence, voluntary green involvement will be associated negatively with beliefs that green behaviors interfere with job expectations and effectiveness.

Hypothesis 1a: Voluntary EGBs are positively related to affective organizational commitment but negatively related to GBIJ.

Compulsory EGBs and mediators

In contrast to Autonomous motivation, controlled motivation compels actions to meet external expectations rather than personal interests, encompassing both external motivation and introjected motivation. External motivation involves pursuing an activity because of external contingencies (e.g., pay, approval, or threat of punishment), and introjected motivation involves performing an activity to maintain one's ego (Graves et al., 2013). Accordingly, unlike voluntary EGBs, which stem from autonomous motivation, compulsory EGBs are more likely spurred by controlled motivation. For example, employees may be under external assessment pressure and may participate in environmental green behavior to earn incentives or pursue ego maintenance rather than internal values (Ciocirlan, 2017). Consequently, compulsory EGBs will relate negatively to affective organizational commitment because such controlled regulation diminishes internalization, which is central to fostering commitment.

Additionally, controlled motivation may spawn perceptions that EGBs interfere with normal work flow and effectiveness. As external requirements divert effort from core tasks toward unfamiliar sustainability actions, employees are prone to view such compulsory green expectations as hampering job performance (Chen & Chang, 2013). Hence compulsory green behaviors will show positive relationships with beliefs that green behaviors interfere with carrying out one's job.

Hypothesis 1b: Compulsory EGBs are negatively related to affective organizational commitment but positively related to GBIJ.

Mediation role of affective organizational commitment

Job engagement and burnout are of particular interest in our study because as distinct as these constructs are from each other, they are often considered as opposite ends of a common continuum (Maslach et al., 1997; Maslach et al., 2001; Maslach & Leiter, 2008; Schaufeli et al., 2006), and studied together for researchers to gain a balanced view of a variable's impacts (e.g. Cole et al., 2012). Job engagement is defined as vigor, dedication, and absorption in one's work (Schaufeli et al., 2002), while job burnout is characterized by exhaustion, cynicism, and inefficacy (Maslach & Jackson, 1981). Green fatigue is our third dependent variable that is added to our model due to its close relationship to the EGBs concept. We define green fatigue as the degree to which employees feel worn out, tired, or on edge due to engaging in green behaviors (regardless of form), modified based on the citizenship fatigue construct developed by Bolino et al., (2015).

We hypothesize that affective organizational commitment (AOC) mediates a positive relationship between voluntary EGBs and job engagement. Extensive research has already established the pivotal role of affective organizational commitment (AOC) in enhancing job engagement. Strong AOC fosters a positive emotional connection to the organization, enhancing motivation, dedication, and overall engagement in work. For example, Poon (2013) found that employees with high AOC exhibited greater motivation, initiative, and willingness to go the extra mile, contributing to higher levels of job engagement. Therefore, we hypothesize that voluntary EGBs, through their positive influence on AOC, will indirectly promote job engagement. Conversely, compulsory EGBs, through their negative impact on AOC, are expected to indirectly hinder job engagement.

Stress and feelings of exhaustion, characteristic of job burnout, can be mitigated by positive emotions and a strong sense of organizational attachment (Maslach et al., 2001). For example, Garland et al. (2014) observed that employees who felt emotionally connected to their organizations experienced less emotional exhaustion, cynicism, and reduced sense of accomplishment, leading to lower levels of burnout. Based on this, we hypothesize that voluntary EGBs, through their positive influence on AOC, will indirectly reduce job burnout. In contrast, compulsory EGBs, through their negative impact on AOC, are expected to indirectly contribute to job burnout.

As for green fatigue, we hypothesize that voluntary EGBs, due to their intrinsic motivation, will promote positive experiences and self-efficacy in green behaviors, thereby mitigating green fatigue. Although green fatigue is a new construct, its original form, citizenship fatigue was found negatively related to employee commitment (Azila-gbettor et al., 2023). Conversely, compulsory EGBs, lacking intrinsic motivation, can lead to frustration and cynicism, ultimately exacerbating green fatigue.

Hypothesis 2a: Voluntary EGBs promote job engagement and reduce job burnout and green fatigue through the mediating effect of affective commitment to the organization.

Hypothesis 2b: Compulsory EGBs reduce job engagement and increase job burnout and green fatigue

through the mediating effect of affective commitment to the organization.

