

Transformational Leadership and Employee Green Behaviour: A Systematic Review of Literature

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Abstract

The world is grappling with a myriad of environmental challenges, key among them being climate change, marked by lasting changes in climatic patterns. Businesses have contributed significantly towards climate change by emitting greenhouse gases. Promoting employee green behaviour (EGB) is increasingly viewed as one of the effective mechanisms for reversing the adverse environmental impact of business organization. EGB refers to voluntary actions by workers in an organization that have positive impacts on the environment. One strategy proposed for developing EGB is the implementation of transformational leadership. Although literature on the link between transformational leadership and EGB exists, it is fragmented and lacks cohesion, making it difficult to draw conclusions, identify overarching principles and patterns, and pinpoint areas that need further research. This review sought to synthesize existing literature on how transformational leadership influences EGB, thereby providing clearer insights that will guide future research and practice. The review involved a comprehensive search of empirical studies using Google Scholar, employing a diverse range of synonyms related to EGB and transformational leadership. The search and appraisal processes ultimately yielded 24 relevant studies. The majority of the research focused on quantitative methodologies, with a notable concentration in Asian contexts, emphasizing the need for further exploration in diverse geographical and sectoral settings. A review of these studies revealed that transformational leadership significantly enhances EGB across various sectors by fostering organizational identification, intrinsic motivation, and providing green organizational support. Transformational leaders foster a culture of sustainability by embodying values that align organizational goals with ecological practices, thereby amplifying the motivations of employees to partake in green initiatives. Several moderating factors were identified, including organizational culture, work engagement, and employee emotional exhaustion. In conclusion, the review underscored the necessity for organizations to cultivate transformational leadership qualities to maximize employee engagement in green practices. The paper recommends implementing transformational leadership training programs for current and aspiring leaders and encourages future research to explore underrepresented sectors.

Keywords: Transformational Leadership, Employee Green Behaviour, Pro-Environmental Behaviour, Sustainability, Climate Change

1. Introduction

1.1 Background of the Study

The world is grappling with a myriad of environmental challenges, key among them being climate change, marked by lasting changes in climatic patterns. Climate change has become a major threat to human development by undermining the sustainability of sectors such as agriculture and health (Bolan et al., 2024). Climate change has threatened the production and supply of food due to weather fluctuations, accelerated the spread of vector-borne and waterborne diseases, and impaired tourism by compromising the survival of many biodiversity species and destroying tourism sites (Abbass et al., 2022). It is estimated that about 921 million people will be water-stressed by the year 2050 due to climate change (Dickerson et al., 2021). The sub-Saharan African (SSA) region has been disproportionately

affected by climate change because people in this region are highly dependent on primary livelihoods, such as agriculture (Elkouk et al., 2022).

Given that businesses have contributed significantly towards climate change by emitting greenhouse gases, business leadership is essential in responding to this phenomenon (McPherson & Clarke, 2024). Mitigating climate change requires businesses to develop leadership approaches that direct their organizations towards a sustainable path. One of the leadership approaches that has been proposed in literature as a panacea to climate change is transformational leadership (Kim et al., 2019). This is a leadership approach that inspires and motivates subordinates to pursue organizational goals through idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Cop et al., 2020). Transformational leadership is associated with numerous sustainable outcomes, including employee green behaviour, green creativity and innovation, green culture, green identity, and green human resource management, among others (Guerreror et al., 2017). However, most studies on the effects of transformational leadership on these outcomes are scattered and fragmented. This review aims to synthesize literature on the influence of transformational leadership on employee green behaviour.

The term employee green behaviour (EGB) refers to voluntary actions by workers in an organization that have positive impacts on the environment (Zhang et al., 2024). Examples of EGB include switching off lights when leaving a room, cycling to work, and taking stairs instead of an elevator (Kim et al., 2019). EGB is a form of organizational citizenship behaviour because the actions exhibited by the employees are discretionary rather than part of the organization's policies (Zhang et al., 2024). Agrawal & Pradhan (2023) divided EGB into three broad categories: in-role EGB and extra-role EGB. The authors defined in-role EGB as environmentally friendly practices that employees exhibit in the performance of their organizational roles. On the other hand, extra-role EGB are environmentally friendly practices that employees engage in outside their normal organizational duties.

