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Understanding voluntary pro-environmental behavior among colleagues: Roles of green crafting, psychological empowerment, and green organizational climate

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Abstract

A concerning surge in pollution has drawn increased attention to sustainability efforts. The lack of environmentally conscious human behavior contributes significantly to environmental degradation. This research explores the impact of perceived colleague support towards the environment (PCSE) as a catalyst for promoting employees' green initiatives. Underpinned by the conservation of resources (COR) theory, the study reveals a sequential chain mediation model, wherein PCSE initiates a process leading to voluntary pro-environmental behavior (VPEB) among employees, facilitated by green crafting (GC) and a supportive green organization climate (GOC). Additionally, the study examines the moderating role of psychological empowerment (PE) on the relationship between GC and GOC. Data were collected at two-wav points with a 2-week gap from the Pakistani textile sector. Results indicate that GC and GOC serially mediate the relationship between PCSE and VPEB of employees. Furthermore, the results support the mediation of GOC between PCSE and VPEB. However, the results did not support the moderating impact of PE. The study discusses important theoretical and practical implications for fostering green initiatives among employees.

KEYWORDS
green crafting, green organization climate, perceived colleague support towards environment, textile industry, voluntary pro-environmental behavior

1 | INTRODUCTION

Over the past decade, increasing environmental challenges and the pressing need for sustainability have arisen from the alarming rate of global resource depletion (Cho et al., 2013; Razzaq et al., 2018). In particular, the textile industry, which is ranked as the second largest polluter worldwide, stands out for its harmful environmental impact (Ramos-Galarza & Acosta-Rodas, 2019). Notably, Pakistan holds the title of the world's leading exporter of textile products (Memon et al., 2020). The country is beholding a growing demand for various textile products, ranging from knitwear to ready-made garments, bedding, and clothing. Consequently, increased production to meet this demand has exacerbated environmental degradation (Majeed et al., 2019; Memon et al., 2020). The sustainable future of the textile industry depends on its ability to adopt competitive practices while meeting its environmental responsibilities. Despite its pivotal role in

Abbreviations: GC, green crafting; GOC, green organization climate; PCSE, perceived colleague support toward environment; PE, psychological empowerment; VPEB, voluntary pro-environmental behavior.

Pakistan's economy, academic scrutiny of employees' voluntary green behavior within this sector remains scarce. Furthermore, existing research predominantly focuses on developed countries, with approximately 80% of studies focusing on the European Union (Yuriev et al., 2018). Motivated by the economic importance of the textile sector, this study aims to bridge this gap by investigating the impact of perceived colleagues support towards the environment (PCSE) within the textile industry of Pakistan. By recognizing the fundamental role of organizational strategies in promoting environmental awareness, the study highlights the potential of companies that prioritize green initiatives to significantly improve their pro-environmental behavior (Úbeda-García et al., 2021).

Voluntary pro-environmental behavior (VPEB) contains discretionary initiatives by employees aimed at safeguarding the natural environment, resulting in collective benefits for the organization, both financially and environmentally (Khan et al., 2019). This behavior involves actions such as recycling, reducing workplace waste, conserving energy, and encouraging colleagues to adopt pro-environmental practices, thereby positively impacting environmental sustainability (Dada et al., 2024; He et al., 2024; Khan et al., 2019; Robertson & Carleton, 2017). The present research argues that VPEB can be significantly fostered through perceived colleague support towards the environment (PCSE). When employees perceive that their colleagues are supportive of eco-friendly initiatives, it creates a collaborative and encouraging workplace atmosphere (Paillé et al., 2016). As colleagues exchange ecological insights, provide feedback, and offer practical help, employees feel more confident and motivated to engage in pro-environmental behaviors. This collective effort reduces the perceived barriers to implementing green practices and enhances the overall organizational commitment to sustainability. Consequently, the supportive environment cultivates a sense of shared responsibility among employees and the establishment of a robust green organization climate (GOC), leading to increased voluntary participation in environmental initiatives.

In the following section, this research sheds light on the central theme of the study, examining how green crafting (GC) and GOC sequentially mediate the relationship between PCSE and VPEB. The research focuses on enhancing VPEB through the interplay of PCSE, GC, GOC, and psychological empowerment (PE). By addressing this research question, the current study aims to provide a comprehensive understanding of the mechanisms through which workplace social support influences employees' pro-environmental behaviors. This enhances both theoretical and practical insights into fostering sustainable practices within organizations.

2 | THEORETICAL BACKGROUND AND LITERATURE REVIEW

In previous studies, there are several notable discussions about the collaborative efforts that employees can make individually to improve organizational performance (Karatepe, 2012; Paillé et al., 2016; Raineri & Paillé, 2016). However, the long-term impacts of voluntary green behavior resulting from the employee perspective receive scant attention in scholarly discussion . According to Paillé et al. (2016), peer support for environmental initiatives significantly improves sustainability goals. The existing literature is largely discussed in the area of VPEB and the effects on perceived support from colleagues (Biswas et al., 2022; Cantor et al., 2012; Naz et al., 2023; Paillé et al., 2013, 2016).