Mediation role of green behavior interference with job

Green behavior interference with the job (GBIJ) reflects the employee's perception that engaging in green initiatives impedes their ability to perform their regular job tasks effectively. GBIJ is introduced in this study as a novel construct, however, similar constructs like work family conflict (Netemeyer et al., 1996) or role conflict (Getzels & Guba, 1954), and their impacts on job engagement, burnout, and fatigue have long been studied by researchers from different areas.

Drawing on role theory (Ivey & Robin, 1966) and consistent with current research on the outcomes of role conflict, we expect that higher perceptions of GBIJ will undermine key work attitudes. When employees feel that green expectations hamper completing core tasks, they likely experience conflict between environmental and productivity demands. Such role conflict decreases psychological attachment to work, which is supported by extensive empirical research (e.g. Maden-Eyiusta & Alten 2023; Moura et al., 2014) Consequently, we expect that GBIJ will be negatively related to job engagement. At the same time, we expect GBIJ to show positive relationships with job burnout (e.g. Jawahar et al., 2007), encompassing exhaustion, depersonalization, and reduced efficacy (e.g. Jones, 1993), as well as green fatigue, the specific state of weariness, and lowered motivation regarding environmental behaviors.

Our hypotheses focus on how these two forms of green work behaviors have contrasting indirect effects on critical employee outcomes through their influence on GBIJ. When voluntary pro-environmental actions align with employees' personal values and goals, they are undertaken proactively by employees out of personal environmental values and concerns, thus employees are less likely to feel those behaviors interfere with their work. However, compulsory green behaviors mainly enacted to comply with organizational directives are far more prone to being perceived as imposed constraints that hinder task performance and productivity. Thus, we hypothesize that:

Hypothesis 3a: Voluntary EGBs increase job engagement but reduce job burnout and green fatigue through GBIJ.
Hypothesis 3b: Compulsory EGBs decrease job engagement but increase job burnout and green fatigue through GBIJ.

Methodology

Participants and procedures

Data were collected in one of the central provinces in China (Hubei Province). As for the translation procedures between English and Chinese, following established best practices (Brislin, 1970), we first developed the survey in English, and then used back-translation procedures with multiple bilingual speakers to ensure linguistic equivalence.

To minimize common method variance, data collection for this study was conducted in three phases, with about ten days between each phase. Unique participant IDs were created to allow tracking of the same respondents across all three survey rounds. As the focus was on employee green behavior, the sample was drawn from on-the-job employees. To ensure generalizability and sample diversity, the study included employees from various industries, including service, manufacturing, and healthcare. These industries all actively promote environmentally friendly behavior among employees.

During the recruitment process, researchers explained the study's purpose and procedures to participants. They explicitly assured participants that all collected data would solely be used for scientific research and remain confidential, with no disclosure to any third party. Participants also held the right to withdraw at any time without penalty should they have concerns or experience discomfort. Upon obtaining informed consent, questionnaires were sent out via mobile phones. To ensure data accuracy, a common knowledge question ("This year is 2022?") was included. Data from participants who answered incorrectly were excluded.

The 231 valid samples comprised 43.7% men and 56.3% women. The majority (88.3%) were over 25 years old, with age distribution as follows: 11.7% under 25, 30.7% between 26 and 35, 25.5% between 36 and 45, and 32% over 46. In terms of education, most participants held a bachelor's degree or higher: 5.6% with junior high or below, 9.5% with high school or technical secondary school, 26.8% with college degrees, 47.6% with undergraduate degrees, and 10.4% with master's degrees or above. Regarding work experience, most participants (54.8%) had worked for more than 10 years, with the remaining breakdown as follows: 11.3% for less than 1 year, 24.2% for 1–3 years, 9.5% for 3–5 years, and 11.7% for 5–10 years.

Measures

Voluntary employee green behavior was assessed using a six-item scale adapted from Bissing-Olson et al.'s (2013)

Pro-environmental Behavior measure. Participants rated their agreement with statements like "I actively sought opportunities to participate in environmental protection activities at work" on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale demonstrated strong internal consistency, with a Cronbach's alpha of 0.96.

Compulsory employee green behavior was measured using a five-item scale adapted from Vigoda-Gadot's (2007) Compulsory Citizenship Behavior measure. Participants indicated their agreement with statements like "I feel pressured to invest more time and effort in pro-environmental behaviors than I want to, beyond my formal job requirements" using a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale also yielded high internal consistency, with a Cronbach's alpha of 0.96.

Affective organizational commitment was assessed using Allen and Meyer's (1990) six-item measure. Participants rated their level of agreement with statements like "I am proud to be a member of this organization" on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale demonstrated acceptable internal consistency, with a Cronbach's alpha of 0.73.

