Linking Responsible Leadership and Green Innovation: The Role of Knowledge Sharing and Leader-Member Exchange

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This study aims to explore how to encourage employees to engage in green innovation (GI). Drawing upon social learning theory, a moderated mediation model was theorized and tested to determine how responsible leadership triggers GI in fostering knowledge sharing. Additionally, two critical processes were distinguished by introducing leader-member exchange (LMX) as a moderator. A multi wave study collected from 228 employees from hospitality sector organizations generally supported the predictions. Specifically, responsible leadership was a significant predictor of GI. Moreover, LMX strengthened knowledge sharing mechanisms and attenuated the relationship between responsible leadership and GI. The findings and the theoretical underpinning of this study shed new light on GI in a responsible way that shapes knowledge sharing among organizational members and provides practical implications for leaders determined to improve environmental sustainability in organizations.

Keywords: responsible leadership, LMX, knowledge sharing, green innovation, hospitality

1 INTRODUCTION

Pollution, ecological deterioration, and global warming pose serious challenges to the globe, requiring organizations to safeguard the ecological environment and strive for environmental sustainability (Alvarado et al., 2018; Pham et al., 2020; Jahanger et al., 2021; Kamal et al., 2021; Nguyen et al., 2021; Khan et al., 2022a; Usman et al., 2022). Organizations are improving their environmental stewardship by developing and implementing green policies and practices. As a consequence, firms are encouraging the green behavior of employees due to growing environmental and resource usage concerns, as well as the introduction of increasingly rigorous environmental legislation in many countries (Cheema et al., 2020). This is particularly the case in hotels (Ahmed et al., 2021), which depend on natural resources, energy, and human abilities to safeguard the environment and achieve sustainability objectives (Su and Swanson, 2019; Chaudhary, 2020; Khan et al., 2022b). As a result, many leading hotel groups, such as Pearl Continental, Avari Towers, Royal Swiss, Hotel One, and Marriott Hotel, promote resource recycling, conservation, and waste reduction and are dedicated to sustainable development through fulfilling its responsibilities to the environment and community in terms of energy conservation, reusing water for secondary applications, reusing and recycling materials.

Academic research and corporate practices are focusing more on how to encourage employee green behavior in the service sector. Green behavior at hotels differs from that in the workplace, where it is

influenced by people's ages, environmental awareness, knowledge, values, worries, beliefs, and life satisfaction (Wells et al., 2016; Wang and Kang, 2019). Individual differences have been the prevailing paradigm for analyzing employee green behavior to date. According to research, leadership is crucial in promoting green behavior in the workplace (Liao and Zhang, 2020; Khan et al., 2022b). Managers have problems in today's corporate world in terms of being responsible leaders and maintaining productive staff (Haque et al., 2020). Individuals may mimic proper actions and standards by seeing the behavior of others, especially those who are trustworthy, according to social learning theory (SLT) (Bandura and Walters, 1977). Leaders are prime targets for subordinates' observational learning in hospitality organizations. As a result, some researchers have looked for barriers to green innovation (GI) from the standpoint of leadership. Existing research on the link between leadership and GI has focused mostly on owner/shareholder-centric leadership, such as ethical (Arici and Uysal, 2022) and transformational leadership (Singh et al., 2020), and has shown that such leadership can foster GI under certain circumstances. This is rather discouraging because traditional leadership approaches have limits in terms of addressing the GI problem. In light of this, the focus of this research is on stakeholder-centric leadership, a promising area of leadership study. Responsible leadership (RL) is a new leadership style that arose from stakeholder theory, that identifies followers as stakeholders both inside and outside of the company (Pless and Maak, 2011).

RL refers to "*a social-relational and ethical phenomenon, which occurs in social processes of interaction to achieve societal and environmental targets and objectives of sustainable value creation and positive change*" (Maak and Pless, 2006). As per its definition, RL proposes that the environment is an important stakeholder (Han et al., 2019) prioritizing societal and environmental sustainability and striving for harmony among citizens, society, and nature (Miska and Mendenhall, 2018), all of which are values expressed in green behaviors.

