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İŞLETME ANA BİLİM DALI

ÖRGÜTSEL DAVRANIŞ (İNG.) YÜKSEK LİSANS PROGRAMI

THE EFFECT OF GREEN TRANSFORMATIONAL LEADERSHIP ON EMPLOYEES' GREEN BEHAVIOR AND ORGANIZATIONAL GREEN PERFORMANCE: THE SERIAL MEDIATING ROLE OF GREEN ORGANIZATIONAL CLIMATE PERCEPTION AND GREEN MINDFULNESS

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GÖZDE ERARSLAN

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ABSTRACT

THE EFFECT OF GREEN TRANSFORMATIONAL LEADERSHIP ON EMPLOYEES' GREEN BEHAVIOR AND ORGANIZATIONAL GREEN PERFORMANCE: THE SERIAL MEDIATING ROLE OF GREEN ORGANIZATIONAL CLIMATE PERCEPTION AND GREEN MINDFULNESS

This study aims to investigate the impact of leaders having green transformational leadership features on employees' environmental behaviors and their performance in reducing the negative environmental impacts of their organizations' production and service processes. This research aims to examine the serial mediating role of employees' perceives of green organizational climate and green mindfulness in this connection. 297 white-collar employees participated in the study. After reviewing the existing literature, it becomes evident that there is a lack of prior research on this model. This study makes a significant contribution by examining environmental behaviors both at the individual and organizational levels. A total of 297 white-collar employees took part in the study. Demographic information form, green transformational leadership scale, green mindfulness scale, green organizational climate scale, employees' green behavior scale and organizational green performance scale were used as data collection tools. The data analysis phase utilized the SPSS Statistics 27, SPSS package program along with the Process Macro add-on, and R programming language. The analysis utilized Hayes' 6th model for the purpose of hypothesis testing. Also, code script written in R was used during the analysis. According to the analysis results, green transformational leadership has a statistically significant contribution to employees' green behavior and organizational green performance. In addition, green organizational climate perception and green mindfulness play a serial mediating role in the relationship between green transformational leadership and employees' green behavior. However, green organizational climate perception and green mindfulness do not have a serial mediating role in the relationship between green transformational leadership and organizational green performance.

Keywords: Green Transformational Leadership, Employees' Green Behavior, Organizational Green Performance, Green Organizational Climate Perception, Green Mindfulness

ÖZET

YEŞİL DÖNÜŞÜMCÜ LİDERLİĞİN ÇALIŞANLARIN YEŞİL DAVRANIŞLARI VE ORGANİZASYONEL YEŞİL PERFORMANS ÜZERİNDEKİ ETKİSİ: ORGANİZASYONEL YEŞİL İKLİM ALGISI İLE YEŞİL BİLİNÇLİ FARKINDALIĞIN SERİ ARACILIK ROLÜ

Bu çalışmanın amacı, yeşil dönüşümcü liderlik özelliklerine sahip liderlerin, çalışanların çevresel davranışları ve örgütlerinin üretim ve hizmet süreçlerinin olumsuz çevresel etkilerini azaltma performansları üzerindeki etkisini incelemektir. Aynı zamanda çalışanların yeşil örgüt iklimi ve yeşil farkındalığa ilişkin algılarının bu bağlamdaki seri aracılık rolünün incelenmesi amaçlanmaktadır. Çalışmaya 297 beyaz yakalı çalışan katılmıştır. Mevcut literatür incelendiğinde, bu modele ilişkin daha önce yapılmış bir araştırmaya rastlanmamıştır. Bu çalışma sayesinde çalışanların çevreye yönelik davranışları ve organizasyonun çevresel performansı incelenerek hem bireysel hem de organizasyonel düzeyde analiz yapılmış olunacaktır. Veri toplama araçları olarak demografik bilgi formu, yeşil dönüşümcü liderlik ölçeği, yeşil bilinçli farkındalık ölçeği, yeşil organizasyonel iklim algısı ölçeği, çalışanların yeşil davranış ölçeği ve organizasyonel yeşil performans ölçeği kullanılmıştır. Veri analizi aşamasında SPSS Statistics 27 paket programı, Process Macro eklentisi ve R programlama dili kullanılmıştır. Hipotezlerin analizi sırasında Hayes'in 6. Modeli ve R ile yazılan kodlar kullanılmıştır. Analiz sonuçlarına göre, yeşil dönüşümsel liderlik, çalışanların yeşil davranışlarına ve organizasyonel yeşil performansa istatistiksel olarak anlamlı bir katkı sağlamaktadır. Ayrıca, yeşil organizasyonel iklim algısı ve yeşil bilinçli farkındalık, yeşil dönüşümsel liderlik ile çalışanların yeşil davranışları arasındaki ilişkide seri aracılık rolü oynamaktadır. Ancak, yeşil organizasyonel iklim algısı ve yeşil bilinçli farkındalık, yeşil dönüşümsel liderlik ile yeşil organizasyonel performans arasındaki ilişkide seri aracılık rolü oynamamaktadır.

Anahtar Kelimler: Yeşil Dönüşümcü Liderlik, Yeşil Davranış, Organizasyonel Yeşil Performans, Yeşil Organizasyonel İklim Algısı, Yeşil Bilinçli Farkındalık

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1. INTRODUCTION

Nowadays, the importance of the concept of sustainability is increasing day by day, not only in its theoretical dimension but also in practical fields. Increasing global environmental concerns have led businesses to shift from profit-oriented perspectives to sustainability strategies (Dyllick & Muff, 2016). Researches show that while organizations seek solutions to global environmental issues through raw material and resource efficiency, carbon footprint reduction, and social responsibility practices in their production processes, their organizational structures and cultures also play a critical role in this transformation (Costa & Opare, 2025; Fietz & Günther, 2021; Fok, Morgan & Zee, 2021).

Human activities are one of the most significant triggers to climate change. The IPCC's report published in 2022 AR6 (Sixth Assessment Report) mentions the human-induced industrial impacts on climate. In order to achieve sustainability goals, organizations need to align themselves technologically, economically, and socially. In this context, employees play a significant role at the individual level in helping organizations achieve their sustainability goals (Lülfs & Hahn, 2013). It is crucial to implement interventions at the individual level to mitigate the effects of climate change. More persistent solutions could be achieved by organizations through interventions that shape employees' behaviors.

It is known that leadership characteristics of the executives are one of the most important factors in the employees' behaviors (Zheng et al., 2023; Hoch et al., 2018). According to Bass (1985), transformational leaders are those who provide awareness and acceptance of the group's goals to their employees, encouraging them to act in the interest of the group beyond their own self-interest. Based on this concept, Chen & Chang (2013) developed the "green transformational leadership" concept. They define green transformational leadership as actions by leaders that encourage their subordinates to achieve environmental goals and exceed expected levels of environmental performance. The literature has several research investigating the impact of green transformational leadership on employees' environmentally friendly behaviors and the organization's environmental performance. These studies demonstrate that green transformational leaders positively impact employees' pro-environmental behaviors (Coşkun, 2022; Özgül, 2022; Kerse, Maden & Tartan Selçuk, 2021; Wang, Zhou & Liu, 2018; Chen, Chang & Lin, 2014; Chen & Chang, 2013; Robertson & Barling, 2013).

In order for companies to reduce the amount of damage that they do to the environment, it is essential for them to organize their production processes in a manner that is beneficial to the preservation of the natural world. It ought to be a goal of businesses to reduce the amount of energy they use, the amount of raw materials they use, the amount of waste they produce, and the amount of emissions they cause. In addition, they should include environmentally friendly technology by ensuring that their company operations are environmentally friendly and sustainable, whether it be in the production of their goods

or the provision of their services. To ensure that these goals are successfully accomplished by companies, it is necessary for them to have the support of leaders inside their company who are environmentally sensitive (Zhou et al., 2018; Chen & Chang, 2013). Leadership is characterized by an emphasis on the knowledge, anticipation, and management of individual and interpersonal dynamics, as well as the manner in which people influence one another in the pursuit of the same desired outcomes (Northouse, 2025). Studies in the literature show that transformational leaders have positive effects on the green performance of organizations (Huynh, Nguyen & Vo, 2024; Begum et al., 2022). Green transformational leaders encourage their followers to take risks and be open to learning (Chen & Chang, 2013). In this way, they ensure that the organization creates a corporate culture that is open to innovation (Begum et al., 2022; Li et al., 2022). Thus, they make it easier for the organization to integrate innovations into its structure.

There are studies in the literature showing that positive perceptions of the work environment and green transformational leaders create awareness among employees about environmental problems, processes and results (Fu et al., 2025; Srivastava et al., 2024). Nevertheless, research clarifying the psychological and organizational factors that determine these consequences is limited, especially in Turkey context. Furthermore, data from empirical studies related to the mediating effects of individual and perceptual factors, such as green mindfulness (Khan & Khan, 2023; Chen, Chang & Lin, 2014), and green organizational climate perception (Öney, 2024; Coşkun, 2022; Norton, Zacher & Ashkanasy, 2014) are limited.

Within this scope, in this study, the relationship between green transformational leadership, green behaviors of employees, and green performance of the organization will be examined. In addition, whether there is a mediating effect of green mindfulness and green organization climate perception will be tested. There is no study directly which tested these models in the literature (Figure 1). The research model will be explained with Social Learning Theory (Bandura, 1977), Social Cognitive Theory (Bandura, 1985), Perceived Organizational Support Theory (Eisenberger et al., 1986), and Natural Resource Based View Theory (Hart, 1995).

In this study, firstly the theories that underpin the research will be explored. After that, concepts of green transformational leadership, employees' green behavior, organizational green performance, green mindfulness, and green organizational climate perception will be explained. Then, the method, results, and conclusion and discussion section will follow.

2. THEORETICAL FRAMEWORK

2.1. Social Learning Theory

Social Learning Theory is a learning theory that suggests that individuals learn their behaviors through observation, imitation, and modeling from others in their environment. This theory filled the gap between cognitive and behavioral theories with the approach developed by Albert Bandura in the 1960s (Bandura, 1977). Bandura suggested that people can acquire new knowledge, attitudes, and behaviors not only through direct experiences but also by observing the behaviors of others and the results of these behaviors.