Emphasis on EGB is driven by the recognition that employees are a major determinant of an organization's environmental footprint and, therefore, efforts to enhance sustainability should be cascaded to the level of individual employees (Kim et al., 2019). The realization of the sustainability goals of organization is dependent on the cumulative behaviours of employees (Unsworth et al., 2021). In addition, the impact of EGB transcends the boundaries of the organization as employees are likely to continue with this behaviour while at home and other places (Zhang et al., 2024).

1.2 Statement of the Problem

The globe is encountering unique environmental challenges exacerbated by climate change, promoting businesses to explore ways to mitigate these crises. Although many modern enterprises have formulated

progressive environmental goals, there is a significant challenge in translating these goals into concrete results (Ababneh et al., 2021). There is a significant discrepancy between the ecological goals enterprises espouse in documents and the ecological outcomes of their operations. The Emissions Gap Report (2023) showed that nations' existing climate pledges under the Paris Agreement are not close to what is needed to limit global warming to 1.5 degrees Celsius (United Nations Environment Programme, 2023). The Carbon Disclosure Project (CDP) revealed that although many firms have set Net Zero targets, only three out of every five of these targets are backed by logically valid plans (Awewomom et al., 2024). The increasing urgency to combat climate change has prompted a re-evaluation of leadership strategies within organisations. Among these strategies, transformational leadership has emerged as a promising approach to inspire employees to engage in environmentally friendly behaviours, collectively referred to as employee green behaviour (EGB). Despite the substantial body of research on transformational leadership, the connection between this leadership style and EGB remains fragmented and underexplored. To address these gaps in the literature, this review will systematically evaluate the current state of research, considering factors such as the geographical context and the theoretical frameworks employed in the studies, as well as the key findings.

1.3 Research Objective

This paper reviews studies on transformational leadership and green employee behaviours.

1.4 Research Questions

This review sought to address the following research questions:

RQ1: What is the status of transformational leadership and employee green behaviour research in terms of the setting of the study?

RQ2: What is the status of transformational leadership and employee green behaviour research in terms of the theories used?

RQ3: What is the understanding in academic literature on the relationship between transformational leadership and employee green behaviour?

2. Methodology

2.1 Search Strategy

A search was conducted on Google Scholar academic research platform using the search string *("Employee Green Behaviour" OR "Pro Environmental Behaviour" OR "Eco Friendly Behaviour" OR "Environmentally Friendly Behaviour" OR "Employee Green Behaviour" OR "Pro-environmental behaviour" OR "Eco-friendly behaviour" OR "Environmentally friendly*

behaviour") AND "Transformational Leadership". The choice of Google Scholar was informed by the fact that this search engine indexes a vast array of academic publications, thereby increasing the breadth of the search (Halevi et al., 2017). In addition, most of the materials indexed in Google Scholar are freely accessible. The search string includes multiple synonyms of employee green behaviour, including pro-environmental behaviour, eco-friendly behaviour and environmentally-friendly behaviour to make the search more comprehensive. The search also included the British and American spellings of the term behaviour (behaviour) to ensure it captured literature from diverse geographical areas and publication styles. Figure 1 presents a summary of the appraisal process:

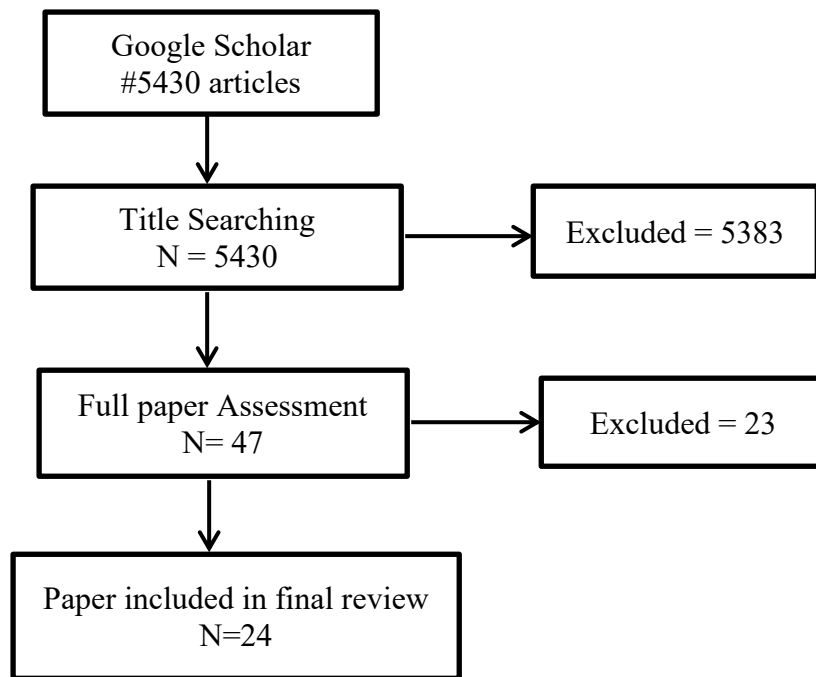


Figure 1: Summary of Appraisal Process

The search yielded 5430 results. The search was subsequently narrowed to focus specifically on the key terms in the article titles. This approach ensured that each publication's primary focus aligned with the core themes of the research inquiry. Since titles are crafted to encapsulate the main subject matter of an article, filtering results by key terms in titles dramatically increases the likelihood of retrieving studies closely related to transformational leadership and EGB. Moreover, this targeted strategy minimized irrelevant hits like articles that may address these topics only tangentially or superficially. According to MacFarlane et al. (2022), employing title searching not only streamlines the process but also enhances the quality of the search outcomes by prioritizing articles that are most pertinent to the specific research questions being explored. This title search filter eliminated 5383 articles and identified 47 articles whose titles matched the search terms.

2.2 Article Screening

An additional screening step was undertaken to ensure the quality and relevance of the selected literature. This stage involved scrutinizing the full-text versions of the articles identified in earlier searches. As a result of this evaluation, 16 articles were eliminated from the review because their full texts were not accessible. Six articles were discarded because they did not meet the criteria for empirical studies or were deemed irrelevant to the central topic of the review. One article was excluded because its in-text content was not published in English. After applying these exclusion criteria, a total of 24 articles were ultimately identified as meeting the inclusion criteria and were included in the review.

2.3 Data Extraction

Data was extracted from the articles using an MS Excel template. The template focused on collecting different categories of information, including author and date of publication, objective of the study, theory used if any, research approach, research design, location of the study, the target population, data collection method, data analysis method, and key findings. Standard definitions and formats were used across the database to facilitate comparison. Period checks were conducted to correct data entry errors, inconsistencies or missing information.

3. Results

This synthesis explores the impact of transformational leadership on Employee Green Behaviour (EGB) across various sectors and countries. The literature search led to the identification of 24 eligible articles. This highlights the growing interest in transformational leadership and EGB.

3.1 General Characteristics of Reviewed Studies

The general characteristics of the reviewed studies were assessed with respect to research approach, research design, geographical location, target population, data collection method, and methods of analysis. Table 1 summarizes these characteristics.

Table 1: General Characteristics of Review Literature

Characteristic	Categories	Frequency	Percent
Research Approach	Quantitative	20	83.33%
	Mixed-Method	3	12.50%
	Qualitative	1	4.17%
Research Design	Cross-sectional survey	20	83.3%
	Experimental and survey	2	8.33%
	Time-lag survey	1	4.17%
	Exploratory sequential mixed method	1	4.17%
	Asia	20	83.33%

Geographical Location	Africa	2	8.33%
	Multi-regional	2	8.33%
Target Population	Employees	15	62.50%
	Managers	5	20.83%
	Students / University members	3	12.50%
	SMEs Owners or Representatives	1	4.17%
Data Collection Method	Questionnaire	22	91.67%
	In-depth interviews	3	12.50%
	Observation checklist	1	4.17%
Method of Analysis	Structural equation modelling	18	75.00%
	Multiple linear regression	1	4.17%
	t-test and ANOVA	1	4.17%
	Content analysis	1	4.17%
	Regression analysis	1	4.17%

A significant majority of the studies (approximately 83.33%) employed a quantitative research approach, indicative of a trend in this field towards statistical and empirical data collection. Only a small fraction of studies (12.5%) adopted a mixed-method approach, combining qualitative insights with quantitative data, while one study (4.17%) utilized qualitative methods exclusively. This relative underrepresentation of mixed and qualitative methods suggests a potential gap in understanding the nuanced, contextual, and subjective experiences of individuals regarding transformational leadership and EGB.