Employees are motivated to share knowledge when they see RL as role models (Akhtar et al., 2020a), are highly motivated and perform over their capabilities as a result of RL (Haque et al., 2019). To address these problems, hotels need considerable RL (Miska and Mendenhall, 2018). According to Han et al. (2019), Wang, RL encourages workers to participate in decision-making and provides them with a sense of psychological ownership, which satisfies their intrinsic wants and drives them to achieve more knowledge sharing (Lin et al., 2020). Scholars have claimed that RL might help motivate employees to share their expertise.

Seemingly, recent research focuses on RL's independent influence on green behavior (Javed et al., 2021). Leadership activities, on the other hand, influence the implementation of green behavior (Aguinis and Glavas, 2019). RL supports environmental preservation and resource conservation (Afsar et al., 2020), whereas RL indicates informal personal ability to encourage employee outcomes (Akhtar et al., 2020a), such as GI. RL stands for the procedures and behaviors that provide organizational context for employee behavior (Han et al., 2019; Akhtar et al., 2020a; Haque et al., 2020). These situations must be explored more thoroughly to find possible synergies, as proposed in this study.

The mediating influence of knowledge sharing behavior was also investigated in this study. The influence of RL on GI is still unknown. The majority of prior research has looked at the favorable links between leadership and GI (Arici and Uysal, 2022). A leader is critical in establishing and maintaining a knowledge-sharing culture in the workplace. Knowledge sharing has been shown to increase crucial outcomes, such as decision-making, innovation, and performance in studies (Jiang and Chen, 2018). In the hotel sector, where services are provided and consumed concurrently, leaving minimal tolerance for errors, knowledge management, particularly information sharing, is critical for reducing service failures. This research investigates whether information sharing has a positive impact on GI.

To describe the theoretical approach, SLT (Bandura and Walters, 1977) was employed. Individuals are likely to look to their leaders for guidelines on how to behave and are more likely to adopt the behavior of the leader when the leader–member relationship is marked by high levels of mutual respect, trust, liking, and support (Graen and Uhl-Bien, 1995). Furthermore, because RL emphasizes the significance of ethical norms, workers in high LMX connections will respond by adopting knowledge sharing attitudes and eventually engage in comparable responsible behaviors, such as GI.

In three ways, this research contributes to the RL literature. First, by investigating the detrimental impact of RL on GI, existing knowledge of the role of leadership in the development of GI is expanded upon and a contribution to research on GI inhibitors and RL outcomes is made. Second, in response to the request for an underpinning mechanism to reveal the link between RL and outcomes (Akhtar et al., 2020a; Javed et al., 2021), light is shed on the function of knowledge sharing as an underpinning mechanism in the relationship between RL and GI in hospitality firms. Third, insight is provided into the effect of RL on information sharing by investigating the moderating influence of LMX, which broadens the effect's boundary conditions and increases understanding of the process of RL and knowledge sharing.

The organization of the study includes, first the introduction comprising the background, why study is important and study contributions. Second, the literature review is discussed, including the study of variables and the hypotheses framed. Third, the research method via research design, variable measurements and common method bias is described. Fourth, the results *via* confirmatory factor analysis, correlation analysis and regression analyses are discussed. Finally, the final section includes a discussion of the implications, limitations, future directions and conclusions.

2 THEORY AND HYPOTHESES DEVELOPMENT

2.1 SLT

According to SLT (Bandura, 1977; Bandura, 1986), people learn the appropriateness and acceptability of conduct from

their social surroundings and subsequently make decisions or perform depending on those social signals. The social learning process is divided into two stages: 1) humans learn from their surroundings by analyzing cues or stimuli, and 2) they utilize these insights to choose how to respond or behave. Individuals learn whether conduct is suitable from their leaders. Leaders are frequently seen as acceptable role models in workplaces. On the one hand, because leaders are so close to their followers, their actions are extremely apparent to them. Supervisors, on the other hand, have official power over employees (Yukl and Lepsinger, 2004). As a result, supervisors are frequently identified as valid sources of knowledge (Ambrose et al., 2013) and are the subject of imitation and identification (Mayer et al., 2012). Employees can learn the acceptability of conduct by looking at RL behaviors and their effects (Javed et al., 2021). Rewarding and knowledge-sharing activities, for example, are seen favorably.