The basis of Social Learning Theory is the idea that learning does not only occur through classical conditioning or operant conditioning, but also emerges as a social process. Accordingly, before individuals exhibit a behavior, they observe the results of that behavior on others and use the information they obtain to shape their own behaviors.

One of the focal points of Social Learning Theory is the concepts of "modeling" and "imitation." A model can be anyone an individual observes and takes as an example their behavior. Family members, teachers, peers, and media characters are important sources of models, especially for children (Bandura, 1977). In adopting imitated behaviors, rewarding or punishing the model's behavior plays an important role. For example, if the model is seen to be rewarded, the likelihood of the observer imitating the behavior in question increases.

Bandura added the concept of "self-efficacy" to Social Learning Theory in the 1980s. Self-efficacy is an individual's personal belief in being able to successfully perform a certain task or behavior (Bandura, 1986). Individuals with a high sense of self-efficacy act more motivated, believing that they can be successful despite the obstacles they encounter. In the observational learning process, individuals who watch a model being successful can have their own self-efficacy perceptions positively affected. Thus, individuals can develop not only certain behaviors, but also the belief and confidence to perform these behaviors.

2.2. Social Cognitive Theory

Social Cognitive Theory initially emerged as Social Learning Theory, but was developed over time to include cognitive processes with the work of Albert Bandura. With Bandura's study Social Foundations of Thought and Action: A Social Cognitive Theory published in 1986, the theory went beyond mere observational learning and began to include elements such as cognition, motivation, and self-perception in human behavior (Bandura, 1986).

Social Cognitive Theory argues that behaviors are shaped not only by environmental influences, but also by the individual's own cognitive processes. Bandura suggested that three basic factors that determine an individual's behavior interact: Personal factors (cognitive, emotional, and biological characteristics), behavior, environmental influences

One of the most prominent concepts of Social Cognitive Theory is the concept of self-efficacy developed by Bandura. Self-efficacy refers to the individual's personal belief in successfully performing a certain task or behavior (Bandura, 1997). Individuals with high self-efficacy tend to be more resilient in the face of obstacles, do not hesitate to learn new things, and make greater efforts to achieve their goals. Conversely, low self-efficacy can increase fear, avoidance, and sensitivity to failure.

Social Cognitive Theory argues that the main driving force that directs individuals' behaviors is motivation and expectations. Individuals have expectations about what they will get as a result of a behavior and these expectations determine their behavioral choices (Bandura, 1986). In addition, individuals evaluate the reward and punishment system in their social environments and shape their behaviors accordingly. The rewarding or punishment of the behaviors of people who are taken as models directly affects the observer's own behavior.

Social Cognitive Theory is applied in a wide range of areas, from education to health, from organizational behavior to the social effects of the media. In addition, social cognitive processes play a decisive role in decision-making and performance in the workplace, employee motivation, leadership and teamwork (Wood & Bandura, 1989).

2.3. Perceived Organizational Support Theory

Perceived Organizational Support Theory (POS) is an important conceptual framework that explains employees' perceptions of the support they receive from their organizations and the effects of these perceptions on employee behaviors and attitudes. The theory was developed primarily by Robert Eisenberger and his colleagues in the mid-1980s and was introduced to the organizational behavior literature (Eisenberger, Huntington, Hutchison, & Sowa, 1986).

Perceived organizational support can be defined as "the general belief that employees develop that the organization values their contributions and cares about their well-being" (Eisenberger et al., 1986, p. 501). This theory focuses on the nature of the psychological bond that employees establish with their organizations and the effects of this bond on various organizational outcomes. In other words, perceived organizational support is the general perceptions that employees develop about the extent to which they are valued and cared for by their organizations.

Theory of Perceived Organizational Support is built on Social Exchange Theory and the norm of reciprocity (Blau, 1964; Gouldner, 1960). According to Social Exchange Theory, individuals tend to develop mutually beneficial relationships, and positive behaviors by one party are reciprocated by

positive reactions from the other party. Similarly, the norm of reciprocity suggests that individuals feel an obligation to help those who help them.

Within this theoretical framework, the Theory of Perceived Organizational Support predicts that positive attitudes and behaviors of organizations toward employees will lead employees to develop positive attitudes and behaviors toward their organizations. Employees perceive that they are in a social exchange relationship with their organizations and feel the need to reciprocate the value and support shown to them (Eisenberger et al., 2001).

2.4. Natural Resource Based View Theory

The Resource-Based View (RBV) is one of the most influential theoretical frameworks in the strategic management literature that attempts to explain the mechanisms by which businesses gain and sustain strategic advantage. This theory suggests that businesses can achieve competitive advantage through the unique resources and capabilities they possess. This approach, which is based on the study of Edith Penrose in the 1950s, was transformed into a comprehensive theoretical framework in the late 1980s and early 1990s by Birger Wernerfelt (1984) and especially Jay Barney (1991).

The Resource-Based View is an attempt to explain business strategy based on the firm's internal resources and capabilities rather than external environmental factors. According to this perspective, firms are not homogeneous and each business has its own unique combination of resources and capabilities. Since these resources are not equally distributed among firms and cannot be easily imitated, they can form the basis of sustainable competitive advantage (Barney, 1991).

Hart (1995) based this theory by his perspective: "If human activities threaten the planet and businesses are the most productive organs of these activities, then businesses are playing a significant role in an unsustainable way." He argued that businesses should place environmental sustainability at the center of strategic management thinking.

Hart & Dowell (2011) evaluated and expanded the original Natural-Resource-Based View of the Firm in their article, "A Natural-Resource-Based View of the Firm: Fifteen Years After." In this update, two subcomponents of a sustainable development strategy were identified: clean technology and the base of the pyramid. Clean technology focuses on effectively reducing environmental impacts through the development of radical and innovative technologies. Clean technology is the process by which an organization makes radical technological innovations rather than incrementally improving existing technologies. Base of the Pyramid focuses on developing innovative products, services and business models to meet the needs of the poorest segments of the world's population. This strategy aims to generate economic growth while reducing social inequalities.

Stuart Hart’s Natural-Resource-Based View is a pioneering theoretical framework that emphasizes the strategic importance of businesses’ relationships with the natural environment. This theory suggests that

environmental challenges are not only a constraint for businesses, but also a significant opportunity to gain competitive advantage. Pollution prevention, product stewardship, and sustainable development strategies enable businesses to create value and gain competitive advantage in different ways. These strategies are complementary and allow businesses to develop their environmental strategies incrementally. Over time, the Natural-Resource-Based View has evolved to include clean technology and bottom-of-the-pyramid strategies. This expansion has allowed the theory to encompass both environmental and social sustainability dimensions.

2.5. Literature Review

2.5.1. Green Transformational Leadership

The concept of Transformational Leadership was introduced systematically by Burns (1978) in his book "Leadership". Bernard M. Bass (1985) expanded the scope of the transformational leadership concept. According to Bass (1985), transformational leadership is characterized by leaders that prioritize the individual development of their followers and inspire them to attain corporate objectives, rather than being exclusively task- and goal-oriented or focused on personal interests. Transformational leaders motivate their followers to achieve more than they think they can, set high goals, and generally succeed in doing more by enhancing their performance. Their followers are loyal and satisfied with transformational leaders (Bass & Riggio, 2006). Transformational leadership has four components: Idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio, 2006; Bass, 1998). In summary, transformational leaders promote ethical standards, vision, values, and intellectual stimulation (Brown & Trevino, 2006). By having these attributes, leaders can encourage employees to develop awareness of environmental issues and exhibit eco-friendly behaviors.

Avolio, Bass & Jung (1993) classified transformational leadership in four dimensions: Idealized influence, inspirational motivation, intellectual stimulation, individualized consideration. In the idealized influence dimension, transformational leaders act as role models for their followers. The most important characteristics of these leaders are that they are reliable people who are admired and respected. Leaders with idealized influence have high ethical values. They are also courageous in taking risks. In the inspirational motivation dimension, leaders motivate their followers to act in line with common goals and values. In the intellectual stimulation dimension, leaders encourage their followers to think innovatively with a questioning approach. They develop them to produce new ways to solve problems. Moreover, leaders do not criticize their followers when they think differently from them, on the contrary, they encourage them to think differently. In the individualized consideration dimension, leaders act more like coaches and mentors. They are closely interested in the personal development of their followers. They follow the individual needs of each of their followers and support them.

Based on the concept of transformational leadership Chen, Chang & Lin (2014) argue that there is a need for green transformational leadership in behaviors that support environmental protection. Chen & Chang (2013) defined the concept of green transformational leadership as follows: "Green transformational leadership is a leadership behavior that motivates followers to achieve environmental goals and inspires them to perform beyond the expected levels of environmental performance." (p. 109). The concept of green transformational leadership is the environmental version of the concept of transformational leadership. Similar to transformational leaders, they motivate their followers to align their actions with environmental goals and values (Li et al., 2020; Robertson & Barling, 2013).

The examination of the studies conducted in this field reveals that green transformational leadership has a positive impact on a variety of variables. Chen and Chang (2013) demonstrated that green transformational leadership has a positive contribution on green dynamic capability and green creativity. Li et al. (2020) conducted an additional study that validated the findings of Chen & Chang (2013), demonstrating that green transformational leadership has a positive impact on green intrinsic motivation and green creativity. In a study examining the impact of green transformational leadership on environmental sustainability, it is found that green transformational leadership has a positive contribution on green work engagement and green team resilience, and green work engagement has a full mediation role in the relationship between these relationship (Çop et al., 2021). In a study conducted in China (Maitlo et al., 2022), it is found that green transformational leadership has a positive effect on green creativity of employees. Also, green innovation climate has a partial mediation role on this relationship. In addition, Öğretmenoğlu et al. (2022) examine the mediating effect of green organizational citizenship behaviors in the relationship between green transformational leadership and green creativity. They found that green transformational leadership has a positive contribution on employees' green creativity and organizational environmental citizenship behaviors. Also, they reveal that organizational environmental citizenship behaviors partially mediate the relationship between green transformational leadership and green creativity. Al-Ghazali et al. (2022) also obtained similar results and showed that green transformational leadership has a positive effect on green creativity. In addition, this study argues that green organizational identity and green thinking variables have mediating roles in the relationship between green transformational leadership and green creativity.