According to Paillé et al. (2016), a more nuanced construct is introduced, namely PCSE. This specific construct explains the degree to which employees perceive that their colleagues help them participate in voluntary green initiatives in the workplace, contributing to the creation of a supportive environment for environmental protection (Paillé et al., 2016). While some studies (Anderson & Bateman, 2000; Egri & Herman, 2000; Paillé et al., 2016; Ramus & Steger, 2000) highlighted the predictors of sustainable behaviors at the employee level, other studies (Aguilera et al., 2007; Egri & Herman, 2000; Lindgreen & Swaen, 2010) highlighted the predicators of sustainability behavior at multiple levels. Hence, there is a paucity of evidence from previous studies from the perspective of colleagues who face an unsafe physical environment at the workplace and inadequate internal communication, which could cause stress in workers and be detrimental to their well-being (Ahmad et al., 2019). Employee-level perspectives emerge predominantly at the individual level, explaining the critical role that the social environment plays in the workplace (Afsar & Umrani, 2020). However, scant research has been conducted on how connections between co-workers affect the exchange of ideas in a professional setting. Organizations can move more quickly regarding sustainability through this less expensive and more legitimate path. This context in which colleagues make recommendations for development is considered more legitimate and less costly (Parker et al., 2006). Feelings of social support are mainly triggered by intrinsic attraction and social approval (Raineri et al., 2016). Several studies highlighted that employee behavior plays a fundamental role in achieving a high degree of corporate greening (Boiral & Paillé, 2012; Boiral, 2009; Hart, 1995; May & Flannery, 1995). Hence, several environmental literature has mostly ignored employees' collaborative behaviors (Naz et al., 2023; Zafar, Ho, et al., 2023; Zafar & Suseno, 2024). However, some studies suggest that they are essential for the effective implementation of environmental actions in the workplace (Afsar & Umrani, 2020; Paillé et al., 2016, 2018; Raineri et al., 2016; Shah et al., 2021).

Despite the acknowledged significance that high levels of voluntary initiatives stem from positive relationships with managers, organizations, and co-workers concurrently (Chiaburu et al., 2013; Lamm et al., 2015; Paillé et al., 2016), scholars have tended to overlook the contextual, individual, and multi-level factors influencing voluntary green behavior (Iqbal et al., 2020; Lamm et al., 2015; Newman et al., 2017; Raineri et al., 2016). Recognizing the pivotal role of co-worker support in fostering pro-environmental behavior among employees (Afsar & Umrani, 2020; Shah et al., 2021), this study endeavors to contribute to the underdeveloped understanding of the socio-psychological processes that lead employees to participate in voluntary green initiatives within the workplace (Karatepe, 2012;

Paillé et al., 2016; Raineri & Paillé, 2016; Zafar & Suseno, 2024). We emphasize the importance of recognizing and exploring the nuanced interplay of individual, interpersonal, and organizational strategies influencing employees' engagement in pro-environmental behaviors at work.

Aligned with the conservation of resources (COR) theory, this research exhibits GOC and GC as sequential mediators. COR theory maintains that social resources, such as support from co-workers, are essential in allowing workers to obtain more resources (Tuan, 2019b). Furthermore, employees who receive this encouragement are more likely to take the initiative to acquire resources, initiating a spiral of resource gain. According to Hobfoll (2002), resources are acquired through GC because of the reciprocal transfer of resources between organizational members. This promotes a shared mental model that fosters relationships between employees that are reciprocal and aligned with the organization's green goals, which in turn facilitates greater resource transfer and helps the establishment of a GOC within the company. According to Dumont et al. (2017), a GOC is defined as the way staff members view pro-environmental procedures, policies, and practices that support the organization's ecological goals and principles. In terms of organization climate, employees' opinions about their employers have an impact on their behavior (Biswas et al., 2022; Dumont et al., 2017; Saeed et al., 2019). Conservation of ecological resources in a GOC allows staff members to think about new green projects and adopt green behaviors (Dumont et al., 2017; Tuan, 2019b).

PE, which encompasses feelings of competence, autonomy, impact, and meaning, can profoundly influence how employees engage with and contribute to environmental initiatives (Zafar et al., 2022). The current research exhibits that employees are more likely to take ownership of GC efforts when they feel psychologically empowered, thereby enhancing their proactive engagement in sustainable practices. This heightened engagement can amplify the positive effects of GC on fostering a GOC. By understanding the moderating role of PE, organizations can better design and implement strategies that not only encourage GC (Khan et al., 2022) but also create an empowering work environment that maximizes the potential for establishing a robust GOC (Zafar et al., 2022). This study thus provides valuable insights into the interplay between individual psychological states and organizational environmental efforts, highlighting pathways to bolster sustainability within the workplace.

By bridging the gaps discussed above, this study significantly contributes to the literature in multiple noteworthy ways. Primarily, it advances the colleague support literature by extending the investigation of PCSE to the domain of the manufacturing industry, thereby supplementing the limited body of predictors for employees' green initiatives (Raineri et al., 2016). Secondly, this study pioneers the introduction of the mediation role of GC (Luu, 2023) between PCSE and the development of a GOC. The influence of social factors on job crafting has been under-recognized (Wang et al., 2020), and this study bridges the gap by exploring the relationship between PCSE and GOC through the lens of GC. Moreover, the research sheds light on the mediating role of GOC between PCSE and VPEB. Another noteworthy contribution is the introduction of a serial chain mediation model involving GC and GOC between PCSE and VPEB, grounded in the COR theory. The absence of such a serial chain model in previous literature underscores the novelty and significance of this research.

The COR theory suggests that individuals employ various resources in their work and are highly motivated to obtain new resources to prevent their depletion (Hobfoll, 2002). A resource can be anything of value to a person, such as a situation, an item, or a circumstance. According to Halbesleben et al. (2014), resources are essentially anything that individuals consider helpful in achieving their goals. This includes personal strengths, material possessions, social connections (Hobfoll, 2002), and even activities that help one recuperate from daily work demands (Kim et al., 2017). The theory rests on two key assumptions. First, employees need to invest their resources to manage stressful situations and protect themselves from negative outcomes (Hobfoll, 2002). Second, they must invest resources to guard against future losses, recover lost resources, or gain new ones (Hobfoll, 2002). Within the context of organizational sustainability practices, employees may miss out on job resources, such as promotions or employer support, if they are unaware of these practices or unable to contribute to the organization's sustainability goals. Conversely, when individuals possess ample sustainability resources like green knowledge, skills, and rewards, they can use these resources strategically to acquire more. The COR theory posits that resources tend to accumulate and interlink, forming "resource caravans" (Hobfoll, Freedy, et al., 2018), where resources do not exist in isolation but build up in a supportive environment. Employees in such environments feel valued, optimistic, and confident in their ability to achieve their goals (Salanova et al., 2010). Therefore, the COR theory implies that individuals aim to acquire, retain, and protect their resources to avoid losses, and those with more resources are better positioned to plan for further resource acquisition and are less susceptible to resource loss.