Employees will determine and seek to mimic the rewarded behaviors based on what they learn from their leaders (Bandura and Walters, 1977) The chance of individuals deciding to implement a behavior learnt via role models, according to Liu et al. (2012), is dependent on the perceived consequences of that conduct. People want to achieve pleasant outcomes, while avoiding undesirable repercussions (Bandura, 1986). This implies that individuals will choose to imitate activities praised by RL since they will produce favorable results. Employees will do so by setting performance goals for themselves, monitoring their own actions, and adjusting them until they fulfil the goals. They will eventually succeed in imitating the positive actions of their RL.

2.2 RL and GI

Employees are sensitive to cues that show management's normative ideas (Lindenberg, 2000). Management practices, in their opinion, are instances of normative conduct that demonstrate the proper way to act (Pache and Santos, 2013). Technical and administrative procedures in environmental management targeted at reducing polluting externalities (Carmona-Moreno et al., 2004) convey that the firm cares about the environment (Norton et al., 2014).

According to current research, various individual and contextual factors may influence employee green workplace behavior (Norton et al., 2015), with motivation (Javed et al., 2020) and good affect as examples of individual variables. Furthermore, situational factors play an influence, such as organizational practices (Abbas and Sağsan, 2019) and leadership (Arici and Uysal, 2022). Leaders today face a complicated and dynamic corporate climate that demands them to meet financial objectives, while also paying increased attention to environmental problems (Voegtlin et al., 2012). Three important elements are captured by RL: 1) *Effectiveness*. Employees and organizations benefit from RL, which includes improved business performance and reputation (Javed et al., 2020), increased employee trust in the leader, and whistle-blowing intentions (Akhtar et al., 2020a). 2) *Ethics*. Ethics are followed by RL. They lead by

example, encouraging their followers to do the right thing (Freeman and Auster, 2011). Voegtlin (Voegtlin, 2011), for example, found that RL minimizes unethical conduct among followers. 3) *Sustainability*. Organizational sustainability may be led by RL concentrating more on social, environmental, and economic performance (Miska et al., 2014).

Although research has shown that RL has a beneficial impact on companies and individuals (Akhtar et al., 2020a), its influence on GI has yet to be rigorously studied. As a result, RL is especially important for employees in developing GI since it pays attention to ecological and environmental problems and encourages employees to engage in green workplace behavior (Han et al., 2019).

Supervisors support organizations' sustainable development goals, according to RL, which include adopting social responsibility for rising pollution, resource waste, and food safety concerns (Liao and Zhang, 2020). RL influences employee green behavior through informal supervisor-employee ties (Wang et al., 2015). RL has the authority to promote and assist workers who participate in environmentally friendly initiatives, such as recycling and pollution reduction (Afsar et al., 2016). Furthermore, RL places a high value on organizational sustainability, meaning that they are, not only concerned about financial success, but also consider environmental sustainability and work to achieve these goals (Doh and Quigley, 2014). Thus, it was hypothesized that:

H1: *RL is positively related to GI.*

2.3 Mediating Role of Knowledge Sharing

Leaders who are responsible are likely to influence the attitudes and behaviors of their employees (Haque et al., 2019). Responsible leaders also take into account their employees' needs by taking an interest in their career advancement and personal development, as well as establishing a cooperative and human work environment. These activities may encourage employees to provide input to the company, such as contributing personal energy or time to the establishment of sustainable policies (Zhao and Zhou, 2019). According to Stahl and Sully de Luque. (2014), RL focuses on a broader variety of stakeholders' interests involved in business; for that purpose, he exchanges information and opinion when interacting with his employees. RL shares vital information with his subordinates during interaction, eventually adopting and absorbing their leader's principles by witnessing and emulating its conduct.

According to Srivastava and Joshi. (2018), technology-oriented leadership encourages people to share their knowledge. Organizations regard knowledge as a valuable resource and asset, therefore, employee knowledge sharing is critical for improving organizational efficiency (e.g., knowledge adoption, innovation). When employees generate and exchange knowledge with other individuals, knowledge is produced and perpetuated in the workplace. When an organization demonstrates trust, empathy, openness to knowledge sharing, and accessibility to aid, knowledge sharing is promoted (Hsu, 2012). This indicates that effective knowledge sharing requires a

relational context that is open to variety and encourages social connections (Brachos et al., 2007). A leader who demonstrates and practices interpersonal competences (person-related competencies) will have a beneficial impact on the creation and maintenance of such an environment.