Furthermore, Cahyadi et al. (2022), in their study examining the relationships between green transformational leadership, green human resource management practices, and employees' green behavior, showed that green transformational leadership has a positive effect on employees' green behavior and that green human resource management has a positive mediating role in this relationship. A study conducted in China examined the joint effects of green human resource management and green transformational leadership on employees' green behavior (Peng et al., 2020). End of the study, they found that people were more likely to participate in environmentally friendly behavior when they were subjected to the condition of high green transformational leadership and high green human resource

management. In a study examining the mediating role of manager-employee value congruence in the relationship between leaders' green transformational characteristics and employees' green behaviors, it was found that green transformational leadership had a positive contribution to employee green behavior and that value congruence had a positive full mediating role in this relationship (Wang, Zhou & Liu, 2018). The concept of green transformational leadership is a new concept in the literature and more studies are needed in this field (Şengüllendi, Bilgetürk & Afacan, 2024).

In a study conducted in the pharmaceutical sector of Pakistan, Ansari & Khan (2024) found that green transformational leadership has a direct and significant effect on regulating employees' green behavior. Based on the findings of the study, they emphasize that green transformational leadership will increase the role of leaders in achieving the environmental goals of organizations in the future. Huang et al. (2023), suggest that environmentally specific transformational leadership promotes green behaviors of employees. Farrukh et al. (2022), in their study examining the effects of green transformational leadership and green human resources management practices on the environmentally friendly behavior of employees, they reveal that green transformational leadership positively affects the environmental behavior of employees.

Portugal and Yukl (1994) argue that leaders' environmental behavior has two effects: influencing employees to engage in more environmentally sustainable behaviors and influencing the organization by changing policies, structures, or culture. Also, they argue that transformational leadership is an important factor in achieving environmental sustainability. Green transformational leadership, which emerged from the concept of transformational leadership, is one of the important factors that play a role in the positive behavior of employees towards the environment (Robertson & Barling, 2013). According to Social Learning Theory, individuals learn target behaviors by observing others (Bandura, 1977). Also, this theory posits that employees' green behavior is shaped by the behaviors and influence of environmentalist leaders inside the organization (Pinzone et al., 2016). Schein (1995) obtained findings that support the Social Learning Theory with his study. In this study, it was shown that leaders can shape the behavior of their employees by being role models. From another perspective, according to the transformational leadership concept (Bass, 1985), transformational leaders encourage their followers to participate in innovative practices, encourage them and provide employees with a suitable environment for self-development.

2.5.2. Employees' Green Behavior

The origin of the concept of employees' green behavior is based on the concept of organizational citizenship behavior toward the environment (OCBE). Boiral & Paille (2012) define OCBE as "social behaviors that are individual and discretionary, however not formally acknowledged by the reward system, play a significant role in enhancing environmental management within organizations" (p. 431). When the publications in the literature are examined, it is seen that different expressions are used for the

green behavior of employees such as "pro-environmental behavior", "employee green behavior", "employee eco-friendly behavior", "employee workplace green behavior", "organizational citizenship behavior toward the environment (OCBE)". In this study, the term of "employees' green behavior" will be used to represent green behavior.

Green behavior is one of the most important factors in organizations achieving their sustainability goals (Kim et al., 2019). Although there are many studies on green behavior in the literature, there is no fixed definition of green behavior in the literature. Employees' green behavior is explained in two basic categories: Voluntary green behavior and mandatory green behavior. Voluntary green behavior is the environmental behaviors that employees exhibit voluntarily (Paille, Boiral & Chen, 2013). Since voluntary behaviors are behaviors that employees exhibit at their own discretion, they are non-role behaviors that are not specified in job descriptions and are not monitored (Boiral, 2009). These behaviors, which are not included in employees' job descriptions and are exhibited voluntarily, are a kind of citizenship behaviors (Akandere, 2019). For example, not using too much water when washing hands, turning off unnecessary lights, throwing garbage into recycling bins according to their type, etc.

Ones & Dilchert (2013) defined mandatory green behavior as behaviors of employees that are linked to and contribute to environmental sustainability. In other words, mandatory green behavior can be defined as in-role green behaviors exhibited by the organization towards its sustainability goals within the scope of procedures determined by the organization. Moreover, Ciocirlan (2017) defined environmental behaviors as "work behaviors directed toward the protection or improvement of the natural environment, which may or may not generate value for the organization and may be performed by employees situated at any organizational level" (p. 6). Erbaşı & Özalp (2016) defines "green behavior" as "green organizational behavior is the environmentally friendly behaviors exhibited by employees within the organization" (p. 298). The phrases "contribute to the sustainability goals of the organization" as well as "measurable" frequently get used when referring to the definitions of employee green behavior. These phrases are commonly used when referring to the activities the employees perform toward the environment (Akandere, 2019; Erbaşı & Özalp, 2016; Ones & Dilchert, 2012).

Ones & Dilchert (2013) defined five components for modeling green behavior: sustainable work, avoiding harm, protecting, influencing others, and taking initiative. Sustainable work is examined under four headings. Behaviors such as not using and purchasing disposable products such as paper cups, and using environmentally friendly raw materials in the production process are grouped as "turning to environmental alternatives"; turning to methods that will be less harmful to nature in processes such as production, supply, and sales is grouped as "changing the way work is done"; designing environmentally friendly products and organizing the production processes of products in an environmentally friendly way is grouped as "creating sustainable products and processes"; and behaviors such as holding meetings via video conference and using digital content instead of printing with paper are grouped as "adopting sustainability innovation". There are three subheadings in the Avoiding Harm dimension. The

pollution sub-dimension represents behaviors aimed at preventing environmental pollution in the production process, office environment, and every area where the organization affects the environment. Behaviors that will monitor and detect the impacts on the environment constitute the “monitoring environmental impact” sub-dimension. The strengthening ecosystems sub-dimension includes behaviors such as planting trees, using renewable energy, and implementing practices that aim to enhance the environment before any potential damage occurs. There are four sub-dimensions under the Protecting dimension. These are reducing use (minimizing the use of everything), reusing (using reusable products instead of single-use products), using for another purpose (being able to use a material in a field apart from its intended purpose), and recycling (recycling and using the produced product, using recycling bins). There are two sub-dimensions in the Influencing Others dimension: sustainability education and training, encouragement and support. The sub-dimensions in the taking initiative dimension are “lobbying and activism”, “initiating programs and policies”, and “putting environmental interests first”. The lobbying and activism sub-dimension represents behaviors such as being able to talk freely about environmental issues within the organization. The initiating programs and policies sub-dimension includes behaviors such as developing policies or starting programs that can be beneficial to the environment in the organization. The putting environmental interests first sub-dimension includes behaviors aimed at reducing negative impacts on the environment even when difficult.

Another categorization was made by Smith-Sebasto & D'Costa (1995). They explained green behavior in six dimensions: citizenship behaviors, educational behaviors, financial behaviors, legal behaviors, physical behaviors, and persuasion behaviors. Citizenship behavior is any individual or group action aimed at promoting the protection of the natural environment through political means, such as voting, attending public hearings, signing petitions, civil disobedience, or protesting. Educational behaviors are the behaviors that a person exhibits individually or as a group to learn about any problem or subject related to the environment. Educational behaviors are the behaviors that a person exhibits individually or as a group to learn about any problem or subject related to the environment. These behaviors can be behaviors such as reading a book, watching a documentary, attending a seminar or congress, or participating in an environmental training. Financial behavior includes behaviors such as purchasing products from environmentally friendly brands, boycotting products of companies that harm the environment, donating to environmental protection organizations, investing in environmentally responsible companies, and contributing to environmental protection campaigns. Legal behaviors are actions taken by an individual or group to enforce laws regarding a situation that negatively affects the environment. Physical behaviors are voluntary actions taken by an individual or group without any profit in mind. These actions include separating garbage and throwing it into recycling bins, collecting garbage, and preventing unnecessary energy consumption. Finally, persuasion behaviors are actions taken by an individual or group to motivate others to protect the environment. These behaviors can be

actions such as publishing an article in a magazine or newspaper, creating a lobby, or being a speaker o nn digital platforms or a program on television.

In 2000, Paul C. Stern released an article titled “Toward a Coherent Theory of Environmentally Significant Behavior”. This study presents an approach for classifying pro-environmental behavior into public and private spheres. Stern (2000) explained green behavior in four categories: environmental activism, non-activist behaviors in the public sphere, private sphere environmentalism and other environmentally significant behaviors. The environmental activism dimension includes behaviors of individuals or groups to take an active role in environmental organizations. The term "non-activist behaviors in the public-sphere" refers to environmental citizenship behaviors such as petitioning or joining environmental protection organizations, as well as promoting actions via the relevant laws and regulations. Other environmentally significant behaviors include decisions made by senior managers in an organization regarding the environment. Private sphere environmentalism behaviors include individuals' purchasing behaviors, environmental protection of household items, recycling behaviors, and consumer behaviors. Examples include behaviors such as limiting electricity consumption at home, reducing water consumption, purchasing recyclable materials, reducing plastic use, and purchasing organic products that protect the environment. The concept of "private sphere" here refers to the approaches that exist in the minds of individuals towards the environment. In other words, the individual does not need an external pressure to perform these behaviors. These behaviors occur voluntarily, on their own. Lu, Liu, Chen, Long & Yue (2017) defined two dimensions based on the Stern (2000) and ISSP (!993). These dimensions are public sphere pro-environmental behavior and private sphere pro-environmental behavior. Public sphere behaviors include environmental activism, non-activist behaviors in the public sphere and other environmentally significant behaviors. Private sphere behaviors include private sphere environmentalism behaviors.

The primary factor in achieving sustainability goals is employee behavior, which relies on individual efforts at the individual level (Lamm, Toti-Kharas & King, 2015; Daily, Bishop & Govindarajulu, 2009). For this reason, this study will focus on “private sphere” pro-environmental behaviors of employees which are environmentally friendly behaviors based on individual volunteering.