3 | HYPOTHESES DEVELOPMENT

3.1 | Perceived colleague support towards the environment and VPEB

PCSE is positively related to employees' VPEB. This relationship can be understood through the lens of COR theory. According to COR theory (Hobfoll, Halbesleben, et al., 2018), individuals strive to acquire and maintain valuable resources, such as emotional support, information, and tangible assistance. When employees perceive that their colleagues support environmental initiatives, they gain various resources that facilitate pro-environmental behavior. Exchanging ecological insights, giving and receiving feedback, consulting, and offering practical help within a team can greatly contribute to environmental sustainability (Raineri et al., 2016).

Emotional support from colleagues can enhance employees' sense of belonging and morale (Inoue et al., 2020; Lindholm, 2003), which reduces stress and increases their willingness to engage in voluntary

pro-environmental actions (Zhao & Qu, 2022). Informational support provides employees with the knowledge and feedback necessary to undertake environmental behaviors effectively, reducing uncertainty and increasing their competence. Instrumental support, such as assistance with environmental tasks, directly provides the resources needed to engage in these behaviors. According to COR theory (Hobfoll, Freedy, et al., 2018), when employees possess limited resources, they tend to adopt a defensive approach to preserve them, resulting in less proactive behavior (Stoverink et al., 2018). Conversely, employees with abundant resources are more inclined to invest in voluntary initiatives, employing a resource gain strategy (Halbesleben et al., 2014). When colleagues support one another by sharing green knowledge, appreciating each other's contributions, and collaborating on environmentally conscious activities, they are more likely to willingly participate in eco-friendly behaviors (Raineri et al., 2016). Success in pro-environmental initiatives, facilitated by colleague support, can lead to resource enrichment, further encouraging employees to invest in these behaviors. Therefore, it can be argued:

H1. PCSE positively relates to employees' VPEB.

3.2 | Mediation role of GC

Task crafting involves employees making adjustments to their job demands and resources to find greater meaning in their tasks (Tuan, 2019b). Expanding this concept to environmental aspects, GC refers to employees modifying their environmental tasks to derive more significance from them (Tuan, 2019b). Colleagues contribute to each other's efforts by sharing resources such as green knowledge and support for environmental tasks (Raineri et al., 2016). Drawing from the COR theory, having abundant resources from a supportive source, like perceived colleague support for environmental initiatives, inspires employees to cultivate green resources through GC, invest available resources to gain more, and exceed expectations (Stoverink et al., 2018). With plentiful resources at their disposal, employees are motivated to channel these resources into voluntary behaviors, including pro-environmental actions. Employees' understanding and commitment to environmental issues grow as they focus on environmental concerns, allowing them to consciously select strategies and initiatives based on their environmental impact. Thus, employees have the opportunity to utilize their resources to actively engage in environmental practices.

As PCSE increases employees' understanding of the importance of green tasks and offers assistance for organizational endeavors (Paillé et al., 2016), employees become highly motivated to tailor their tasks to align with environmental objectives. This process of GC influences employees' perception that integrating environmental concerns into their tasks is integral. In the context of the COR theory, GC can be seen as a resource that employees proactively use to modify their tasks and work environment to incorporate sustainability practices (Luu, 2019). When employees perceive strong colleague support towards the environment, it serves as a valuable social resource, fostering a supportive atmosphere that encourages GC behaviors. This supportive environment alleviates the stress associated with adopting new behaviors by providing emotional and practical assistance, thereby enhancing employees' capacity to engage in GC behavior. Through supportive and emotionally healing interactions, peers alleviate obstacles in each other's environmental tasks, reducing cognitive strain and bolstering their green efforts (Tuan, 2019b). This aligns with the COR theory (Hobfoll, 2002; Hobfoll, Halbesleben, et al., 2018), which suggests that employees with abundant resources experience less depletion of emotional energy and are more prone to energy gain. Following the concept of a "resource caravan," employees utilize existing resources to acquire further resources (Hobfoll, Freedy, et al., 2018). In this context, employees invest their existing resources to acquire additional green resources. Building on this premise, the present study anticipates that employees will invest their structural resources in GC to acquire further green resources, thereby enhancing environmental initiatives. As employees invest in GC, they accumulate additional resources, such as enhanced green skills and knowledge, which further empower them to take part in VPEB. This resource accumulation aligns with the COR theory's premise that individuals strive to build and protect their resource pools. Therefore, perceived colleague support initiates a positive resource gain cycle through GC, ultimately leading to increased VPEB among employees. Therefore, it can be anticipated:

H2. GC mediates the relationship between PCSE and VPEB.

H3. GC mediates the relationship between PCSE and GOC.

3.3 | Mediation role of GOC

PCSE refers to employees' beliefs regarding the degree to which their colleagues assist them in engaging in pro-environmental behaviors within the workplace and contribute to fostering an environmentally caring atmosphere for the organization (Bishop et al., 2000; Paillé et al., 2016). According to COR theory, resources such as emotional support, knowledge, and practical assistance are crucial for individuals to engage in positive behaviors, including those that benefit the environment (Zafar, Suseno, & Ho, 2023). Employees collaborating, communicating, and interacting within an organization tend to develop perceptions of a shared environmental vision. This shared vision is reinforced by positive relationships among colleagues, characterized by mutual support, which contributes to a supportive climate that enhances relationships with management (Roxana, 2013). In the context of COR theory, this supportive climate represents a valuable resource that employees can draw upon to engage in VPEBs. When employees feel validated and encouraged by their colleagues, they are more likely to invest their resources in eco-initiatives (Paillé et al., 2016). The green organizational climate

reflects the organizational support for environmental initiatives by showcasing green policies and practices and communicating the organization's priorities (Dumont et al., 2017). When employees perceive a green organizational climate, it signals that the organization values and supports their pro-environmental behaviors (Zafar, Ho, et al., 2023), further motivating them to engage in these behaviors. This perception of a supportive climate acts as a buffer against the potential stressors associated with pro-environmental behaviors, providing employees with the confidence and resources needed to participate in eco-friendly activities. According to COR theory, when employees possess abundant resources, they are more inclined to invest them in voluntary initiatives, employing a resource gain strategy (Hobfoll, Freedy, et al., 2018). This is particularly true in a green organizational climate, which embodies the values and norms of the organization and impacts its reputation and the gains associated with employees' environmentally friendly behaviors (Zafar & Suseno, 2024).