Wang and Ahmed. (2003) propose a couple of ideal scenarios for shaping and sharing organizational knowledge. The first context concerns the nature of the connection or the working environment. The second is managerial policies and actions. Employees will be more engaged in GI if policies encourage knowledge development and sharing. According to Lei.et al. (2021), Gui, knowledge sharing has an impact on innovation. Wu. (2013) discovered that the key to GI success is for organizations to acquire and share external green knowledge and skills with all employees. Researchers have observed that information sharing improves GI (Chen and Hsieh, 2015). As RL offers the support needed for subordinates to accept new ideas, share information, and recognize individual contributions, proactive and collaborative interpersonal ties among workers are fostered (Owens and Hekman, 2016). Hence,

H2: *Knowledge sharing mediates the link between RL and GI.*

2.4 Moderating Role of LMX

Furthermore, current research suggests that, due to the legitimacy of their positions (Javed et al., 2021), a supervisor's unethical actions might affect bad outcomes among followers through role modeling effects. As a result, it is argued that subordinates can role model RL, which may be easily adopted and mimicked by subordinates due to its less trustworthy character, particularly in high LMX interactions.

Behavioral learning happens through observation, according to SLT (Bandura and Walters, 1977). Individuals learn what behaviors are socially acceptable and proper by seeing how others act and the repercussions of their actions. Individuals extract information from their observations of trustworthy individuals (i.e., role models), allowing them to assess the appropriateness of activities and determine whether to engage in them. As a result, the observer is more likely to mimic a behavior if a trustworthy role model (e.g., an RL) does so. A previous study revealed that leaders act as prominent role models for workers and may greatly affect their behaviors through social learning processes, which is consistent with SLT (Akhtar et al., 2021).

Individuals have many daily interactions with their bosses; thus, they have many chances to pay attention to, watch, learn, and copy their RL habits. Moreover, managers' official positions of authority and prestige within their companies make them extremely apparent to staff and provide them power over staff positive and negative reinforcement (Akhtar et al., 2020b), Supervisors are becoming increasingly significant parts of employees' work environments. Employees are prone to mimic their managers' behavior, according to SLT (Brown et al., 2005).

When managers participate in responsible behaviors, such as knowledge sharing related to environmental rules and practices, it is believed that workers will imitate these responsible behaviors. However, by evaluating the role modeling impact with respect to
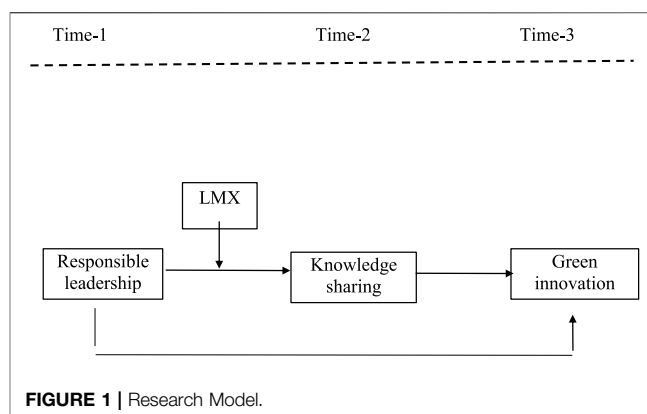

FIGURE 1 | Research Model.

the quality of LMX, it can be seen how intricate it is. According to SLT, a role model's status (Bandura et al., 1963) and appreciation for a role model (Lankau and Scandura, 2002) have an impact on how far followers replicate the role model's actions. As a result, it is believed that high-quality partnerships will improve knowledge sharing modeling because high LMX leaders are more likely to be considered appealing role models.