The research design in most studies was predominantly cross-sectional, accounting for 88.3% of the total. The reliance on this design may have limited the depth of understanding regarding the dynamic and temporal aspects of transformational leadership and EGB. In contrast, only two studies utilized experimental designs, indicative of a more rigorous approach to establishing cause-and-effect relationships, while one study employed a time-lag survey design, providing insights into changes over time. Such limited use of experimental designs might reflect the challenges inherent in manipulating variables related to leadership and behaviour in real-world settings, where ethical considerations and logistical challenges abound.

The geographical distribution of studies indicates a strong focus on Asia, particularly India, Pakistan, China, Indonesia, and Palestine, which together account for over 83% of the research. A significant proportion (62.5%) of the study focused on employees across sectors, highlighting interest in how transformational leadership affects behaviour across industries such as hospitality, pharmaceuticals, and telecommunications. This focus on employees underscores the importance of frontline workers in

implementing sustainability initiatives within organizations. A notable proportion (16.67%) of studies also targeted managers, particularly those in environmental management roles.

The data collection methods utilized in these studies predominantly involved questionnaires, which were employed in 91.67% of the analyses. This reliance on self-reported data offers significant advantages in terms of ease of administration and coverage; however, it can also introduce biases related to social desirability and self-perception. The limited use of alternative methods, such as in-depth interviews (12.5%), highlights a potential gap in capturing richer, qualitative data that could enhance the understanding of individual experiences and motivations behind EGB. In terms of analytical approaches, structural equation modelling (SEM) emerged as the most prevalent technique, utilized in 75% of the studies. Table 2 presents a summary of the review studies:

Table 2: Summary of Studies on Transformational Leadership and EGB

Journal	Research approach	Location	Target Population	Data Collection	Method of Analysis
Agrawal & Pradhan (2023)	Quantitative	India	Managers in six hotels	Questionnaire	Structural equation modelling
Akhtar & Anum (2021)	Quantitative	Pakistan	Hotel employees	Questionnaire	Structural equation modelling
Ansari & Khan (2024)	Quantitative	Pakistan	Employees in pharmaceutical sector	Questionnaire	Structural equation modelling
Ashraf et al. (2022)	Quantitative	Pakistan	Employees in pharmaceutical sector	Questionnaire	Structural equation modelling
Aulia & Nawangsari (2023)	Quantitative	Indonesia	Employees of Mercu Buana University	Questionnaire	Structural equation modelling
Ayad et al. (2023)	Quantitative	Egypt	Hotel employees	Questionnaire	Structural equation modelling
Chen & Wu (2022)	Quantitative	China	Employees of ISO 14001-certified companies from diverse sectors	Questionnaire	Structural equation modelling
Elshaer et al. (2024)	Quantitative	Egypt	Hotel employees	Questionnaire	Structural equation modelling

Fatoki (2023)	Quantitative	South Africa	Supervisors and mid-level managers in hotels	Questionnaire	Structural equation modelling
Li & Khan (2023)	Mixed-Method	China	Managers of manufacturing enterprises were targeted for the interview and employees of the enterprises were targeted for quantitative data collection	In-depth interviews and questionnaires	Word cloud word frequency techniques for qualitative data and structural equation modelling for quantitative data
Li et al. (2020)	Quantitative	China	Employees from multiple industries	Questionnaire	Structural equation modelling
Liu & Yu (2023)	Quantitative	China	Managers involved in environmental management	Questionnaire	Structural equation modelling
Mousa et al. (2024)	Mixed-Method	Palestine	Leaders, HRM and environmental management experts, and managers at secondary and tertiary care centres in the West Bank	In-depth interviews and questionnaires	Content analysis using MAXQDA software
Nabi et al. (2023)	Quantitative	India	Employees of telecommunication companies	Questionnaire	Structural equation modelling
Omarova & Jo (2022)	Quantitative	Kazakhstan	Employees in public and private organizations	Questionnaire	Structural equation modelling
Jian et al. (2020)	Quantitative	China	Leader-employee dyads	Observation checklist and questionnaire	t-test and analysis of variance
Pratiwi & Sulaiman (2024)	Quantitative	Indonesia	Employees of a consumer co-operative society	Questionnaire.	Multiple linear regression
Ren et al. (2024)	Quantitative	China	Employees of real estate company	Questionnaire	Structural equation modelling