Therefore, the green organizational climate serves as a mediating factor, amplifying the effects of perceived colleague support on VPEB. Employees who feel supported by their colleagues are more likely to perceive a positive green organizational climate, reinforcing their belief that their pro-environmental behaviors are appreciated and backed by the organization. This creates a positive resource spiral, where the initial support from colleagues leads to a stronger organizational climate, further encouraging voluntary pro-environmental actions. Hence, it can be anticipated:

H4. GOC mediates the relationship between PCSE and VPEB.

3.4 | Sequential mediation role of GC and GOC

As outlined in the preceding hypotheses, the social resources provided to employees in the form of colleague support serve as a catalyst for employees to imbue their tasks with greater meaning. Consequently, employees' social resources are transformed into structural resources. Employees are motivated to leverage their existing resources to acquire additional ones (Hobfoll, 2002). Drawing from the task crafting framework (Petrou et al., 2012), employees are inclined to refine their available green resources by actively seeking opportunities to enhance their skills and knowledge related to environmental activities. They are also likely to take on increased responsibilities to participate in new green projects. This behavior of GC influences employees' perception that engaging in environmentally friendly actions is an expected part of their role. Acting as a reservoir of green-related resources, GC contributes to shaping employees' perception of the organization's green climate. Building on theoretical frameworks, we anticipate that under conditions of PCSE, employees will exhibit proactive resource acquisition behaviors, and with ample resources at their disposal, they will be motivated to invest in voluntary behaviors such as pro-environmental actions.

According to the COR theory (Hobfoll, Halbesleben, et al., 2018), the sequential mediation of GC and GOC provides a nuanced understanding of how PCSE influences VPEB. When employees perceive strong support from their colleagues for environmental initiatives, it acts as an essential social resource that reduces stress and fosters a collaborative atmosphere (Zafar, Suseno, & Ho, 2023). This support encourages employees to engage in GC behavior, wherein they proactively modify their work tasks and environment to incorporate sustainable practices. Through GC, employees accumulate additional resources such as enhanced green skills, knowledge, and a sense of environmental stewardship (Tuan, 2019b). These newly acquired resources contribute to the development of a GOC, characterized by shared environmental values, norms, and practices (Tuan, 2019b). This supportive climate, in turn, reinforces and amplifies the initial effects of colleague support, further motivating employees to participate in VPEB (Sabokro et al., 2021). The sequential mediation process highlights how the accumulation and interplay of resources—starting from colleague support, through GC, and culminating in a GOC—ultimately lead to sustained and voluntary engagement in pro-environmental behaviors. This chain of resource gain aligns with the COR theory's emphasis on the importance of building and protecting resource pools to achieve and maintain positive outcomes. In light of the above arguments, it can be anticipated:

H5. GC and GOC sequentially mediate the relationship between PCSE and VPEB.

3.5 | Moderating role of PE

PE refers to the intrinsic motivation, confidence, and sense of control individuals feel regarding their work environment (Spreitzer, 1995). It includes feelings of competence, autonomy, impact, and meaning, fostering a sense of ownership and responsibility (Sarwar et al., 2023). Employees who experience PE are more likely to actively engage in their work, take initiative, and contribute to organizational goals (Zafar et al., 2022). They perceive their work as meaningful and believe they have the capability to make a difference, leading to increased job satisfaction, commitment, and performance. PE represents a critical resource that enhances employees' ability to engage in proactive and discretionary behaviors, such as GC. GC involves environmentally friendly behaviors and initiatives within the workplace, such as reducing waste, conserving resources, and implementing sustainable practices (Pieterse et al., 2009). These behaviors are often self-initiated and go beyond formal job requirements, relying on the individual's motivation and resources. When employees feel psychologically empowered, they are more inclined to participate in GC efforts. Their sense of autonomy and impact motivates them to proactively engage in environmentally sustainable behaviors, contributing to a positive organizational climate focused on sustainability (Meng et al., 2016). PE acts as a catalyst, enhancing the relationship between GC and the organizational climate. This is because empowered employees are more likely to perceive their actions as meaningful and

impactful, encouraging them to take ownership of green initiatives. According to COR theory, empowered employees possess valuable psychological resources (Peethambaran & Naim, 2023) that reduce the perceived cost of engaging in discretionary behaviors like GC. These resources include a sense of competence and autonomy, which mitigate the stress and effort (Peethambaran & Naim, 2023) associated with initiating and sustaining green practices (Zafar et al., 2022). As a result, empowered employees are more resilient and willing to invest their resources in GC, leading to a positive green organizational climate. In light of the above arguments, it can be anticipated (Figure 1).

H6. PE moderates the relationship between GC and GOC.

Based on the above discussion, the following framework can be developed.