Up to this point, green transformational leadership, green behaviors of employees and the effects of green transformational leadership on green behaviors of employees have been discussed. Based on the transformational leadership, it can be said that green transformational leaders have an effect on employees' green behavior. According to summarized findings above, hypothesis 1 was developed:

H1: Green transformational leadership is positively correlated with employees’ green behavior.

On the other hand, it is thought that green transformational leadership can be effective on organizational green performance as employees' green behavior.

2.5.3. Organizational Green Performance

Organizational green performance is of great importance for organizations in terms of ensuring sustainable development, protecting the environment and gaining competitive advantages. Organizational green performance is mentioned in the literature with the keywords green innovation or green performance. In this study, the concept of "organizational green performance" will be used for more clarity. According to Chen, Lai & Wen (2006), green innovation is any hardware or software invention associated with environmentally friendly goods or processes, such as those involving waste recycling, pollution avoidance, saving energy, environmentally friendly product designs, or corporate environmental management. It is a costly process for organizations to integrate green practices into their processes, but green process innovation provides profit to companies both financially and non-financially in the future (Li et al., 2020). Green innovation is the integration of environmentally friendly technologies into production processes to reduce the negative impacts on the environment during the production process of products and services (Tseng et al., 2013).

Green innovation is divided into two dimensions: green product innovation and green process innovation (Chen, Lai & Wen, 2006). According to the researches, green product innovation is seen as products that do not have negative effects on our nature or have been minimized. On the other hand, green process innovation refers to adaptations or innovations made to improve existing processes and/or develop new ones in order to minimize their negative impact on the environment (Wang, 2019; Huang & Li, 2017; Chen, Lai & Wen, 2006). That is, green product innovation represents improvements in the design process of a product. Green process innovation represents improvements in the production process of a product or the delivery of a service.

The importance of green process innovation is increasing in the world. Today, industry 4.0 applications in factories, the European Union and countries in America support the green process innovation with sanctions for 2030 and beyond, such as reducing CO2 emissions and preventing the use and transportation of harmful gases, reducing energy consumption in production, expanding the use of recyclable products, recycling factory and biological waste, or ensuring appropriate filtration (Sharma et al., 2024; Beghetto et al., 2023; Moshood et al., 2022; Camilleri et al., 2020). In this study, the focus will be on the green process innovation dimension of green innovation. The green performance of organizations in production and service processes will be the focus of the study.

In a study conducted in Vietnam, Huynh, Nguyen & Vo (2024) reveal that green transformational leadership strengthens both green innovation and sustainable performance. Moreover, Begum et al. (2022), suggest that green transformational leadership increases green innovation towards sustainability by increasing the green thinking levels of employees. In similar studies conducted by Pham et al. (2023) and Şengüllendi et al. (2024), it is suggested that managers with transformational leadership characteristics have positive effects on the green performance of the organization. Singh et al. (2020)

found in their study that green transformational leadership improves environmental performance and green innovation. Moreover, Chen et al. (2025) obtained findings supporting that transformational leadership increases the green performance of organizations. In another study supporting the findings of this study, it was shown that green transformational leadership has a positive effect on green performance (Chen et al., 2014). Liu, Yu & Xing (2022), in their study examining the effect of green transformational leadership on the green product innovation sub-dimension of green innovation, showed that green transformational leadership positively affects green product innovation through employees' organizational citizenship behavior toward environment.

According to the Natural Resource-Based View (Hart, 1995), which was developed as an extension of the Resource-Based View, organizations gain sustainable competitive advantage by developing various strategies for environmental sustainability (Yorulmaz, 2024). Emphasizing the importance of environmentally sustainable strategies, Hart (1995) argues that organizations need to develop activities and capabilities (such as pollution prevention, product management, clean technology) for environmental sustainability in order to achieve sustainable competition. Based on this information, it can be argued that organizations can contribute to their green performance by having talents with green transformational leadership characteristics in order to achieve their sustainable goals. In line with this information, second hypothesis was proposed:

H2: Green transformational leadership is positively correlated with organizational green performance.

Up to this point, the effects of green transformational leadership on employees' green behaviors and organizational green performance have been discussed. Hypotheses have been established regarding this information. In addition, it is thought that green transformational leadership may also have an effect on employees' perceptions of green organizational climate. Based on this idea, the following section will discuss organizational green climate perception.

2.5.4. Green Organizational Climate Perception

Everyone is born with the need to fit in with their environment, and this need motivates them to act in a suitable way (Yu, 2013). Individuals need to obtain information from their environment in order to understand and adapt to the behaviors expected of them (Schneider, 1975). Schneider (1975) and Schneider, Ehrhart, and Macey (2013) define organizational climate as the collective perspectives of employees regarding the organization's policies, practices, and procedures, particularly in relation to the behaviors that are anticipated, rewarded, and encouraged. Employees' perceptions of organizational climate are influenced by their personal values and behavioral standards that they use to interpret workplace information (Ashkanasy & Härtel, 2014; James et al., 2008; Schneider and Reichers, 1983). In the literature, the term "organizational climate" is also referred to as "psychological climate". Psychological climate, which has its roots in environmental psychology, was first conceptualized by

James & Jones (1974). Psychological climate is a term used to express the meanings that employees' attributes to variables in their work environments (James & James, 1992).

Based on organizational climate, also known as psychological climate, Norton, Zacher & Ashkanasy (2014) define the concept of green organizational climate perception as employees' perceptions of their organization and coworkers' commitments toward environmental sustainability. The term "green organizational climate" refers to the views and interpretations of employees about the policies, processes, and practices of a company that are considered to be environmentally friendly (Norton et al., 2014). The term green organizational climate is additionally referred to in the literature as green psychological climate or green organizational climate. In this study, expression of "green organizational climate" will be used.

Studies have demonstrated that the perception of a green organizational climate acts as a significant mediating variable in enhancing employees' green behavior. In a study conducted in a medium-sized firm in Pakistan (Kanwal et al., 2024), how corporate social responsibility affects employee green behavior and the mediating role of organizational green climate perception in this model was examined. According to the results, organizational green climate has a positive mediating role between corporate social responsibility and green behavior.

Norton et al. (2014), conducted a research model to investigate the mediator role of green organizational climate perception in the relationship between perceived sustainability policies and employees' green behavior. In this study, employees' green behavior was investigated in two dimensions: task related and proactive behavior. As a result of the research, Employee climate perceptions have a positive relationship with employees' green behavior. Moreover, green organizational climate perception has a positive mediation role in the relationship between perceived sustainability policies and employees' green behavior. Dahiya (2020) replicated research model of Norton et al. (2024). In this study, she examined green organizational climate perception from two perspectives: organization and co-workers. This study was aimed to investigate the mediator role of green organizational climate perception in the relationship between perceived presence of sustainability policies and employees' green behavior. According to results of the study, this relationship was fully mediated by green organizational climate perceptions related to co-workers and organization. In their study on hotel staff, Özalp & Erbaşı (2021) found that there was a positive relationship between employees' green organizational behavior and their perception of green organizational climate. In addition, the perception of a green organizational climate acts as a significant mediating variable on organizational green performance (Abbas & Khan, 2023). Yang et al. (2024) examined the interaction between organizational green climate perception and corporate energy saving behaviors. The term corporate energy saving behavior represents employees' green behaviors. As a result of the analysis, it was found that organizational green climate perception has a positive effect on corporate energy saving behaviors. Nonetheless, limited research exists regarding the impact of green organizational climate perception on green performance.

According to the Perceived Organizational Support Theory (Eisenberg et al., 1986), when employees feel that the organization they work for values them and supports their development, their overall performance and job satisfaction increase. Perception of support positively affects employees' motivation in their work, commitment to their work, and performance at work (Rohades & Eisenberger, 2002). This theory suggests that employees are more likely to engage in green behavior when they perceive organizational efforts to benefit the environment and recognize an environmental climate within the organization (Mirahsani et al., 2024). The existence of leaders with a green vision and characteristics of green transformational leadership enhances employees' perception of the green organizational climate. Green transformational leaders influence employees' environmentally friendly behaviors by shaping their perceptions of the green organizational climate.

In this respect, the following hypotheses have been developed:

H3: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and employees' green behavior.

H5: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and organizational green performance.

In this section, the positive effect of green transformational leadership on organizational green climate perception and the mediating effects of organizational green climate perception are discussed based on studies in the literature. At the same time, it is thought that green transformational leadership may also have an effect on employees' green mindfulness. In the following section, the concept of green mindfulness will be discussed.

2.5.5. Green Mindfulness

"Mindfulness" is a Buddhist doctrine that derives its roots from Eastern traditions (Kabat-Zinn, 2003; Thera, 1962). Mindfulness is the conscious participation of a person in what they are experiencing at that moment by focusing on the details in the present moment (Brown & Ryan, 2003). Vipassana (insight) and Samatha (attention and stillness), two Buddhist stages, are the inspiration for mindfulness practices. Despite having Buddhist roots, it has no connection to any of Buddhism's tenets or rituals. Mindfulness represents an inherent attitude of man and a universal requirement. One of the main doctrines of mindfulness is that it fosters a condition of dual awareness—one that is attuned to one's internal experiences and one's outward surroundings (Ögel, 2015; Cullen, 2011; Richards, Campenni, & Muse-Burke, 2010).

Based on the doctrine of mindfulness, Chen et al. (2014) introduced the concept of green mindfulness, which includes an environmental perspective. They define green mindfulness as, "a state of conscious awareness in which individuals are implicitly aware of the context and content of environmental information and knowledge" (Chen et al., 2014: 1170). As in the concept of mindfulness, individuals

with green mindfulness use their full awareness, allowing them to observe the environment without judgment by perceiving stimuli in their environment based on present-moment experience (Hwang & Lee, 2019).

Green transformational leadership effects positively employees' green mindfulness. Fu et al. (2025), in their study examining the effect of green transformational leadership on green mindfulness, revealed that inclusive psychological climate provides a positive mediation between green transformational leadership and green mindfulness, while innovative organizational climate negatively affects these effects. In this study, they emphasize that green transformational leadership plays an important role in achieving the organization's sustainability goals by shaping employee behaviors. Moreover, in another study conducted by Chen et al. (2014), shows that green transformational leadership has a positive effect on green performance. In this study, they investigated the mediation roles of green mindfulness and green self-efficacy. They found also green mindfulness and green self-efficacy both have a partial mediation role in the relationship between green transformational leadership and green self-efficacy.