Green behavior interference with the job was measured using a five-item scale adapted from Netemeyer et al.'s (1996) work-family conflict measure. Participants indicated the extent to which statements like "My green behaviors at work often make me neglect important work tasks" reflected their experience on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale demonstrated strong internal consistency, with a Cronbach's alpha of 0.96.

Job engagement was assessed using Schaufeli et al.'s (2002) nine-item measure. Participants rated their agreement with statements like "I feel enthusiastic about my work" on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale demonstrated high internal consistency, with a Cronbach's alpha of 0.97.

Green fatigue was measured using Bolino et al.'s (2015) seven-item Citizenship Fatigue measure. Participants indicated their agreement with statements like "I feel drained from engaging in additional pro-environmental efforts beyond my job requirements" on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale also demonstrated high internal consistency, with a Cronbach's alpha of 0.96.

Job burnout was assessed using a measure adapted from Maslach et al. (1997). Participants rated the extent to which statements like "I feel emotionally drained by my work" reflected their experience on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). This scale demonstrated high internal consistency, with a Cronbach's alpha of 0.97.

Analytical approach

The study employed a quantitative approach to analyze the data. SPSS 22.0 software was used for preliminary analysis, including measures of central tendency (mean), dispersion (variance), and reliability (Cronbach's alpha) for each variable. Additionally, correlations between all variables were assessed. Mplus 8.10 software was then employed for confirmatory factor analysis and the influence of common method bias. Finally, a structural equation model was constructed and tested within Mplus 8.10 (Muthén & Muthén 2017).

Results

Table 1 presents the means, standard deviations, correlations, and reliability of the variables.As shown in Table 1,Voluntary green behavior was positively related to affective organizational commitment (r=.34, P<.01), job engagement (r=.38, P<.01), and negatively related to Job burnout (r=-.19, P<.01). Compulsory green behavior was positively related to green behavior interference with job (r=.31, P<.01), job engagement (r=.13, P<.05), green fatigue (r=.42, P<.01), and Job burnout(r=.24, P<.01). These results preliminarily partially validate our hypotheses.

Confirmatory factor analysis

Confirmatory factor analysis (CFA) was performed using Mplus 8.10 to assess the distinctiveness and validity of the research model's constructs. As shown in Table 2, the seven-factor model (comprising voluntary green behavior, compulsory green behavior, affective organizational commitment, green behavior interference with the job, job engagement, green fatigue, and job burnout) exhibited a superior model fit compared to alternative models (χ^2/df = 3.65, CFI = 0.92, TLI = 0.90, RMSEA = 0.11, SRMR = 0.10). This result provides evidence of good discriminant validity for all constructs included in the research model (Table 2 & Fig. 1).

Common method bias

While the study collected data across three waves, concerns about common method bias (CMB) remained. However, Harman's single factor test indicated that CMB was within an acceptable range, as the first factor explained only 37.42% of the total variance (Harman, 1976). This finding suggests that CMB was unlikely to significantly affect the results, allowing further analysis to proceed.

Table 1 Means, Standard Deviations and Correlations (N = 231)

Variable	Mean	S.D	1	2	3	4	5	6	7	8	9	10	11
1. Gender	1.56	.50											
2. Age	2.78	1.03	-.09										
3. Education	3.48	1.00	-.13*	-.23**									
4. Tenure	3.52	1.51	-.14*	.68**	-.18**								
5. Voluntary green behavior	4.11	.74	.17**	.08	-.11	.11	(.97)						
6. Compulsory green behavior	2.69	1.11	-.09	.07	-.07	.08	.12	(.96)					
7. Affective organizational commitment	3.56	.75	-.08	.21**	-.02	.15*	.34**	-.12	(.73)				
8. Green behavior interference with job	2.69	1.05	.02	-.03	.01	.06	-.07	.31**	-.43**	(.96)			
9. Job engagement	3.61	.83	-.12	.11	-.10	.19**	.38**	.13*	.29**	.07	(.97)		
10. Green fatigue	2.43	.94	-.08	-.07	.02	-.03	-.07	.42**	-.38**	.43**	.06	(.96)	
11. Job burnout	2.76	.96	.04	-.03	-.04	-.00	-.19**	.24**	-.41**	.40**	-.22**	.61**	(.97)

*p < 0.05, **p < 0.01, two-tailed. Reliability in brackets

Table 2 Confirmatory Factor Analysis Results (N = 231)