4 | METHODOLOGY

4.1 | Participants and procedure

The current study involved a survey of employees from 32 textile firms located in Punjab, specifically targeting the business cities of Faisalabad, Multan, and Lahore due to their high concentration of textile companies (SECP, 2020). The drop-and-collect method was utilized for data collection, wherein questionnaire forms were left with managers and collected at a later agreed-upon date. The drop-and-collect method was utilized to ensure a higher response rate, as personal delivery and collection often lead to more completed surveys than other methods. Additionally, this approach provides respondents with the flexibility to complete the survey at their convenience, enhancing the accuracy and completeness of their responses. It also allows researchers to offer immediate clarification if respondents have any questions, thereby reducing misunderstandings and improving data quality. Initial contact with managers was established through email, accompanied by a cover letter detailing the purpose of the study. The information was gathered using a two-wave research design (Time-1 and Time-2), with a 2-week interval to minimize the effects of common method bias. Non-probability sampling techniques, specifically purposive sampling, were employed due to the unavailability of an employee list. Out of 800 distributed questionnaires, 600 responses were received, with demographic information and perceived colleague support gathered in the first wave. After discarding incomplete responses, the final sample size was 454. To achieve a satisfactory response rate, researchers implemented several measures during data collection, including follow-up calls to encourage participation and providing respondents with tokens of appreciation upon completing the survey. In Table 1, the demographic profile of the surveyed population composed of 454 individuals that revealed a diverse representation across various categories. Regarding gender, males contribute 64.10% (291 individuals), while females contribute 35.90% (163 individuals). Notably, age distribution indicates the highest proportion falling within the 33–39 age range (36.78%, 167 participants), followed closely by the 25–32 age group (30.18%, 137 participants). Education levels vary, with a significant portion having attained post-graduate qualifications (42.51%, 193 individuals), while the experience profile displays a balanced distribution, with 42.07% (191 individuals) of 11–20 years, and those having more than 30 years of experience, their response rate is (5.51%, 25 individuals).

4.2 | Measure

In this study, we evaluate the PCSE using four items from existing studies (Paillé et al., 2016; Stinglhamber et al., 2006) and 21 formative

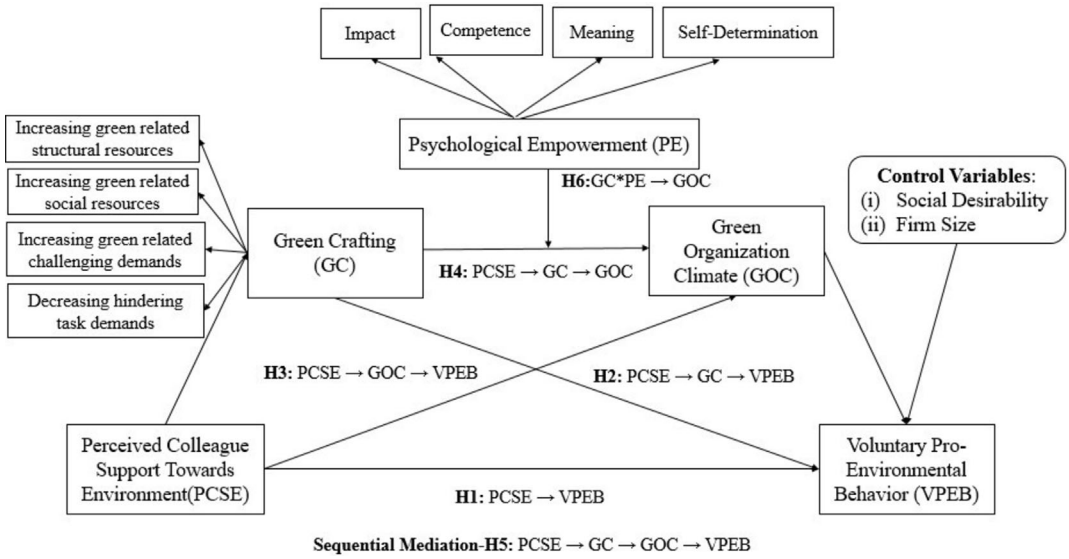

FIGURE 1 Research framework.

TABLE 1 Demographic profile ($N = 454$).

Description	Category	Frequency (N)	Percentage (%)
Gender			
	Male	291	64.10
	Female	163	35.90
Age			
	18–24	97	21.37
	25–32	137	30.18
	33–39	167	36.78
	Above 40	53	11.67
Level of education			
	Intermediate	53	11.67
	Graduate	161	35.46
	Post-graduate	193	42.51
	More than post-graduate	47	10.35
Experience			
	1–10 years	147	32.38
	11–20 years	191	42.07
	21–30 years	91	20.04
	Above 30 yeas	25	5.51

items to assess GC by Tims et al. (2012), which measure the extent to which employees are inspired to learn environmental developments within the organization. GC has four sub-dimensions: increasing green-related social resources, increasing green-related structural resources, increasing green-related challenging demands, and decreasing hindering green task demands. To evaluate GOC, we employed five items from Chou (2014), while 12 items were taken from Lamm et al. (2013) to evaluate VPEB. PE is composed of four sub-dimensions, including impact, meaning, competence, and self-determination, which were taken from Spreitzer (1995); each sub-dimension is composed of three items.

4.3 | Control variables

People try to provide socially desirable responses while responding to pro-social behavior like green behavior (Moore & Rutherfurd, 2020). Therefore, it was significant for the present study to control social desirability bias (Strahan & Gerbasi, 1972). Larger firms have more resources to implement green policies (Zibarras & Coan, 2015). Thus, the size of the firm could have an impact on the results of the present study. Therefore, it was controlled.

5 | DATA ANALYSIS

We employed Smart PLS version 3.3.7 to conduct partial least squares structural equation modeling (SEM).

5.1 | Common method variance (CMV)

According to Podsakoff et al. (2012) and Podsakoff et al. (2003), Harman's single-factor test ensures no common method bias issue. An unrotated single latent factor analysis was conducted to ensure no CMV issues, and the results were 39.11%, below the 50% threshold according to Podsakoff et al. (2012).

5.2 | Reflective measurement model results

According to Hair et al. (2017), the standardized criteria of average variance extracted was 0.50, and the value of each variable is high in this research. In Table 2, the values of each variable are higher than the threshold value of 0.70 of Cronbach's alpha, and composite reliability ensures internal consistency (Hair et al., 2017). Therefore, the first-order constructs perceived college support towards the environment and GOC, and VPEB meets the threshold value. Subsequently, the discriminant validity was examined through the Heterotrait–Monotrait (HTMT) ratio of the correlations (Henseler et al., 2015). All the values were under the limit of 0.90 (see Table 3). GC and PE were handled as higher-order constructs through a disjoint two-stage approach (Sarstedt et al., 2019). Therefore, the variance inflation factor scores range from 1.07 to 3.82 in Table 4 of all the dimensions of GC and PE, which was not greater than the criteria of 5.0, so there were no multicollinearity concerns in the variance inflation factor. Hence, the dimensions of GC and PE were statistically significant (Hair et al., 2017).