Strong social emotional interactions define high-quality LMX relationships, in which supervisors and workers are mutually cordial, helpful, and trusting of one another and have an expressive tie to and like for one another (Dulebohn et al., 2012). Employees in high LMX relations are encouraged to see their leaders as attractive role models who should be followed. Because of their strong socioemotional link, employees will be more aware of and accepting of the leader's actions. Because of the high levels of trust, like, and emotional attachment found in high LMX relationships, employees are more likely to pay close attention to their leaders and want to imitate their trusted, well-liked leaders' behaviors (Lankau and Scandura, 2002). Furthermore, in high-quality LMX interactions, workers engage with their supervisors more than normal (Cogliser and Schriesheim, 2000), giving them additional opportunity to watch, attend to, and mimic their supervisors' behaviors. Thus,

H3: *The link between RL and knowledge sharing is moderated by LMX, which makes the association stronger in high LMX cases and* vice versa *in low LMX cases.*

Knowledge sharing was proposed as a mediator in the association between RL and GI in H2, as well as the moderating influence of LMX on the direct link between RL and knowledge sharing in H3. Furthermore, it is proposed that these theories support an integrative moderated mediation connection in which LMX enhances the indirect relationship between RL and employee GI through knowledge sharing. SLT supports this integrated approach (Bandura, 1986). Knowledge sharing may also be regarded as a psychological and social process that connects RL with GI through SLT. This study argues that a high degree of LMX will reduce the indirect knowledge exchange link between RL and GI (**Figure 1**). In light of this, the following hypothesis is proposed:

H4: *LMX moderates the relationship between RL and GI via knowledge sharing such that the relationship will be stronger in the case of high LMX or* vice versa.

3 METHODS

3.1 Sample and Procedures

Employees from hospitality organizations in the service industries provided information between January 2022 and April 2022. Specifically, the human resource departments of the selected organizations were contacted by phone and email to request their cooperation in the study, and in order to acquire a better understanding of the potential links, a hospitality industry sample was chosen. Hotels with stated green-related policies that prioritized the environment were chosen. A total of 47 organizations were visited for data collection. Authorities from 32 of the 47 companies consented to participate in the survey. The respondents were given the option of filling out the questionnaire on paper or online *via* a Web link.

A total of 410 employees were requested to partake in the RL survey, sharing their demographic details at time 1, when 351 filled responses were received. After a one-month interval, the 351 surveys on LMX and GI were distributed among the same respondents at Time 2. Finally, 228 usable surveys from respondents were received.

Data were self-reported and received from hotel and restaurant managers. Although self-assessment does not always occur or generate homogeneity, common method bias (CMB) appears in management studies, and technique variance can deflate or inflate the genuine connection between study variables (Podsakoff et al., 2003). Procedural methods to test for and decrease CMB were investigated and established because the results were self-reported. For example, we ensured the respondents' anonymity, changed the order of items, and conducted a pretest scale item improvement. Furthermore, the participants were told that their comments were important and essential during the personal encounter where they were collected. These steps were taken to decrease and minimize the social desirability factor (Doluca et al., 2018). Respondents are known to be unable to recognize the moderation effect when CMB is used in research, thus these actions reduce the risk of erroneous results (De Clercq et al., 2014). Harman. (2000) single-factor test was utilized. If one factor accounts for most of the covariance in the measurements, significant CMV occurs. One component accounted for 40.48 percent of the variation, according to the findings. As a consequence, no single factor explained the large percentage of the variation.

3.2 Variable Measurement

English is an official language in Pakistan (Akhtar et al., 2022). Consistent with recent similar studies, surveys were distributed in English (Akhtar et al., 2021). A five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) was used to assess all research variables.

3.2.1 RL

A five-item scale was created by Voegtlin (2011) with a reliability of 0.93 to assess RL. The following was an example question: "My direct leader/manager tries to achieve a consensus among the affected stakeholders" ($\alpha = 0.94$).

TABLE 1 | CFA.

Latent variables	Standardized loadings	AVE	CR
Responsible leadership		0.68	0.92
RL1	0.800		
RL2	0.828		
RL3	0.846		
RL4	0.821		
RL5	0.839		
Leader-member exchange		0.52	0.87
LMX1	0.701		
LMX2	0.855		
LMX3	0.700		
LMX4	0.802		
LMX5	0.766		
LMX6	0.536		
Knowledge sharing		0.71	0.88
KS1	0.889		
KS2	0.791		
KS3	0.837		
Green innovation		0.68	0.94
G1	0.821		
G2	0.737		
G3	0.800		
G4	0.883		
G5	0.854		
G6	0.854		
G7	0.805		

3.2.2 LMX

Individual LMX was assessed using a 7-item scale created by Scandura and Graen (1984). For example, "my immediate supervisor understands my problems and needs" ($\alpha = 0.93$).