Model	χ^2	df	CFI	TLI	RMSEA	SRMR
Seven-factor model: VGB, CGB, AOC, GBIJ, JE, GF, JB	616.26	169	.92	.90	.11	.10
Six-factor mode: VGB + CGB, AOC, GBIJ, JE, GF, JB	1130.27	175	.83	.79	.15	.15
Six-factor mode: VGB, CGB, AOC + GBIJ, JE, GF, JB	951.07	174	.86	.83	.14	.10
Five-factor model: VGB + CGB, AOC + GBIJ, JE, GF, JB	1823.69	179	.70	.65	.20	.18
Five-factor model: VGB, CGB, AOC + GBIJ, JE + JB, GF	1950.10	179	.68	.62	.21	.22
Four-factor model: VGB + CGB, AOC + GBIJ, JE + JB, GF	2793.63	183	.52	.45	.25	.25
Four-factor model: VGB + CGB + AOC, GBIJ + JE, GF, JB	2482.50	183	.58	.52	.23	.24
Three-factor model: VGB + CGB, AOC + GBIJ, JE + GF + JB	3517.17	186	.39	.31	.28	.27
Two-factor model: VGB + CGB + AOC + GBIJ, JE + GF + JB	4136.17	188	.28	.20	.30	.30
Single factor model: VGB + CGB + AOC + GBIJ + JE + GF + JB	4160.50	189	.28	.20	.30	.22

*p < 0.05, **p < 0.01, ***p < 0.001. VGB = Voluntary employee green behavior; CGB = Compulsory employee green behavior; AOC = Affective organizational commitment; GBIJ = Green behavior interference with job; JE = Job engagement; JB = Job burnout; GF = Green fatigue