Saleem et al. (2019)	Quantitative	Pakistan	University employees	Questionnaire	Structural equation modelling
Sobaih et al. (2022)	Quantitative	Saudi Arabia	Employees in food enterprises	Questionnaire	Structural equation modelling
Tu et al. (2022)	Quantitative	China	University students and employees from multiple enterprises in China	Questionnaires	Regression analysis
Wang et al. (2018)	Quantitative	China	Employees of fast food companies	Questionnaire	Structural equation modelling
Zaid & Yaqub (2024)	Quantitative	Saudi Arabia	Owners of SMES or their representatives	Questionnaire	Structural equation modelling
Zheng et al. (2025)	Quantitative	China	Employees of tourism and hospitality organizations	Questionnaire	Structural equation modelling

3.2 Status of Transformational Leadership and Employee Green Behaviour Research in terms of the Setting of the Study

The review has established that research on the effect of transformational leadership has been conducted in diverse industries and economic sectors. This indicates that this phenomenon has attracted interest across the board. Table 3 summarizes the distribution of the studies by sector or industry.

Table 3: Distribution of Studies by Industry/ Sector

Industry/ Sector	Frequency	Percent (%)
Hotels, Tourism, and Hospitality	9	37.5
Multi-Sectorial	4	16.7
Food Industry	2	8.3
Pharmaceuticals	2	8.3
Consumer Co-operative Society	1	4.2
Education	1	4.2
Healthcare	1	4.2
Manufacturing	1	4.2
Real Estate	1	4.2
Small and Medium Enterprises (SMEs)	1	4.2
Telecommunication	1	4.2

Total	24	100
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Hotels, Tourism, and Hospitality industry emerges as the most thoroughly researched sector, accounting for a striking 37.5% of the total studies. This prominence is not surprising, given the industry's intrinsic connection to environmental impact. Hotels and tourism-related services are well known for their resource-intensive operations, which contribute to significant carbon footprints. Following the hospitality sector, multi-sectoral studies make up 16.7% of the examined articles. This category encompasses a diverse array of industries, suggesting a broad interest in how transformational leadership practices can be universally applied across contexts. The findings within this category highlight the adaptability of transformational leadership principles, emphasizing their relevance in nurturing employee engagement in sustainable practices regardless of the organizational landscape.

The Food Industry and Pharmaceuticals sectors each contributed 8.3% to the discussion, represented by two studies each. These industries are critical to public health and well-being, making the necessity for sustainable practices within them all the more pressing. On the other hand, sectors such as Consumer Co-operative Society, Education, Healthcare, Manufacturing, Real Estate, Small and Medium Enterprises (SMEs), and Telecommunication collectively account for only 8.3% of studies, with each sector represented by just one article. This limited representation points to an essential gap in the research landscape and underscores the need for additional exploration in these industries.

3.3 Status of Transformational Leadership and Employee Green Behaviour Research in terms of the Theories Used

The status of the 24 studies was assessed according to the theories used. Theories linking transformational Leadership to EGB are essential for understanding how leadership influences sustainable practices within organizations. Table 4 summarizes the theories used.