3.2.3 Knowledge Sharing

Wilkesmann, Wilkesmann et al. (2009) used a three-item scale to assess knowledge sharing at Time 1. As an example, "I show my colleagues special procedures so that they can learn them" ($\alpha = 0.94$).

3.2.4 GI

To assess GI, a six-item scale modified from Chang (2016) was used. As an example, "The company chooses green and environmentally friendly materials in the product-design stage" ($\alpha = 0.94$).

A demographic sample there were 164 men (72%) and 64 women (28%) among the respondents. The majority of the responders (53%) were between the ages of 20 and 30. The plurality of respondents (46%), with fewer than four years of work experience, held a bachelor's degree (61%). In this study, demographic factors (age, gender, education, and tenure) associated with knowledge sharing and GI were controlled.

4 RESULTS

4.1 Convergent and Discriminant Validity

The discriminant validity of RL, LMX, knowledge sharing, and GI was investigated using confirmatory factor analyses. **Table 1**

TABLE 2 | Discriminant validity test results.

Latent constructs	1	2	3	4
1. Responsible leadership	*0.827*	—	—	—
2. LMX	0.662	*0.721*	—	—
3. Knowledge sharing	0.340	0.445	*0.840*	—
4. Green innovation`	0.391	0.312	0.602	*0.823*

Notes: The √ of the average variance extracted is shown on the diagonal.
√ of the AVE

TABLE 3 | Means, standard deviations, and correlations for relevant variables.

Sr #		Mean	SD		2	3	4
1	RL	4.62	1.52	*1*	–	–	–
2	LMX	4.89	1.17	0.60**	1	–	–
3	Knowledge sharing	4.67	1.54	0.30**	0.46**	1	–
4	GI	4.24	1.58	0.38**	0.35**	0.55**	1

shows that the four-factor model had adequate fit indices: 2/df = 2.171, TLI = 0.922, CFI = 0.932, GFI = 0.860, RMSEA = 0.072, indicating that the measurements in this research had outstanding discriminant validity.

The average variance extracted (AVE) and composite reliability were calculated to determine whether these variables were convergent (CR). **Table 1** shows that the values of the AVE and CR of the study variables were above 0.50 and 0.80, respectively, indicating that RL, LMX, knowledge sharing, and GI had adequate convergent validity.

The discriminant validity verified by assessing the √ of each AVE was > than the correlation between the corresponding variables (**Table 2**) (Fornell and Larcker, 1981). **Table 3** summarizes the descriptive statistics and correlations between RL, LMX, knowledge sharing, and GI.

4.2 Hypothesis Testing

H1 stated that RL is positively associated with GI. The results (**Table 4**) reveal that RL positively influences GI (Model 4, B = 0.24, $p < 0.001$), which supports H1. H2 suggested that knowledge sharing mediates the link between RL and GI. Referring to **Table 4**, knowledge sharing mediates the effect of RL on GI (B = 0.15, CI = 0.08, 0.23), and the 95% CI excludes 0. H2 received support.

H3 3 expected that LMX attenuates the influence of RL on knowledge sharing. **Table 5** shows that RL interacts with LMX to predict knowledge sharing (B = 0.203, $p < 0.05$). **Figure 2** also suggests that the association of RL with knowledge sharing was stronger when LMX was high (simple slope = 0.15, $p < 0.01$) than when LMX was low (simple slope = −0.12, ns), in support of H3.

To examine H4 (moderated mediation effect) *via* Model 7. **Table 5** shows that the indirect effect through knowledge sharing was significant (B = 0.07, 95% CI = [0.03, 0.18]) when LMX was high but nonsignificant (B = −0.06, 95% CI = [−0.19, 0.05]) when LMX was low. Consequently, H4 received support.

5 DISCUSSION

This study investigated the influence of crucial environmental and contextual factors (RL, LMX, and knowledge sharing) on SLT-based GI. GI benefited from the combined and synergistic benefits of RL, LMX, and information exchange. The findings of the cross-sectional, quantitative study design demonstrated that knowledge sharing acted as a mediator between the interaction effects of RL, LMX, and GI in the hospitality industry.