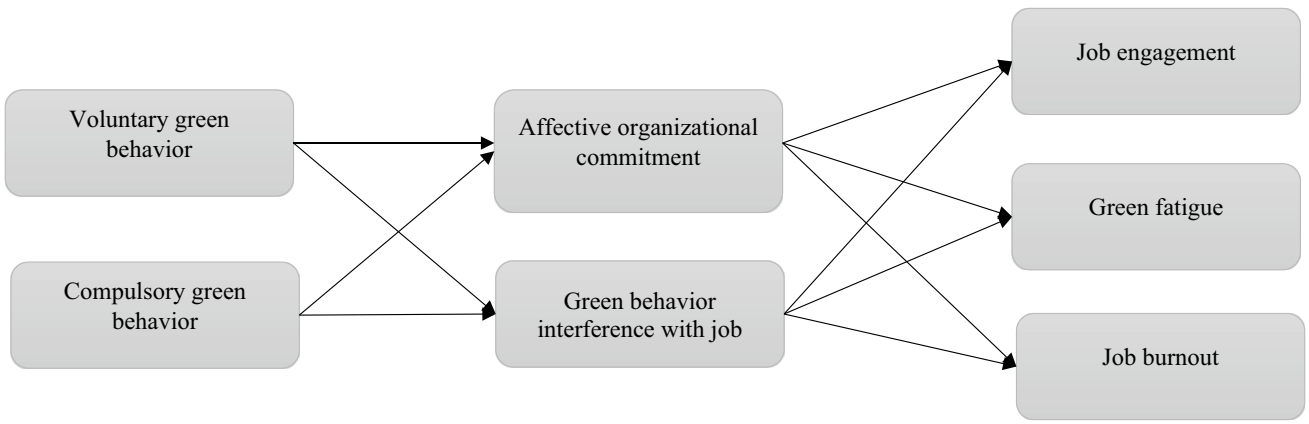

Fig. 1 Research Model

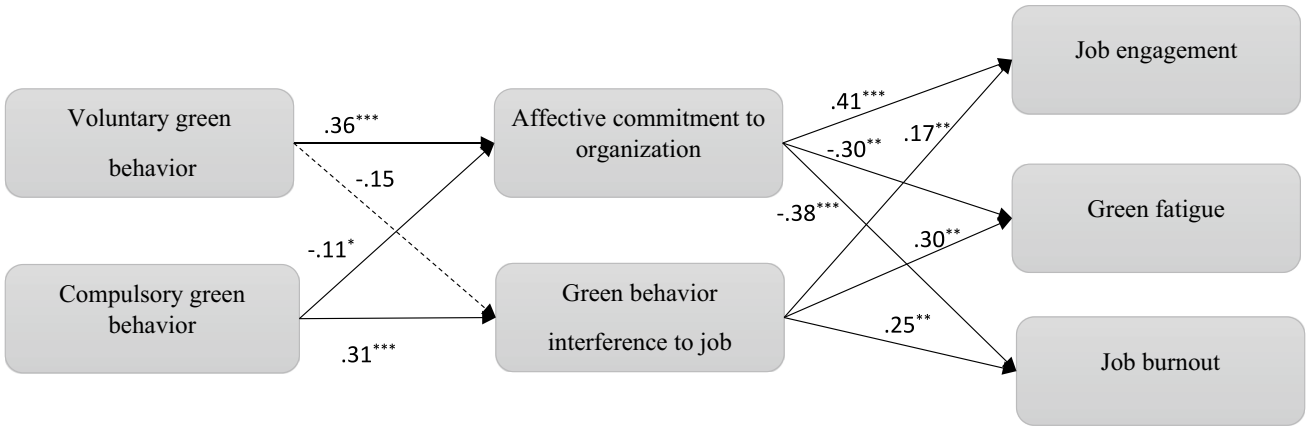

Fig. 2 Results of structural equation modeling

Table 3 Indirect Effects Test Results (N = 231)

Indirect path	Estimate	S.E	95% Confidence Intervals [Upper, Lower]
VGB → AOC → JE	.15**	.04(3.341)	[.08, .25]
VGB → AOC → JB	-.14**	.04(-3.02)	[-.25, -.07]
VGB → AOC → GF	-.11**	.03(-3.12)	[-.20, -.05]
CGB → AOC → JE	-.05*	.02(-2.14)	[-.10, -.01]
CGB → AOC → JB	.04*	.02 (2.08)	[.01, .09]
CGB → AOC → GF	.03	.02(1.80)	[.01, .08]
VGB → GBIJ → JE	-.03	.02(-1.64)	[-.07, -.00]
VGB → GBIJ → JB	-.04	.03(-1.31)	[-.11, + .00]
VGB → GBIJ → GF	-.04	.03(-1.51)	[-.11, + .00]
CGB → GBIJ → JE	.05*	.03(2.17)	[.02, .11]
CGB → GBIJ → JB	.08*	.03(2.33)	[.03, .16]
CGB → GBIJ → GF	.09*	.04(2.43)	[.03, .18]

*p < 0.05, **p < 0.01, ***p < 0.001. two-tailed. VGB = Voluntary employee green behavior, CGB = Compulsory employee green behavior,

AOC = Affective organizational commitment; GBIJ = Green behavior interference with job; JE = Job engagement; JB = Job burnout; GF = Green fatigue

Results from structural equation modeling

The researchers applied a structural equation model to analyze the data. The results of the path effects are presented in Fig. 2, while Table 3 displays the results of all indirect effect tests. As depicted in Fig. 2, the effect of voluntary green behavior on affective organizational commitment was positive and statistically significant (β = 0.36, p < 0.001). Although the path coefficient between voluntary green behavior and green behavior interference with the job was negative, such effect is not significant (β = -0.15, ns), offering partial support for hypothesis 1a. On the other hand, compulsory green behavior is found to be negatively related to affective organizational commitment (β = -0.11, p < 0.05), while positively related to green behaviors interference with job, providing support for hypothesis 1b.

Hypotheses 2 and 3 describe mediating mechanisms through which two forms of green behaviors impact job engagement, burnout and green fatigue. Voluntary EGBs are expected to have positive impacts, while compulsory EGBs' influence is more detrimental. Using bootstrapping with 5000 resamples, we tested all the indirect effects at the 95% confidence level (shown in Table 3). As expected, via affective organizational commitment, voluntary EGBs are found with increased job engagement (0.15*), reduced burnout (-0.14*) and green fatigue (-0.11*), while compulsory EGBs indirectly lowering the level of job engagement (-0.05*) but increasing burnout (0.04*). When green behavior interference with job is the mediator, however, none of the indirect effects of voluntary EGBs are significant. Compulsory EGBs are still found contributing to job burnout (0.08*) and green fatigue (0.09*) indirectly. Surprisingly, the indirect effects of compulsory EGBs on job engagement is positive (0.05*), indicating there may be some positive potential. After all, EGBs (regardless voluntary or compulsory) will end up creating a pleasant working environment and cutting expenses and costs for the organization (Pham et al., 2019a, 2019b). These benefits may offset the negative influence of EGBs being required or forced and create a positive atmosphere for employees, resulting in an increase in their work engagement (Karatepe et al., 2022). Therefore, both hypothesis 2 and 3 are partially supported.