Table 4: Summary of Reviewed Literature by Theories Used

Theoretical Framework	Frequency	Percent
Transformational Leadership Theory	10	41.67%
Social Exchange Theory	5	20.83%
Theory of Planned Behaviour	4	16.67%
Stakeholder Theory	3	12.50%
Resource-based View	2	8.33%
Ecological Modernization Theory	1	4.17%
Corporate Social Responsibility Theory	1	4.17%

Transformational leadership theory was the most prominent, having been used in 41.67% of the studies. Researchers in five studies (20.83% of the sample) drew upon social exchange theory, which posits that social behaviour is the result of an exchange process aiming to maximize benefits and minimize costs. This theory is particularly relevant in understanding the dynamics between leaders and employees in the context of transformational leadership and EGB. The theory of planned behaviour (TPB) also emerged as a significant framework in this body of research. TPB highlights the role of individual attitudes, subjective norms, and perceived behavioural control in predicting behaviour. Stakeholder theory, which posits that organizations must consider the interests and influences of all stakeholders, was used in 12.5% of the studies. The resource-based view (RBV) garnered the attention of 8.33% of the studies. This perspective emphasizes the importance of a firm's internal resources and capabilities as a source of competitive advantage. The ecological modernization theory and corporate social responsibility theory were used in one study each.

3.4 Synthesis of Findings on the Relationship between Transformational Leadership and Employee Green Behaviour

The synthesis of the 24 studies analysed reveals a comprehensive view of the relationship between transformational and Employee Green Behaviour (EGB), highlighting various mediating and moderating factors across diverse industries and cultural contexts. Table 5 summarizes major themes from the findings:

Table 5: Summary of Key Findings

Theme	Findings
Direct Effect of Transformational Leadership on EGB	<ul style="list-style-type: none"> ➤ Transformational leadership significantly enhances EGB across various sectors (e.g., hospitality, pharmaceuticals, education). ➤ Leaders inspire and motivate employees through a vision of sustainability. ➤ Studies show a positive impact on both in-role green behaviour (IRGB) and extra-role green behaviour (ERGB). ➤ Emotional connection and intrinsic motivation fostered by transformational leadership amplify EGB.
Mediating Factors	<ul style="list-style-type: none"> ➤ Organizational Identification: Employees identify more with organizations that embody transformational values, enhancing their commitment to EGB. ➤ Environmental Passion and Mindfulness: These factors lead to greater engagement in EGB. ➤ Intrinsic Motivation: Employees are driven to engage in EGB when their leaders model sustainable practices. ➤ Green Organizational Support: Positive perceptions of organizational sustainability strengthen EGB.

	<ul style="list-style-type: none"> ➤ Intentions: Leadership shapes employees' commitment to sustainability practices.
Moderating Factors	<ul style="list-style-type: none"> ➤ Organizational Culture: A supportive green organizational climate amplifies the effects of transformational leadership on EGB. ➤ Work Environment: An appropriate environment enhances leadership effectiveness in promoting sustainability. ➤ Work Engagement: Highly engaged employees are more responsive to leadership initiatives promoting green behaviour. ➤ Emotional Exhaustion: High exhaustion levels diminish EGB, regardless of leadership qualities. ➤ Green Human Resource Management (GHRM): Robust GHRM practices can enhance the effectiveness of transformational leadership on EGB. ➤ Demographic Factors: Age, gender, and educational background influence responses to transformational leadership in promoting EGB.

3.4.1 Direct Effect of Transformational Leadership on EGB

The direct effect of transformational leadership on EGB has been a focal point in many studies, underscoring the pivotal role that leadership plays in fostering environmentally responsible actions among employees. Several studies have demonstrated that transformational leadership significantly impacts EGB. For example, Agrawal & Pradhan (2023) highlighted that transformational leadership positively affects both in-role green behaviour (IRGB) and extra-role green behaviour (ERGB) among hotel managers in India. Similarly, Ayad et al. (2023) reported that in the hospitality sector, transformational leadership not only directly boosts EGB.

The evidence further indicates that transformational leadership's influence is not limited to specific industries; it pervades diverse sectors, underscoring the universal nature of its principles. For instance, research in the pharmaceutical sector (e.g., Ansari & Khan, 2024) demonstrates that effective leadership not only encourages employees to adopt EGB but also shapes their intentions towards sustainability. This finding highlights the versatility and relevance of transformational leadership in various organizational contexts, suggesting that its core attributes can be universally applied to promote EGB regardless of industry.

However, the direct effects of transformational leadership on EGB signal a need for organizations to adopt a leadership style that emphasizes environmental responsibility. The importance of cultivating awareness and commitment through leadership indicates that organizations should prioritize developing transformational leadership capabilities in their management teams. By doing so, they can maximize the potential of their workforce to engage in environmentally sustainable behaviours actively.