TABLE 2 Assessment of convergent validity, internal consistency, and full collinearity.

Constructs	Items	FL	CA	CR	AVE
Perceived colleague support towards the environment	PCSE1	0.75	0.74	0.84	0.57
	PCSE2	0.64			
	PCSE3	0.85			
	PCSE4	0.75			
Green organization climate	GOC1	0.82	0.77	0.85	0.53
	GOC2	0.69			
	GOC3	0.73			
	GOC4	0.72			
	GOC5	0.65			
Voluntary pro-environmental behavior	VPEB1	0.78	0.92	0.93	0.54
	VPEB2	0.82			
	VPEB3	0.76			
	VPEB4	0.82			
	VPEB5	0.74			
	VPEB6	0.81			
	VPEB7	0.75			
	VPEB8	0.63			
	VPEB9	0.82			
	VPEB10	0.67			
	VPEB11	0.58			
	VPEB12	0.59			

Abbreviations: FL, factor loading; CR, composite reliability; CA, Cronbach's alpha; AVE, average variance extracted.

TABLE 3 Assessment of discriminant validity.

Constructs	1	2	3	4
1 Green organization climate	1			
2 Green crafting	0.84	1		
3 Perceived colleague support towards the environment	0.76	0.61	1	
4 Voluntary pro-environmental behavior	0.49	0.47	0.54	1
5 Psychological empowerment	0.41	0.39	0.47	039

Note: Below the diagonal means correlation between latents.

TABLE 4 Measurement properties of the formative variable.

Higher-order construct	Dimensions of lower order construct	Outer weights	VIF	*p*-value
Green crafting	Increasing green-related structural resources	0.34	3.24	.00
	Increasing green-related social resources	0.37	1.67	.00
	Increasing green-related challenging demands	0.31	3.82	.00
	Decreasing hindering green task demands	0.25	1.07	.00
Psychological empowerment	Competence	0.28	2.31	.00
	Impact	0.26	2.62	.00
	Meaning	0.29	1.93	.00
	Self-determination	0.34	2.64	.00

Abbreviation: VIF, variance inflation factor.

5.3 | Results of the structural model

First, we assessed the variance inflation factor values of the structural model, and the result showed that these values were less than 5.0 (see Table 4). Hence, it indicated the non-existence of multicollinearity (Hair et al., 2017). Proceeding further, we assessed the effect size (f^2). The results exhibited that PCSE had a medium effect on GC ($f^2 = 0.26$) and GOC ($f^2 = 0.21$). Proceeding further, PCSE, GOC, and GC had a small effect on VPEB ($f^2 = 0.08, 0.02, 0.03$).

Moreover, a large effect of GC was observed on GOC ($f^2 = 0.37$). Next, the coefficient of determination (R^2) was assessed to assess the explanatory power of the exogenous research variables for the endogenous variables (Hair et al., 2019; Sarstedt et al., 2019). R^2 value for GC was 0.21, which demonstrated that PCSE accounted for a 21% variance. Meanwhile, GC accounted for a 51% variance in the climate of green organizations ($R^2 = 0.51$). The 30% of the variance in VPEB was observed by GOC ($R^2 = 0.30$).

Table 5 represents that PCSE was positively related to VPEB (H1; $\beta = .29$, $p < .05$). Thus, hypothesis H1 was supported. The effect of social desirability bias on VPEB was non-significant ($\beta = -.04$, $p = .20$). Firm size did not affect VPEB ($\beta = -.01$, $p = .37$).

Furthermore, the results demonstrated that GC mediated the influence of PCSE on VPEB (H2; $\beta = .07$, $p < .05$). Bootstrapping estimations revealed that PCSE indirectly affected VPEB through GOC (H3; $\beta = .06$, $p < .05$). Furthermore, GC mediated positively between PCSE and GOC (H4; $\beta = .22$, $p < .05$). The presence of mediation was further confirmed by the total indirect effect of GC and VPEB ($\beta = .09$, $p < .05$), PCSE, and VPEB ($\beta = .18$, $p < .05$). The serial mediation of GC and GOC enhanced the effect of PCSE on VPEB (H5; $\beta = .04$, $p < .05$). Hypotheses H2, H3, H4, and H5 were accepted (see Table 6). The moderation analysis was conducted in Table 7 to examine the relationship between GC and GOC through PE (H6; $\beta = -.04$, $p < .05$) in H6; thus, hypothesis is rejected.

6 | DISCUSSION AND IMPLICATIONS

Results of our study highlight that GOC mediates the relationship between PCSE and VPEB. Additionally, GC mediates the relationship between PCSE and VPEB, as well as the relationship between PCSE and GOC. In addition to the direct impact of PCSE on VPEB, the results also support the serial mediating impact of GC and GOC between PCSE and VPEB. The following section links these findings to the literature review to demonstrate how this study supports and extends existing research on the importance of PCSE, GC, GOC, and fostering pro-environmental behaviors. The results shed light on these interconnections within the textile industry of Pakistan; this study not only contributes to the growing body of literature on

TABLE 5 Results of direct effects, control variables, and variance inflation factor (VIF).

Path	β	t-value	p-value	CIs (5.0%, 95.0%)	Result	VIF
Direct effects						
PCSE→VPEB	.29	5.77	.00	[0.21, 0.37]	Supported	1.52
PCSE→GC	.45	15.73	.00	[0.40, 0.50]	Supported	1.00
GC→GOC	.47	10.52	.00	[0.39, 0.54]	Supported	1.26
GOC→VPEB	.19	3.67	.00	[0.10, 0.27]	Supported	2.05
Control variables						
SD→VPEB	−.04	0.85	0.20	[−0.07, 0.17]	ns	
Firm size→VPEB	−.01	0.32	0.37	[−0.08, 0.05]	ns	

Abbreviations: CIs, Confidence intervals; GC, green crafting; GOC, green organization climate; ns, non-significant; PCSE, perceived colleague support towards the environment; SD, social desirability; VPEB, voluntary pro-environmental behavior.