Discussion

This study examined the impact of employees' green behavior, comparing voluntary and compulsory forms. We found that these two forms of green behaviors exert opposite

effects on job engagement, burnout and green fatigue indirectly through two mediators, namely affective organizational commitment and green behavior interference with job.

Theoretical contribution

Our study contributes to literature in the following ways. First, whereas most prior research has focused on the antecedents and motivators behind green behaviors, we uniquely examine the psychological and behavioral of engaging in voluntary versus compulsory green actions for employees themselves. In addition, most previous studies focused on the consequences of green behavior and have revealed the positive aspects of green behavior but have failed to comprehensively reflect the negative aspects. Our finding contrasts with prior studies that viewed all green behavior positively. Our findings reveal stark differences in how these two forms of green behaviors relate to critical outcomes including work engagement, burnout, and specifically green fatigue, a new concept we brought into the picture. This study contributes to previous research, clarifying the essential differences between the two types of green behaviors and the psychological and behavioral effects of such behaviors.

Second, we introduce and find support for the notion that voluntary pro-environmental efforts stem from autonomous motivations aligned with personal values, while compulsory actions result from controlled motivations based on organizational mandates. Drawing from tenets of self-determination theory, our results clearly demonstrate that voluntary green initiatives indirectly improve attitudes and well-being through enhancing perceived commitment to the organization. In contrast, compulsory green efforts increased perceptions that environmental initiatives interfere with work productivity, explaining their negative impacts.

Practical implications

As environmental issues become more pressing, organizations across all sectors are paying greater attention to integrating sustainability into their operations and minimizing environmental impact. However, this research suggests that in order for such green initiatives to succeed without adverse effects, managers need to be strategic in implementing them by focusing on aligning sustainability efforts to employees' personal values rather than imposing them as obligations. Specifically, our findings indicate that when employees voluntarily engage in pro-environmental actions because they align with their own priorities and concerns, it enhances their work engagement and attenuates burnout. In contrast, making green behaviors compulsory through organizational mandates may backfire—diminishing dedication, increasing cynicism surrounding environmental efforts, and fostering perceptions that sustainability policies hinder workflow.

Therefore, rather than merely requiring green behaviors, managers aiming to embed sustainability should actively promote open dialogues about environmental values, provide opportunities for employees to learn about ecological impacts, encourage grassroots participation in shaping green policies, and foster an ethical organizational culture centered around collective environmental stewardship. Making employees feel personally connected to sustainability objectives, rather than coercing adoption of behaviors not intrinsically motivated, will lead to vastly more positive outcomes for well-being.

Additionally, organizations can look to encourage voluntary participation in pro-environmental initiatives through careful use of incentives, aiming to spark initial interest rather than pressure compliance. However, the substantial differences in outcomes stemming from autonomous vs. controlled motivations uncovered in this research suggest that preserving employees' sense of volition and choice regarding sustainability contributes most to success. Avoiding controlled, compliance-based rationales for green policies will sidestep adverse attitudinal outcomes. Overall, managers overseeing environmental programs must remain cognizant that how workplace greening efforts are implemented matters greatly.

Limitations and future research

While this research makes important contributions to understanding the differential impacts of voluntary versus compulsory green behaviors, several limitations provide avenues for future exploration. First, our data came from single-source self-report surveys, raising the possibility of biases like social desirability . Subsequent studies should seek to replicate findings using multi-source data (e.g. supervisor or peer ratings) or more objective measures of outcomes like employee retention. Using diverse methods would further validate the relationships identified here. Second limitation is about our results generalizability. While our diverse sample aimed to promote generalizability across industries, a limitation stems from combining employees from disparate industries with likely variability in green orientations and sustainability practices (e.g. Cordeiro & Tewari, 2015). Future studies may directly assess and compare industry-specific green ethics and behavioral expectations prior to examining employee reactions and outcomes from environmental initiatives in order to yield more contextually-targeted insights. Thirdly, we centered on a limited set of outcome variables surrounding engagement, burnout, and green fatigue given the individual-level focus. But sustainability policies likely have broader organizational implications warranting exploration. For instance,

future work could test links between green behaviors and tangible results like innovation, turnover intentions, safety compliance, or unit-level performance. Establishing connections to a wider range of employee behaviors and firm outcomes will better elucidate the holistic impacts of compelled versus voluntary pro-environmental efforts.

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Data Availability The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee and the ethical standards.

Declarations of Interest The authors have no conflicts of interest to declare.

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