Aghaei, Aghaee, & Shahriari (2024) designed a study in which they measured the mediating role of green mindfulness in the effects of green vision and green training on employees' green behavior. Consequently, all hypotheses were validated by the results of the study. Green mindfulness has a mediating role in the relationship between green vision and employees' green behavior. Moreover, green mindfulness has a mediating role also in the relationship between green training and employees' green behavior. They specifically highlight that offering environmental training to employees fosters green mindfulness, hence promoting the development of environmentally friendly behaviors among them.

Chen, Rasheed & Ayup (2023), in their study examining green mindfulness as an independent variable, found that green mindfulness has positive contributions on employees' green behaviors. They also showed that green intrinsic motivation has a positive mediating role in this relationship. In addition, they report that green transformational leadership has a moderating effect on the relationship between green mindfulness and employees' green behaviors, increasing the strength of the relationship. Barbaro & Pickett (2016), in their research including two independent studies, found that there is a positive effect between green mindfulness and green behaviors of employees. At the same time, in both studies conducted with two different independent samples, connectedness to nature took a positive mediating role in this relationship.

In a study conducted by Chen et al. (2015), investigated the mediation roles of green mindfulness and green self-efficacy in the relationship between green shared vision and green creativity. The results verified that green shared vision positively effects green mindfulness, green self-efficacy, and green creativity. On the other hand, green mindfulness and green self-efficacy have partial mediation roles in the positive relationship between green shared vision and green creativity. This evidence is supposed to

mean green shared vision has both positive effect on green creativity indirectly via mindfulness and directly.

Khan & Khan (2023), in their study on employees working on a green project conducted in a medical school, investigated the mediating role of green mindfulness in the relationship between green transformational leadership and green performance. The term green performance here represents the performance of employees in the project. The research results show that green transformational leadership has a positive effect on green performance. At the same time, green mindfulness has a partial mediating role in this relationship.

The studies cited above indicate that green mindfulness has been analyzed from various perspectives, including mediator effects, moderator effects, and as an independent variable. Studies in the literature suggest that green mindfulness positively influences employees environmentally friendly behaviors and enhances the organization's environmental performance. Additionally, it has been revealed that green transformational leadership positively influences green mindfulness. Based on these findings, the following two hypotheses were developed:

H4: Green mindfulness has a mediating role in the relationship between green transformational leadership and employees' green behavior.

H6: Green mindfulness has a mediating role in the relationship between green transformational leadership and organizational green performance.

Up to this section, the effects of green transformational leadership on employees' green behaviors and organizational green performance have been discussed. At the same time, the mediating effects of organizational green climate perception and green mindfulness in these relationships have been mentioned. In addition to these effects, it is thought that green transformational leadership follows the following path in its effect on employees' green behaviors and organizational green performance: first, green transformational leadership can affect employees' organizational green climate perceptions, employees' green climate perceptions can create green conscious awareness in employees, and in this way, an increase in employees' green behaviors and the organization's green performance can be observed. These effects will be discussed in the following section.

2.5.6. Serial Mediation Role of Green Organizational Climate and Green Mindfulness

Organizational climate is an important factor in the development of employees' mindfulness levels (Norton et al., 2017). The study investigated the mediating role of inclusive and innovative climate between green transformational leadership and green mindfulness, revealing that inclusive climate positively mediates this relationship (Fu et al., 2020). At the same time, this study shows that there is a positive relationship between green mindfulness and green climate.

Although there is no study in the literature that directly investigates the model of this study, there are studies that investigate the serial mediation effect with different variables. Murali (2025) investigated the serial mediation effect of green mindfulness and environmental self-identity variables in the relationship between green transformational leadership and green organizational citizenship behavior. As a result of the research, she contributed to the literature by showing that green transformational leadership affects employees' green organizational citizenship behaviors through serial mediation via green mindfulness and environmental self-identity.

Under the headings up to this stage, the effects of green transformational leadership on employees' green behaviors and the organization's green performance were discussed. At the same time, the positive effects of green mindfulness and green organizational climate perception were mentioned in these effects.

Social Cognitive Theory argued that in the process of individuals acquiring behavior, their behavior, their environment, and their cognitive processes interact to create new behaviors (Bandura, 1985). Based on this view and the studies examined, it can be said that green transformational leadership, employees' green organizational climate perceptions and green mindfulness have an impact on the emergence of employees' green behaviors. It is suggested that employees' perception of a green organizational climate for their organization will positively affect their green conscious awareness levels by increasing individuals' environmental awareness and attention. Based on these finding and Social Cognitive Theory, the following two hypotheses were developed:

H7: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and employees' green behavior.

H8: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and organizational green performance.

All hypotheses established in this study are shown in Table 1.

Table 1. *Hypotheses table.*

Hypotheses
H1: Green transformational leadership is positively correlated with employees' green behavior.
H2: Green transformational leadership is positively correlated with organizational green performance.
H3: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and employees' green behavior.
H4: Green mindfulness has a mediating role in the relationship between green transformational leadership and employees' green behavior.
H5: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and organizational green performance.
H6: Green mindfulness has a mediating role in the relationship between green transformational leadership and organizational green performance.
H7: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and employees' green behavior.
H8: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and organizational green performance.

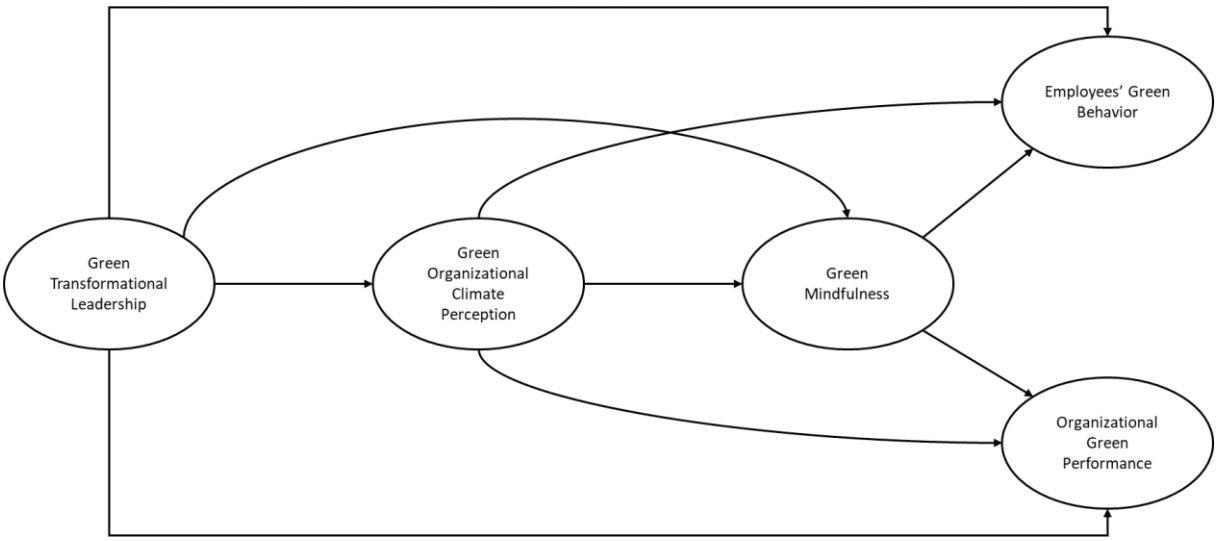


Figure 1. *Research Model*

3. METHODOLOGY

In this section, the methodology of the study will be explained. In this regard, first the sample will be mentioned, followed by the measurement tools, procedure, and data analysis.

3.1. Working Sample

In research process, a total of 297 participants were reached. The target audience of the research was white-collar employees. Convenience sampling method was used as the sampling method. The research form was prepared as an online survey via Google Forms. It was sent to participant and also shared in social media platforms (Linkedin). Descriptive analysis was conducted to examine the demographic characteristics of the participants. Demographic information is revealed in Table 2.

Table 2. *Informations of Demographic Findings*

		Frequency	Percent
Gender	Female	150	51%
	Male	147	49%
Marital Status	Single	130	44%
	Married	167	56%
Education	Highschool	18	6%
	Undergraduate	202	68%
	Postgraduate	77	26%
Have you participated in any environmental training programs before?	Yes	140	47%
	No	157	53%
Have you ever taken part in any environmentally-related projects or events?	Yes	146	49%
	No	151	51%
Do you think your family raised you to be an environmentally conscious individual?	Yes	277	93%
	No	20	7%
Do you talk about environmental issues when you get together with your friends?	Yes	212	71%
	No	85	29%
Age	Min=19.0, Max=64.0, M=34.9, S=8.7		

50.5% of the participants is female and 49.5% is male. The age ranges vary between 19-64 and the average is 34.9. When we look at their marital status, 43.8% is single and 56.2% is married. Those with a bachelor's degree constitutes the large majority (N=202). 140 participants had previously attended any environmental training, while 157 did not. The number of participants who had previously participates in an environmental project or activity is 146, while the number of participants who had not participated is 151. The vast majority of the participants (N=277) think that their families raised them with environmental awareness. At the same time, most of them (N=212) states that they had chatted about environmental issues in their social environments.

3.2. Measures

The research form includes the Demographic Information Form, Green Transformational Leadership Scale (Chen & Chang, 2013), Organizational Green Performance Scale (Chen, Lai & Wen, 2006), Employees' Green Behavior Scale (Lu et al., 2017), Green Mindfulness Scale (Chen et al., 2014), and Green Organizational Climate Perception Scale (Norton et al., 2014). Turkish versions of all measurement scales are provided in Appendix A.

4.2.1. Demographic Information Form

Demographic information form consists of age, gender, marital status, education level and environment related yes-no questions. These questions are "Have you participated in any environmental training programs before?", "Have you ever taken part in any environmentally-related projects or events?", "Do you think your family raised you to be an environmentally conscious individual?", and "Do you talk about environmental issues when you get together with your friends?".