TABLE 6 Mediation and serial mediation effects.

Path	β	t-value	p-value	CIs [5.0%, 95.0%]	Result
Mediation					
PCSE→GC→VPEB	.07	3.60	.00	[0.06, 0.12]	Supported
PCSE→GOC→VPEB	.06	3.59	.00	[0.01, 0.07]	Supported
PCSE→GC→GOC	.22	8.24	.00	[0.17, 0.26]	Supported
Total indirect effects					
PCSE→VPEB	.18	7.11	.00	[0.12, 0.20]	Supported
GC→VPEB	.09	3.27	.00	[0.02, 0.11]	Supported
PCSE→GC→GOC→VPEB	.04	3.21	.00	[0.01, 0.05]	Supported

Abbreviations: CIs, confidence intervals; GC, green crafting; GOC, green organization climate; PCSE, perceived colleague support towards the environment; VPEB, voluntary pro-environmental behavior.

TABLE 7 Moderation effect.

Relationship	β	t-value	p-value	CIs [5.0%, 95.0%]	Result
Mediation analysis					
GC × PE→GOC	−.04	1.16	.12	[−0.10, 0.02]	Rejected

Abbreviations: CIs, confidence intervals; GC, green crafting; GOC, green organization climate; PE, psychological empowerment, *p*-value <.05.

organizational environmental behavior but also underscores the relevance and applicability of COR theory in understanding and promoting sustainable practices in organizational settings.

6.1 | Theoretical implications

The present study addressed several theoretical implications. Firstly, the present study focuses on the debate on VPEB from the perspective of the Pakistani textile industry. Most of the VPEB context studies have been conducted in developed countries. However, the context of VPEB is unclear, mainly in developing or emerging countries like Pakistan (Saleem et al., 2020; Yuriev et al., 2018). While the contribution of the textile industry is significant to the Pakistani economy (Memon et al., 2020), it is also the second largest source of environmental pollution in the country (Ramos-Galarza & Acosta-Rodas, 2019). Notably, this study was conducted within the context of Pakistan's textile sector among employees. This setting is particularly relevant given the significant environmental challenges associated with the textile industry, including pollution and resource depletion. Within the focus on this specific context, the study contributes to a better understanding of the factors influencing environmental behavior within a critical sector of the Pakistani economy.

Second, by providing perceived colleagues support toward the environment as a possible precondition for VPEB, the present study shed light on the body of knowledge on sustainability. The direct effect between PCSE and pro-environmental behavior is described in H1. The findings are supported by a recent study (Zafar, Suseno, & Ho, 2023). This result aligns with previous research that has consistently demonstrated a link between social support and environmentally friendly behaviors (Paillé et al., 2016; Raineri et al., 2016; Zafar, Suseno, & Ho, 2023). For instance, the current study's findings add to the existing body of literature, reinforcing the notion that social support plays a crucial role in shaping individuals' environmental attitudes and behaviors. However, the context of VPEB has been examined in several studies (Khan et al., 2021; Liu et al., 2021; Luu, 2019). Meanwhile, most of these researches have analyzed the antecedents of VPEB at the organizational level, such as green human resource management (HRM, Chaudhary, 2020; Khan et al., 2021; Lamm et al., 2015; Liu et al., 2021), servant leadership (Ying et al., 2020), environmentally specific servant leadership (Tuan, 2019a, 2019b), and corporate social responsibility (Afsar et al., 2018; Cheema et al., 2020). These previous studies highlight that the VPEB approach was largely examined at the organizational level. The current study shows that employees' perceptions of their co-workers' environmental support are an important predictor of their green behavior.

Third, this study is the primary study of its kind to identify how GC mediates the relationship between VPEB and PCSE (H2), although research has recognized the influence of leadership and general support from colleagues on work crafting (Wang et al., 2020). However, the extent to which GC's behavior could be influenced by co-workers' perceived support towards the environment to increase employees' VPEB is still unknown. Employees perceive greater importance in their work when GC behaves in this way. As a result, they commit to going above and beyond to meet the organization's green goals (Tuan, 2019b). Results of H3 unveiled a significant mediation effect that describes the influence of perceived colleague support on VPEB channeled through the GOC. Central to this investigation was the concept of a GOC, serving as the conduit through which perceptions of colleague support for environmental endeavors influence individual pro-environmental actions (Dumont et al., 2017). The notion of a GOC encapsulates the extent to which an organization values and prioritizes environmental sustainability in its operations and culture. In the textile industry of Pakistan, a burgeoning focus on environmental sustainability has sparked interest in understanding the dynamics between organization climate, colleague support for environmental initiatives, and VPEB (Bhutto et al., 2021).

Additionally, this study further describes the mediating role of GC between PCSE and a GOC, as supported by H4. Although previous research has demonstrated the influence of perceived support from colleagues on pro-environmental behavior (Afsar & Umrani, 2020; Paillé et al., 2016, 2018; Raineri et al., 2016; Shah et al., 2021), it has been still unclear how this support can shape the perception of a green climate. The present study uses the phrase "perceived colleague support towards the environment" based on the hypothesis that employees are more motivated to participate in environmentally friendly activities when they see their colleagues performing green tasks (Paillé et al., 2016). Employee perception and behavior can be directly affected by the approval, recognition, and appreciation of their co-workers (Raineri et al., 2016). Several studies such as Afsar and Umrani (2020), Paillé et al. (2016), Paillé et al. (2018), Raineri et al. (2016), and Shah et al. (2021) examined how workers' perceived support from their colleagues generally affected their green initiatives. Hence, the current study includes colleagues' support for the environment as a predictor of GOC. Furthermore, the present study adds to the body of research on this topic. Furthermore, interactions between workers in the organization impact employees' pro-environmental behaviors at work (Shah et al., 2021). Co-workers provide cues on controlling others' behavior through their actions, words, and gestures (Groth et al., 2002). Workers act following the advocacy that their colleagues do for them (Afsar & Umrani, 2020). When workers exhibit and appreciate green activities, new employees will take note of these

social cues and adopt the same behavior (Ones & Dilchert, 2012). The current study illuminates the mediating process through which the notion of environmental support from colleagues shapes an individual's impression of the green climate and opens the door to encouraging voluntary green actions among staff members.