5.1 Theoretical Implications

This study adds to our understanding of RL and GI in the workplace and provides four significant theoretical advances. The first and most important contribution is to connect RL theory to the existing GI literature. There is minimal available information on the function of leadership in GI (Arici and Uysal, 2022) because most GI research has mostly focused on an individual's psychological processes (Cui et al., 2021). Furthermore, only a few leadership styles, such as ethical leadership (Cui et al., 2021) and transformational leadership, have been reported to stimulate GI (Begum et al., 2022). However, there is a need to comprehend how RL affects followers' environmentally beneficial behavior (Liao and Zhang, 2020), such as GI. This research confirms that RL inhibits GI and builds on the work of Su and Swanson (2019), Akhtar et al. (2021) by examining how RL influences the conduct of GI. This research also contributes to the literature on leadership by demonstrating how leadership style influences GI. The findings highlighted the potential usefulness of RL in businesses, as well as its influence on the workforce.

TABLE 4 | Mediation results.

	M (knowledge sharing)					Y^1 (green innovation)		
	Path	B	SE	p	Path	B	SE	p
RL	a	0.30	0.06	0.000	ć[1]	0.24	0.06	0.000
Knowledge sharing	—	—	—	—	b[1]	0.49	0.06	0.000
Constant	i[1]	3.28	0.31	0.000	i[2]	0.83	0.35	0.01
		$R^2 = 0.09$				$R^2 = 0.35$		

Indirect effect (RL on GI *via* knowledge sharing)

Indirect effects (bootstrap)		0.15* [0.08, 0.23]
Indirect effect (Sobel Test)		0.15* (z = 4.10)

Note: n = 228. Control variables: gender, age, education, department and total working experience. *p < 0.05.

TABLE 5 | Regression coefficients and conditional indirect effect estimates.

	M (knowledge sharing)			Y (green innovation)		
	B	**SE**	**p**	**B**	**SE**	**p**
RL (X)	0.56	0.24	0.02	0.24	0.06	0.00
LMX (W)	0.16	0.19	0.39	—	—	—
X*W	0.12	0.05	0.01	—	—	—
Knowledge sharing	—	—	—	0.49	0.06	0.00
		$R^2 = 0.23$			$R^2 = 0.35$	

Moderator	Conditional effect of RL on KS				Conditional effect of RL on GI *via* KS			
LMX	B	SE	LLCI	ULCI	B	SE	LLCI	ULCI
LMX − 1 SD	0.12	0.09	−0.31	0.06	−0.06	0.06	−0.19	0.05
LMX M	0.01	0.07	0.13	0.16	0.01	0.05	−0.09	0.09
LMX + 1 SD	0.15	0.09	0.02	0.33	0.08	0.05	0.03	0.18

Note: n = 228. Control variables: gender, age, education, department and experience.

FIGURE 2 | Interaction plot.
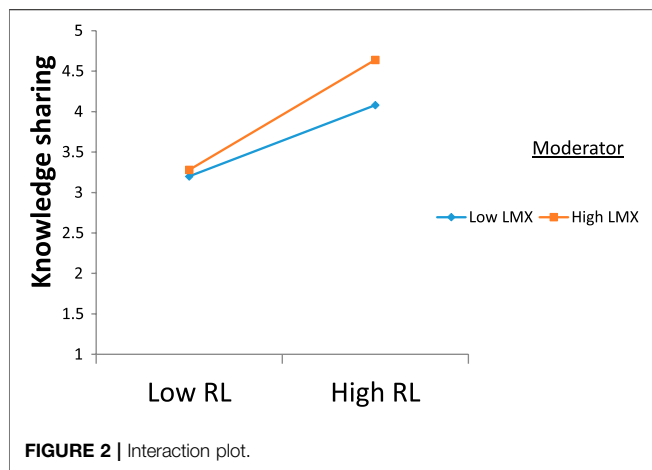
Second, the finding that RL indirectly links to GI through knowledge sharing, which is based on the SLT (Bandura, 1977), deepens the understanding of the psychological phenomena between RL and the establishment of ethically driven links. The results support both the relational and ethical aspects of RL (Maak and Pless, 2006). Despite the fact that Scius-Bertrand. (2019), Voegtlin analyze how workers interact with the business and society, research has demonstrated that responsible conduct spreads to followers (Cheng et al., 2019). Furthermore, the social learning method explains why RL may support the formation of ethical relationships and the promotion of GI through knowledge sharing.