3.4.2 Mediating Factors

Although the direct relationship between transformational leadership and EGB is robust, several studies have identified critical mediators that clarify the mechanisms through which leadership behaviours affect employees' environmental actions. One prominent mediating factor is organizational identification, as shown in studies like those of Ashraf et al. (2022). When leaders adopt transformational behaviours that resonate with the organization's goals and values, employees are likely to identify more closely with the organization itself. This identification fosters a sense of belonging and community, prompting them to engage more actively in eco-friendly initiatives.

Another critical mediator identified in several studies is environmental passion and green mindfulness. For instance, studies by Li et al. (2020) and Chen & Wu (2022) highlight how GTL cultivates environmental passion among employees, leading to greater engagement in EGB. Environmental passion refers to an intrinsic motivation to act regarding environmental issues, while green mindfulness encompasses an awareness of environmental well-being and sustainable practices. These constructs play a vital role in bridging the gap between GTL and EGB, as employees who are passionate about the environment are more likely to participate in green behaviours encouraged by their leaders.

Intrinsic motivation also mediates the effect of GTL on EGB. Saleem et al. (2019) demonstrate that transformational leadership enhances employees' intrinsic motivation to engage in environmentally friendly behaviours. When employees find purpose and meaning in their work, particularly regarding sustainability, they are more proactively engaged, showcasing how transformative leadership can foster a motivational climate conducive to EGB. Green organizational support has also been recognized as a significant mediator in the study by Elshaer et al. (2024), which found employees' who perceive that organization values sustainability efforts positively were more likely to engage in EGB. It suggests that for transformational leadership to be effective, organizations must provide supportive frameworks that reinforce the green values espoused by transformational leaders.

Intentions emerged as a mediator in the study by Ansari & Khan (2024), who found that GTL influences EGB not only directly but also by shaping employees' intentions toward sustainable practices. The intention-behaviour gap is a well-documented phenomenon in behaviour change literature and by the theory of planned behaviour. In selecting these mediating factors, the evidence strongly supports the idea that transformative leadership alone does not guarantee EGB; rather, it creates an environment where various psychological and organizational processes can flourish.

3.4.3 Moderating Factors

The review established that there are factors that can either amplify or dampen the effects of GTL on EGB. One prominent moderating factor is organizational culture. Liu and Yu (2023) found that a positive organizational culture significantly strengthens the effects of transformational leadership on EGB. When the organizational culture actively supports sustainable practices, it enhances the likelihood that GTL will translate into EGB. The work environment also plays a critical moderating role, as noted by Ansari and Khan (2024). If the environment is hostile or indifferent to green initiatives, even the most effective transformational leadership may struggle to inspire employees to engage in eco-friendly behaviour.

Work engagement was also identified as a significant moderator in the study by Zaid and Yaqub (2024), who found that when employees are highly engaged in their work, they are more likely to respond positively to transformational leadership initiatives aimed at promoting green behaviour. Emotional exhaustion emerged as a vital moderator in the study by Ren et al. (2024), which found that when employees experience high levels of emotional exhaustion, their capacity to engage in green behaviours diminishes, regardless of their leaders' inspirational qualities. Recognizing this, organizations must ensure that their employees are not subjected to excessive stress and are supported in maintaining a balanced workload to maximize their responsiveness to GTL initiatives.

In addition, Green Human Resource Management (GHRM) practices have been identified as a moderator in the studies by Omarova and Jo (2022) and Chen & Wu (2022). These practices provide a normative framework that complements GTL by reinforcing behaviours aligned with sustainability principles. When GHRM practices are robust and aligned with leadership's green vision, they can enhance GTL's effectiveness in promoting EGB. This creates a synergistic relationship in which both GTL and GHRM practices contribute to stronger employee commitment to sustainability. Lastly, the review has found that the relationship between GTL and EGB is also moderated by demographic factors such as age, gender, and education levels. The significant moderating effects indicate that the effectiveness of leadership in promoting green behaviour is contingent upon specific contextual and organizational characteristics.