4.2.2. Green Transformational Leadership Scale

Green Transformational Leadership Scale is developed by Chen & Chang (2013). The scale aims to measure employees' perceptions of their executives' green transformational leadership characteristics. It has one dimension and six items. Turkish adaptation of the scale was conducted by Kerse, Maden & Tartan Selçuk (2021). The Cronbach's Alpha internal reliability coefficient of the scale was .90 in the original study and .95 in the Turkish adaptation study. Participants rate the items according to their agreement status with a 6-point Likert scale (1: Strongly disagree, 2: Disagree, 3: Slightly Disagree, 4: Slightly Agree, 5: Agree, 6: Strongly Agree). The scale scoring is between 6 and 36 points.

4.2.3. Organizational Green Performance Scale

Organizational Green Performance Scale (Chen, Lai & Wen, 2006) is an 8-item scale that evaluates organization's green process and production innovation. It has 2 dimensions: green process innovation

and green production innovation. Each dimensions has 4 items. In this study, green process innovation part of the scale was used. In this study, the green process innovation part of the scale was used because the focus was on the green performance of the organization's production processes. Participants rate the scale with six point scale (1- Strongly Disagree to 6- Strongly Agree). The Cronbach's Alpha internal reliability coefficient of the subscales was .68 for green product innovation and .66 green process innovation. Özgül (2023) used the green process innovation subscale of the scale in his study. In this study, Cronbach's Alpha value was stated as .93. However, this study was not a Turkish adaptation study. For this reason, the researcher translated the scale into Turkish. A reverse translation was conducted, followed by comparisons with the original scale items. To ensure the scale items were comprehensible and aligned with the study, expert feedback was requested, and the items were revised.

4.2.4. Employees' Green Behavior Scale

Employees' pro-environmental behavior scale (EPEB) is developed by Lu et al. (2017). EPEB has 10 items and two dimensions. It measures pro-environmental behaviors in public and private spheres. Participants rate the scale with six point Likert scale (1- Never to 6- Always). Cronbach's Alpha value of the subscales are .73 for private-sphere EPEB and .80 for public-sphere EBEP. In this study, private-sphere EPEB was used. The researcher translated the scale into Turkish due to the absence of a Turkish version. The scale was first translated into Turkish by native speakers proficient in professional English and specialists in Organizational Behavior. A reverse translation was conducted, followed by comparisons with the original scale items. To ensure the scale items were comprehensible and aligned with the study, expert feedback was requested, and the items were revised.

4.2.5. Green Mindfulness Scale

Green Mindfulness Scale is developed by Chen et al. (2014) to measure the green awareness levels of employees. It consists of six items and one dimension. The Cronbach's Alpha value of the scale is .90. Since there is no Turkish adaptation of the scale, its translation into Turkish was made by the researcher. The scale was first translated into Turkish by native Turkish speakers who speaks professional English and experts in the field of Organizational Behavior. Then, back translation was made and comparisons were made with the original scale items. In order to make the scale items understandable and compatible with the research, expert opinions were taken and the items were edited. Considering the target participants of the research, the expression "employees" was used as the equivalent of the expression "The members of the green innovation project" in the original scale. The six-point scale was used ranging from 1 (Strongly Disagree) to 6 (Strongly Agree).

4.2.6. Green Organizational Climate Perception Scale

The Green Organizational Climate Perception Scale (Norton et al., 2014) is an 8-item scale that evaluates employees' perceptions of how well the organization they work for and their colleagues implement procedures for environmental sustainability. Participants rate the scale with six point scale (1- Strongly Disagree to 6- Strongly Agree). It has two dimensions and each dimensions has four items. Cronbach's Alpha values of the subscales are .93 for the organization part and .92 for the co-worker part. The scale was translated into Turkish and used in studies conducted by Coşkun (2022) and Öney (2024). However, there is no direct adaptation study of the scale to Turkish. Öney (2024) reported the Cronbach's Alpha value of the scale as .74, and Coşkun (2022) reported it as 94. In this study, the scale was first translated into Turkish by native Turkish speakers who speaks professional English and experts in the field of Organizational Behavior. Then, back translation was made and comparisons were made with the original scale items.

3.3. Data Collection Procedure

Data collection was intended to be conducted online, and the measurement instruments were converted into a survey form using Google Forms within the study's scope. White-collar employees who reside in Turkey were intended to be among those who participated in the probe. For this particular purpose, the link to the research was sent to participants working in a variety of positions at a variety of organizations in Turkey using all of the internet channels that were accessible (for example, LinkedIn, Instagram, and WhatsApp). Data was gathered via the use of a quantitative technique. It was made available to the participants that they may view the research form via a URL. On the condition that they gave their approval to the informed consent agreement (Appendix A) at the beginning of the form, participants were allowed to take part in the research project.

3.4. Data Analysis

IBM SPSS Statistic 27 package program was used as the main statistics program in the data analysis phase. Initially, studies of validity and reliability for the measures were performed. The Pearson Correlation was used to assess the strength of the correlations among variables. Moreover, One-way ANOVA and t-test were used to compare means between groups. Process Macro version 4.2, developed by Andrew as an SPSS extension, was used in the hypothesis testing phase. In addition, research model was tested with R which is a open source programming software for statistical computing and graphics (R Core Team, 2021).

4. RESULTS

4.1. Testing of Measurement Tools

Firstly, the factor analysis phase of the scales was initiated. According to the factor analysis results (Table 4), each scale was grouped under a single dimension. The findings of the scale development research for the green organizational climate perception scale (Norton, Zacher, & Ashkanasy, 2012) indicated that the scale items were divided into two dimensions. Moreover, Norton, Zacher & Ashkanasy. (2014) obtained similar results in another study and showed that the green organizational climate perception scale items were collapsed under two dimensions. However, in this study, the items of the green organizational climate perception scale were yielded to a single dimension

When we look at Cronbach's Alpha internal consistency coefficients in the reliability analysis of the scales, it is seen that all scales have high coefficients (Table 3). The Cronbach's Alpha value of green transformational scale is .97, employees' green behavior scale is .79, organizational green performance scale is .87, green mindfulness scale is .85, and green organizational climate perception scale is .94. After these analyses, the total item scores of the scales were calculated. The normality assumptions of the scales were verified before proceeding to the following stages. According to the normality test results (Table 3), the skewness and kurtosis values of all variables are between -1.5 and +1.5, that is, they meet the normality assumptions (Tabachnick & Fidell, 2013).

Table 3. *Descriptive Statistics and Reliability Analysis of Measurement Tools*

Instruments	Min.	Max.	Skewness	Kurtosis	Cronbach's Alpha
Green Transformational Leadership	1.00	6.00	-.703	-.081	.968
Employees' Green Behavior	2.60	6.00	-.729	.607	.793
Organizational Green Performance	1.00	6.00	-.716	.867	.871
Green Mindfulness	1.00	6.00	-.614	.092	.854
Green Organizational Climate Perception	2.38	6.00	-.658	.565	.938

Table 4. *Factor Analysis of Measurement Tools*

Instruments	Factor Items	Factor Loading	Cronbach Alpha	Variance Explained	KMO	Bartlett's Test		
						Chi-Square	df	Sig.
Green Transformational Leadership	GTL2	.944	.968	86.226	.923	2241.767	15	.000
	GTL4	.943						
	GTL3	.935						
	GTL6	.925						
	GTL1	.924						
	GTL5	.901						
Employees' Green Behavior	EGB2	.823	.793	56.285	.815	446.626	10	.000
	EGB3	.790						
	EGB1	.754						
	EGB5	.747						
	EGB4	.621						
Organization Green Performance	OGP4	.865	.871	72.269	.805	590.559	6	.000
	OGP1	.862						
	OGP3	.842						
	OGP2	.831						
Green Mindfulness	GM4	.855	.854	60.316	.839	855.231	15	.000
	GM2	.834						
	GM3	.819						
	GM6	.796						
	GM1	.691						
	GM5	.640						
Green Organizational Climate Perception	GOCP1	.866	.938	70.036	.917	1912.677	28	.000
	GOCP4	.861						
	GOCP3	.854						
	GOCP2	.848						
	GOCP7	.829						
	GOCP6	.824						
	GOCP5	.809						
	GOCP8	.800						

4.2. Correlation Analysis

Correlation analysis was used to examine the connection values among variables. Also, H1 and H2 hypothesis were tested. Pearson correlation analysis was performed. All variables have significant positive relationships with each other (Table 5).

Table 5. *Pearson Correlation Analysis Table*

	1	2	3	4	5	6	7	8	9
1.Age	-								
2.Gender	-.152**	-							
3.Marital Status	-.453**	.199**	-						
4.Education	.199**	-.041	-.126*	-					
5.Green Transformational Leadership	-.046	-.038	.042	.042	M=4.0				
6.Employees' Green Behavior	.192**	-.218**	-.107	.090	.275**	M=5.1			
7.Organizational Green Performance	-.043	.016	.049	-.027	.233**	.372**	M=4.5		
8.Green Mindfulness	.041	-.092	.032	.072	.646**	.352**	.281**	M=4.2	
9.Green Organizational Climate Perception	.029	-.070	-.035	.010	.422**	.431**	.585**	.445**	M=4.8

** p<0.01

* p<0.05

Note: Gender: 1=Female, 2=Male; Marital Status: 1=Married, 2=Single; Education: 1=Primary School, 2=Secondary School, 3=Highschool, 4=Bachelor, 5=Graduate

Firstly green transformational leadership has a positive relationship with employees' green behavior (r=.275, p<.01), organizational green performance (r=.233, p<.01), green mindfulness (r=.646, p<.01), and green organizational climate perception (r=.422, p<.01). For this reason, H1 and H2 hypotheses were supported. Also, there is a positive relationship between employees' green behavior and organizational green performance (r=.372, p<.01). In addition, employees' green behavior has a positive relationship with green mindfulness (r=.352, p<.01) and green organizational climate perception (r=.431, p<.01). Moreover, organizational green performance has a positive relationship with green mindfulness (r=.281, p<.01) and green organizational climate perception (r=.585, p<.01). In additon, there is a positive relationship between green mindfulness and green organizational climate perception (r=.445, p<.01).