Third, these findings propose that LMX be incorporated into SL theory as a fundamental boundary condition for determining whether RL is a role model. By improving knowledge sharing for workers with high LMX, RL was more likely to create mutually courteous, helpful, and trusted relationships with followers (H3). However, the findings corroborate Hypothesis 3b, indicating that RL was more likely to increase knowledge sharing among employees with high LMX than low LMX. A potential explanation is that high LMX personnel have a high level of trust and emotional connection to their leaders, so they are more inclined to pay attention to them and wish to copy their trusted, well-liked leaders' behaviors (Lankau and Scandura, 2002). Employees with a high LMX, on the other hand, engage with their supervisors more than usual (Cogliser and Schriesheim, 2000), inspired by RL's knowledge sharing. Finally, whether the indirect effect was moderated by LMX was investigated.

5.2 Managerial Implications

This research has a number of practical consequences. First, the findings show that companies could improve their managers' levels of RL. Organizations must appreciate the selection and training of RL through external recruitment and internal training in elevating the expectations of RL among senior managers and shaping a work environment of responsibility inside the organization to realize the reform process through GI.

Second, organizations should spend more on GI. Organizations should aspire to increasing their understanding and knowledge of GI, as well as strengthen the new competencies that it necessitates. The findings of this study show that revolutionary GI has a greater impact on organizational environmental performance. Because businesses often have scarce resources, organizations should find a balance between evolutionary and revolutionary GI and search out the most appropriate innovation base for future development to enable optimal GI and increased supply from innovative outputs.

Third, organizations should boost knowledge sharing, while encouraging and executing GI, so that executives may fully discuss and implement their strategies related to GI.

5.3 Conclusion

Using SLT, this study examined the impact of RL on GI *via* knowledge sharing at various stages of LMX. This study discovered a positive significant correlation between RL and the GI link, providing important insights into the understudied information regarding the antecedents of GI. Furthermore, the link between RL and GI was mediated via information exchange. LMX also oversees the RL-knowledge sharing relationship. LMX also expedites the RL-GI relationship through information sharing. In conclusion, this study demonstrates the relevance of RL in maintaining a strong connection between leaders and followers, as well as in promoting ethical ideals in their members, which enhances GI.

5.4 Limitation and Future Direction

Like other studies, this work does not go without certain notable limitations, which, in turn, lay the foundation for future research. First, it is acknowledged that the measurements of RL, LMX, knowledge sharing and GI are subject to self-awareness, leniency and social desirability. All variables were measured *via* self-reports; however, future research should utilize additional measurement strategies to complement self-report data on GI. This study utilized a multiwave rule for data collection, where RL and LMX were reported by the focal person at T1, knowledge sharing was reported by the focal person at T2, after one month, and GI was reported by the focal person at T3, after one month. Future studies could use a dyad design (focal person and peer reported) for better results and authenticity (Akhtar et al., 2021). Second, the present study used the assumption of SLT to uncover the effect of RL on GI *via* knowledge sharing at the different levels of LMX. Therefore, future studies will use other theoretical frameworks, such as person-fit theory and role theory, to address the consequences of RL. Third, the current study investigated the consequences of the RL in-hospitality industry operating in Pakistan. According to Hofstede (1983), Pakistan is ranked high in power distance and uncertainty avoidance. A high power distance between leader and follower creates favorable situations for leaders because in such a culture leaders demand unquestioned obedience from employees and restrict them to reporting wrongdoing. Future research may conduct cross-country investigations and compare study outcomes based on cultural characteristics and other aspects to assess the external validity.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by The studies involving human participants were reviewed and approved by the School of Business, Liaoning University constitutes School Ethics Approval Committee. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

CH worked on idea generation, theorization, and discussion. MS worked on the original draft, particularly the introduction and literature review. MWA worked on data analysis. MA worked on the research method and data collection section

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