4. Conclusion

The comprehensive review of the literature on transformational leadership and Employee Green Behaviour (EGB) reveals a significant and multifaceted relationship that is critical for promoting sustainability within organizations. Across 24 studies, it becomes evident that transformational leadership serves as a vital catalyst for inspiring and motivating employees to engage in environmentally responsible behaviours. Transformational leaders foster a culture of sustainability by embodying values

that align organizational goals with ecological practices, thereby amplifying the motivations of employees to partake in green initiatives.

The review highlighted several mediating factors that elucidate the mechanisms through which transformational leadership influences EGB. These include organizational identification, environmental passion, intrinsic motivation, and green organizational support, all of which contribute to enhancing employees' commitment to sustainable practices. This underscores the importance of creating a supportive environment where employees feel connected to their organization's sustainability goals, leading to a deeper engagement in EGB.

The examination of moderating factors reveals that the impact of transformational leadership on EGB is not uniform but is contingent upon various contextual influences such as organizational culture, work environment, employee engagement, emotional exhaustion, and Green Human Resource Management practices. A supportive and conducive organizational climate is essential for optimizing the effectiveness of transformational leadership in promoting eco-friendly behaviours among employees. The findings emphasize the necessity for organizations to consider these moderating variables when implementing leadership strategies to drive sustainability initiatives.

Although a substantial portion of the research focuses on specific industries, most notably hospitality, there remains a critical need for broader studies across diverse sectors and geographical contexts. Organizations can gain a more nuanced understanding of how transformational leadership can be effectively tailored to promote EGB in varied environments by expanding this research landscape.

5. Recommendations

This review has implications for policymakers, industry practitioners, and future studies. For policymakers, fostering an appropriate environment for transformational leadership in organizations can significantly enhance EGB. Policymakers should consider implementing regulations and incentives that promote sustainable practices and leadership development programs within businesses. Support for training initiatives focused on transformational leadership can help cultivate leaders who prioritize environmental sustainability, which is essential for addressing climate change. In addition, devising policies that encourage public-private partnerships can help share best practices in green leadership while fostering collaboration across sectors. It is crucial to facilitate knowledge and resource exchange between academia and industry to create robust systems of support for sustainable behaviour.

Industry practitioners play a crucial role in translating transformational leadership principles into practice to enhance EGB. Organizations should prioritize leadership development programs that emphasize the importance of sustainability and environmental stewardship. Practitioners are encouraged

to invest in training and workshops designed to cultivate transformational leadership qualities among current and aspiring leaders. Such training should focus on fostering emotional intelligence, organizational identification, and intrinsic motivation to create an environment where employees feel empowered and valued in their environmental efforts. Organizations should leverage their unique sectoral insights and employ sustainability champions, or internal leaders, to act as role models for green behaviour.

For future studies, there is a noticeable gap in research focusing on industries beyond hospitality, such as healthcare, education, and manufacturing, where transformational leadership could impact sustainability efforts. Future studies should employ mixed-method approaches to capture the nuanced experiences and perceptions of employees regarding green initiatives and leadership styles. Researchers should also delve into the moderating effects of demographic factors such as age, gender, and educational background on the transformational leadership-EGB relationship to enhance the applicability of findings within different organizational contexts.

6. Limitations

This review presents valuable insights but is not without its limitations. Firstly, the reliance on a single academic database, Google Scholar, while advantageous in terms of accessibility and variety, introduces potential biases in the literature reviewed. Google Scholar may not have captured every relevant study available in specialized journals or databases. Consequently, this might have contributed to the underrepresentation of key research findings, particularly those published in journals not indexed in Google Scholar. The inclusivity of the search terms, which aimed to capture a wide range of synonyms for EGB, achieved some breadth; however, the exclusion of studies from alternative databases limits the comprehensiveness of the review.

Narrowing studies to empirical research, while practical for deriving actionable insights, may overlook valuable theoretical discussions and conceptual analyses that could enhance understanding of the relationship dynamics involved. This methodological strictness might yield a skewed representation of the existing literature, thereby restricting the development of a holistic perspective on the topic. Also, focusing on studies published in English might have restricted the range of perspectives, findings and contextual factors that could enrich the study by excluding research published in other languages.

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