Gender is positively correlated with marital status (r=.199, p<.01), despite negatively correlated with age (r<-.152, p<.01) and employees' green behavior (r=-.218, p<.01). This means, females could be tend

to exhibit more green behaviors than males. Age has a negative relationship with marital status (r=--.453 p<.01) but has a positive relationship with education (r=.199, p<.01). In addition, age is positively correlated with employees' green behavior (r=.199, p<.01). As the age level of employees increases, an increase in their green behavior is also observed.

4.3. Hypothesis Testing

In this section firstly, mediator variable analysis was performed for each mediator variable. Then, regression analysis was performed using the Process Macro Hayes 6th model to evaluate the serial mediation role. However, Process Macro does not provide the results of some relationships in the model. In order to get the results of these relationships, the research model analysis was performed with R. Hypothesis testing was done using the method of Baron & Kenny (1986). Process Macro and R.

4.3.1. Mediation Analysis for Green Organizational Climate Perception

In this section, the mediating role of green organizational climate perception was examined. H3 and H5 hypotheses were tested. Firstly, the mediating effect of green organizational climate perception on the relationship between green transformational leadership and employees' green behavior was examined (Table 6).

Table 6. *The mediation role of green organizational climate perception in the relationship between green transformational leadership and employees' green behavior.*

	Independent Variable	Dependent Variable	B	Std. Error	ß	t	P
Step1	Green Transformational Leadership	Green Organizational Climate Perception	.269	.034	.422	8.003	<.001
				R^2=.178, F(1,295)=64.051, p<.001			
Step2	Green Transformational Leadership	Employees' Green Behavior	.159	.032	.275	4.916	<.001
				R^2=.076, F(1,295)=24.163, p<.001			
Step3	Green Transformational Leadership	Employees' Green Behavior	.066	.033	.114	1.968	.050
	Green Organizational Climate Perception		.348	.052	.383	6.633	<.001
				R^2=.196, F(2,294)=35.839, p<.001			

Table 6 shows the mediating role of green organizational climate perception in the relationship between green transformational leadership and employees' green behavior. In Step 1, the R^2 value of .178 revealed that the green transformational leadership explained 17.8% variance in the green organizational climate perception with F(1,295)=64.051, p<001. The findings revealed that green transformational leadership positively predicted green organizational climate perception (ß=.422, t=8.003, p<.001). In Step 2, the R^2 value of .076 revealed that the green transformational leadership explained 7.6% variance in the employees' green behavior with F(1,295)=24.163, p<001. The findings revealed that green transformational leadership positively predicted employees' green behavior (ß=.275, t=4.916, p<.001). In step 3, green organizational climate perception and green transformational leadership were examined together as predictors. The findings revealed that green organizational climate perception positively predicted employees' green behavior (ß=.383, t=6.633, p<.001). When green organizational climate perception was included in the model, the direct effect of green transformational leadership on employees' green behavior is statistically significant (ß=.114, t=1.968, p=.05). But the beta value decreases from .275 to .114. In conclusion, green organizational climate perception was partially mediated the relationship between green transformational leadership and employees' green behavior (Figure 2). For this reason, H3 was supported.

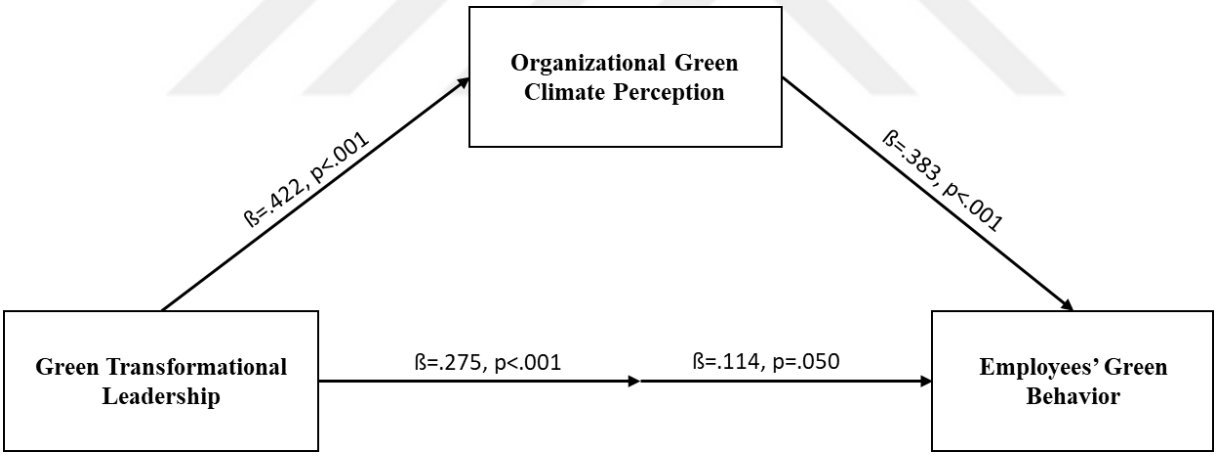


Figure 2. *Mediation Role of Green Organizational Climate Perception in the Relationship Between Green Transformational Leadership and Employees' Green Behavior.*

The mediating role of green organizational climate perception in the relationship between green transformational leadership and organizational green performance was investigated (Table 7).

Table 7. *The mediation role of green organizational climate perception in the relationship between green transformational leadership and organizational green performance.*

	Independent Variable	Dependent Variable	B	Std. Error	ß	t	P
Step1	Green Transformational Leadership	Green Organizational Climate Perception	.269	.034	.422	8.003	<.001
				R^2=.178, F(1,295)=64.051, p<.001			
Step2	Green Transformational Leadership	Organizational Green Performance	.170	.041	.233	4.107	<.001
				R^2=.054, F(1,295)=16.864, p<.001			
Step3	Green Transformational Leadership	Organizational Green Performance	-.013	.038	-.018	-.344.0	0.731
	Green Organizational Climate Perception		.682	.060	.593	11.371	<.001
				R^2=.343, F(2,294)=76.750, p<.001			

Table 7 shows the mediating role of green organizational climate perception in the relationship between green transformational leadership and organizational green performance. In Step 1, the R^2 value of .178 revealed that the green transformational leadership explained 17.8% variance in the green organizational climate perception with F(1,295)=64.051, p<001. The findings revealed that green transformational leadership positively predicted green organizational climate perception (ß=.422, t=8.003, p<.001). In Step 2, the R^2 value of .054 revealed that the green transformational leadership explained 5.4% variance in the organizational green performance with F(1,295)=16.864, p<001. The findings revealed that green transformational leadership positively predicted organizational green performance (ß=.233, t=4.107, p<.001). In step 3, green organizational climate perception and green transformational leadership were examined together as predictors. The findings revealed that green organizational climate perception positively predicted organizational green performance (ß=.593, t=11.371, p<.001). When green organizational climate perception was included in the model, the direct effect of green transformational leadership on organizational green performance became statistically insignificant (ß=-.018, t=-.344, p=.731). With green organizational climate perception, the explained variance of the model increased to .343. In conclusion, green organizational climate perception was fully mediated the relationship between green transformational leadership and organizational green performance. Green transformational leadership has an indirect effect on organizational green performance through green organizational climate perception (Figure 3). In conclusion, H5 was supported.

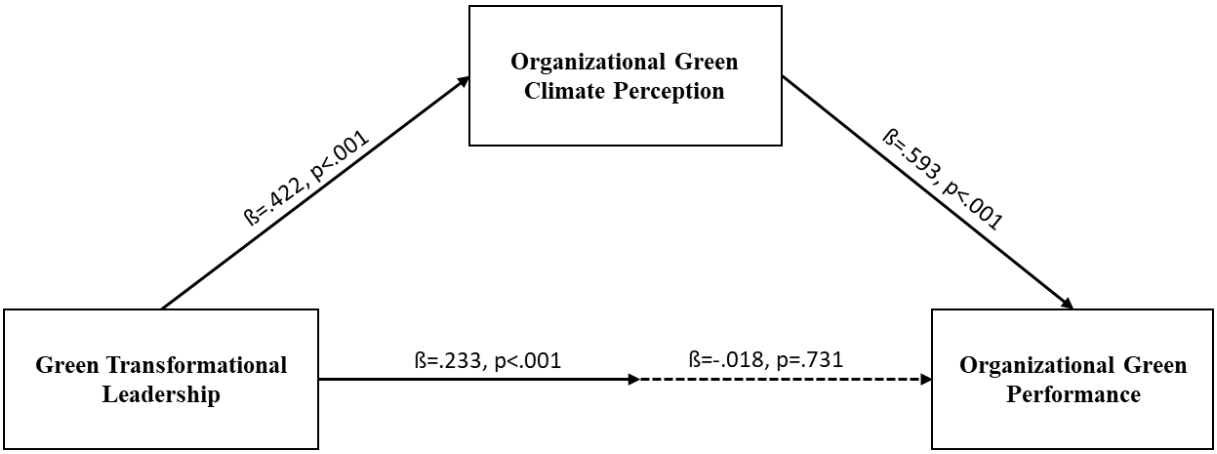


Figure 3. *Mediation Role of Green Organizational Climate Perception in the Relationship Between Green Transformational Leadership and Organizational Green Performance.*

4.3.2. Mediation Analysis for Green Mindfulness

In this section, the mediating role of green mindfulness was investigated and H4 and H6 were tested. Initially, the mediating effect of green mindfulness on the relationship between green transformational leadership and employees' green behavior was examined (Table 8).