Proceeding further, the present study responds to Tuan (2019a) by examining the linkage between GC and GOC due to perceived organization support towards the environment. The mediation of GC between PCSE and GOC, as well as the serial mediation of GC and GOC, are notable contributions of the present research. Studies have explored the direct antecedents of GOC, such as green HRM (Luu, 2019) and environmentally specific servant leadership (Tuan, 2019b). The present research argues that due to social support in the form of colleague support towards the environment, employees craft their tasks in greening, and a perception is developed that their green tasks are important to the organization. Once the perception is developed, they feel more motivated to engage in green behavior because sustainability not only affects organization performance but also affects the health and well-being of employees (Zafar, Ho, et al., 2023). Based on COR theory, our study research provides a resource gain strategy in the form of GC as a novel mediation path for the effect of PCSE on voluntary green initiatives (Raineri & Paillé, 2016; Robertson & Barling, 2013).

The findings of the current study show that PE does not have a significant impact on the relationship between GC and GOC. These findings demonstrated that the numerous environmental problems faced by employees in the Pakistani textile industry prevent them from having meaningful relationships with their employers. If executives put factors like productivity or job security ahead of the environment, an employee's sense of purpose at work could not match the organization's environmental support or attention to the environment. (Farooqui & Ahmed, 2013; Ijaz, 2019). Pakistani textile workers may slightly influence environmental policies or decision-making power when it comes to self-determination (Farooqui & Ahmed, 2013; Sharpe et al., 2022). Therefore, even with managerial assistance to participate in green activities, even if employees experience PE, this could not result in an elevated impression of a green climate. This mismatch between empowerment and environmental decision-making may explain the non-significant moderation results. When considering the "impact" aspect of PE in the context of the textile industry, employees may feel that their ability to influence environmental outcomes is controlled. They may think that external elements, such as laws or actions taken by top management, provide organizational support to the environment (Memon et al., 2020).

6.2 | Practical implications

The present study provides several implications for policymakers and regulators. From a practical perspective, management techniques alone cannot demonstrate effectiveness and credibility (Paillé et al., 2016). Everyday green actions, such as recycling, personal participation in environmental programs, and informal support for green workplace initiatives, often have a greater impact than words alone (Boiral et al., 2018; Paillé et al., 2019; Yuriev et al., 2018). Supervisors should take into account the assistance of their colleagues as a crucial factor in encouraging pro-environmental actions (Paillé et al., 2016). They should focus on aspects of the workplace that motivate people to help each other. Promoting cohesion among staff members includes team-building activities, broad employee engagement, intensive communication, and open information sharing among co-workers (Raineri et al., 2016). Volunteering and peer task interdependence should be promoted to improve cohesion among co-workers. By sharing corporate green practices, policies, goals, and procedures with new colleagues, experienced colleagues can help raise awareness. Instead of relying solely on verbal persuasion, employees can use their green behaviors to accelerate their colleagues' pro-environmental behavior (Afsar et al., 2018).

Support and encouragement for green activities help employees craft their green organizational tasks by accruing their green-related sources, such as skills and knowledge related to green tasks and engagement with new sustainability projects. Further engagement in GC will enhance the perception of green climate among employees, which will provoke their voluntary eco-initiatives. Managers should role-model green behavior and provide green training to employees on how to encourage each other to do green tasks and recycle products. Thus, green climate perception can be enhanced, which will improve the image of a sustainable organization within the eyes of employees in a positive light. Resultantly, their voluntary green participation will be boosted.

Although the current research did not support the moderating role of PE, it is important to acknowledge that other researchers have highlighted the practical significance of PE for fostering a green climate within organizations (Carless, 2004; Zafar et al., 2022). PE enhances employees' intrinsic motivation, confidence, and sense of control over their work environment. When employees feel empowered, they are more likely to take initiative and actively engage in sustainable practices, such as reducing waste, conserving resources, and promoting eco-friendly behaviors (Lamm et al., 2015). This sense of empowerment encourages employees to view their contributions as meaningful and impactful, leading to higher job satisfaction and commitment to environmental goals. Moreover, empowered employees are better equipped to influence their peers and drive collective efforts toward sustainability, thereby creating a supportive and proactive organization climate that prioritizes environmental responsibility. By integrating PE into organizational strategies, businesses can effectively harness their workforce's potential to achieve long-term sustainability and environmental success. This addition will enhance the understanding of how PE can contribute to sustainable practices and environmental initiatives in a real-world business setting.

6.3 | Limitations and future research suggestions

The current study limitation concerns the examination of VPEB within the Pakistani textile sector. Various organizations, such as those in the

industrial, tourism, and service sectors, may have different green efforts and responses to green practices (Tuan, 2019a). As a result, in future studies, scholars can test the current model in different industries. Future studies could also examine the effects of other mediators, such as green lifestyle, organizational transactive memory system (Tuan, 2023), green thinking (Begum et al., 2022), and job satisfaction, rather than just GC and green organizational climate, as these constructs have the power to encourage voluntary efforts to employees (Saeed et al., 2019). For example, more engaged and satisfied employees will be more motivated to adopt voluntary initiatives (Lamm et al., 2015). Scholars should further specify in- and extra-role pro-environmental behaviors (Guo et al., 2024). Scholars can also explore the nuanced concept of hypocritical pro-environmental behavior and investigate whether this behavior can reinforce substantial pro-environmental behavior (Yang et al., 2020).

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENTS

Data will be available on request from the authors.

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