Table 8. *The mediation role of green mindfulness in the relationship between green transformational leadership and employees' green behavior.*

	Independent Variable	Dependent Variable	B	Std. Error	ß	t	P
Step1	Green Transformational Leadership	Green Mindfulness	0.466	0.032	0.646	14.534	<.001
				R^2=.417, F(1,295)=211.231, p<.001			
Step2	Green Transformational Leadership	Employees' Green Behavior	0.159	0.032	0.275	4.916	<.001
				R^2=.076, F(1,295)=24.163, p<.001			
Step3	Green Transformational Leadership	Employees' Green Behavior	0.047	0.041	0.082	1.147	0.252
	Green Mindfulness		0.240	0.057	0.299	4.194	<.001
				R^2=.128, F(2,294)=21.555, p<.001			

Table 8 shows the mediating role of green mindfulness in the relationship between green transformational leadership and employees' green behavior. In Step 1, the R^2 value of .417 revealed that the green transformational leadership explained 41.7% variance in the green mindfulness with F(1,295)=211.231, p<001. The findings revealed that green transformational leadership positively predicted green mindfulness (ß=.646, t=14.534, p<.001). In Step 2, the R^2 value of .076 revealed that the green transformational leadership explained 7.6% variance in the employees' green behavior with F(1,295)=24.163, p<001. The findings revealed that green transformational leadership positively predicted employees' green behavior (ß=.275, t=4.916, p<.001). In step 3, green mindfulness and green transformational leadership were examined together as predictors. The findings revealed that green mindfulness positively predicted employees' green behavior (ß=.299, t=4.194, p<.001). When green mindfulness was included in the model, the direct effect of green transformational leadership on employees' green behavior became statistically insignificant (ß=.082, t=1.147, p=.252). With green mindfulness, the explained variance of the model increased to .128. In conclusion, green mindfulness was fully mediated the relationship between green transformational leadership and employees' green behavior. Green transformational leadership has an indirect effect on employees' green behavior through green mindfulness (Figure 4). H4 were supported.

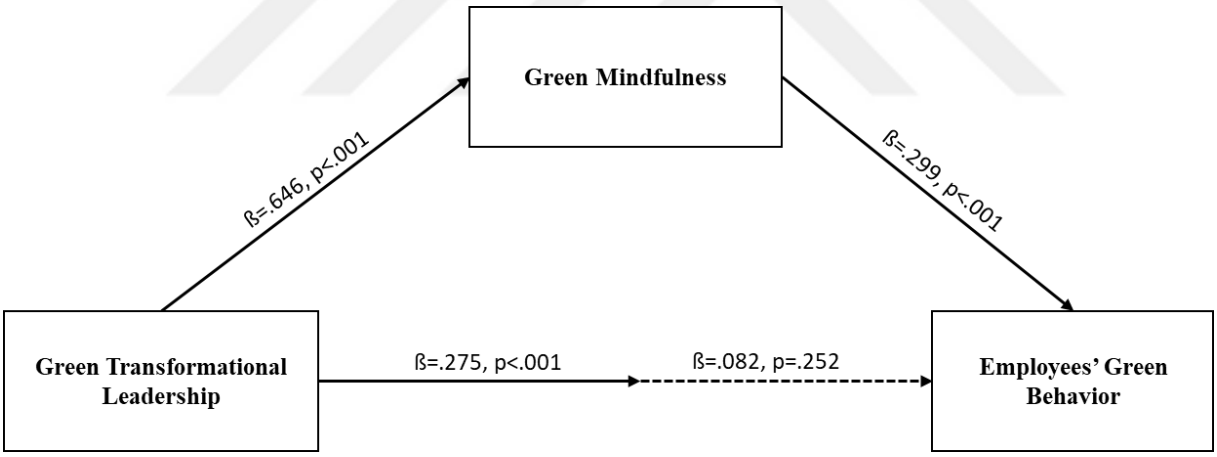


Figure 4. *Mediation Role of Green Mindfulness in the Relationship Between Green Transformational Leadership and Employees' Green Behavior.*

Then, the mediating role of green mindfulness in the relationship between green transformational leadership and organizational green performance was investigated (Table 9).

Table 9. *The mediation role of green mindfulness in the relationship between green transformational leadership and organizational green performance.*

	Independent Variable	Dependent Variable	B	Std. Error	ß	t	P
Step1	Green Transformational Leadership	Green Mindfulness	0.466	0.032	0.646	14.534	<.001
			R^2=.417, F(1,295)=211.231, p<.001				
Step2	Green Transformational Leadership	Organizational Green Performance	0.170	0.041	0.233	4.107	<.001
			R^2=.054, F(1,295)=16.864, p<.001				
Step3	Green Transformational Leadership	Organizational Green Performance	0.064	0.054	0.088	1.198	0.232
	Green Mindfulness		0.228	0.074	0.224	3.066	0.002
			R^2=.083, F(2,294)=76.750, p<.001				

Table 9 shows the mediating role of green mindfulness in the relationship between green transformational leadership and organizational green performance. In Step 1, the R2 value of .417 revealed that the green transformational leadership explained 41.7% variance in the green mindfulness with F(1,295)=211.231, p<001. The findings revealed that green transformational leadership positively predicted green mindfulness (ß=.646, t=14.534, p<.001). In Step 2, the R2 value of .054 revealed that the green transformational leadership explained 5.4% variance in the organizational green performance with F(1,295)=16.864, p<001. The findings revealed that green transformational leadership positively predicted organizational green performance (ß=.233, t=4.107, p<.001). In step 3, green mindfulness and green transformational leadership were examined together as predictors. The findings revealed that green mindfulness positively predicted organizational green performance (ß=.224, t=3.066, p=.002). When green mindfulness was included in the model, the direct effect of green transformational leadership on organizational green performance became statistically insignificant (ß=.088, t=1.198, p=.232). In conclusion, green mindfulness was fully mediated the relationship between green transformational leadership and organizational green performance. Green transformational leadership has an indirect effect on organizational green performance through green mindfulness (Figure 5). H6 was supported.

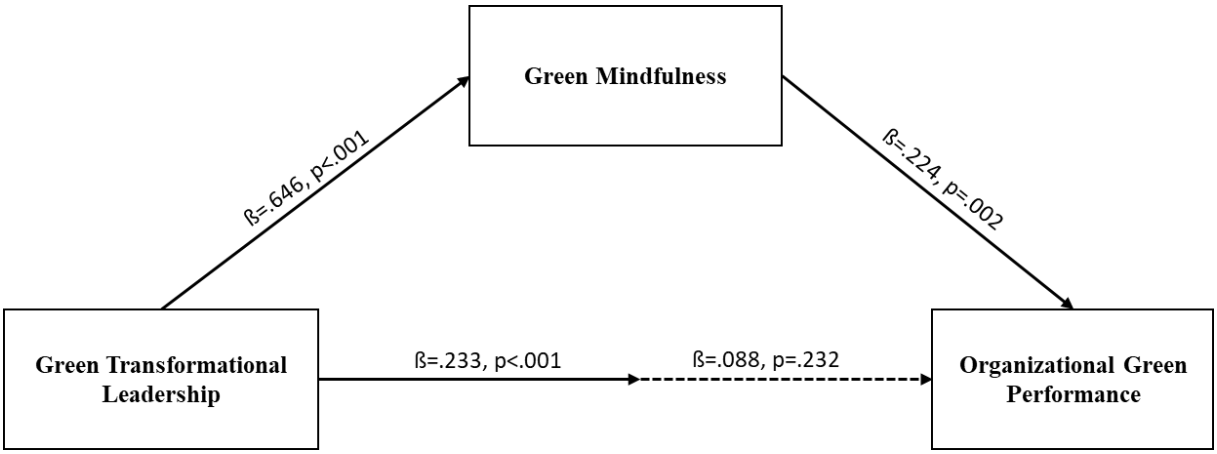


Figure 5. *Mediation Role of Green Mindfulness in the Relationship Between Green Transformational Leadership and Organizational Green Performance.*

4.3.3. Serial Mediation Analysis with Process Macro

In order to test the H7 and H8, regression models with two mediator variables were created using Hayes' model number 6 on SPSS. The statistical diagram of the research model is shown in the Figure 6.

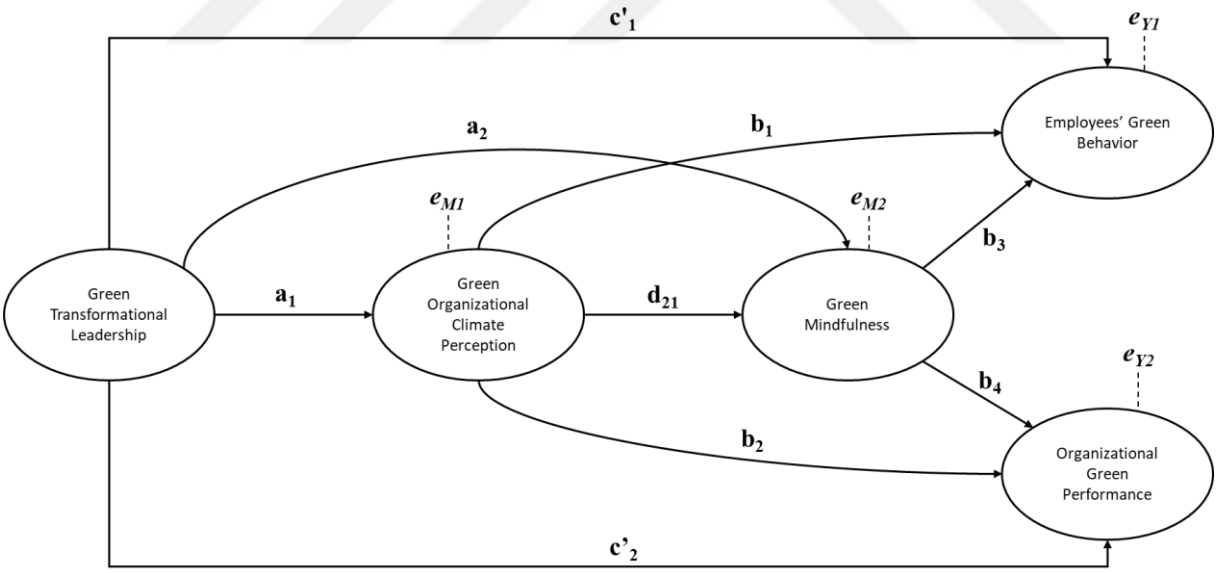


Figure 6. *The statistical diagram of the research model*

In the regression model, green transformational leadership (GTL) was defined as the independent variable, green organizational climate perception (GOCP) and green mindfulness (GM) as the mediating variables. In this study, there are two dependent variables. Employees' green behavior (EGB) and organizational green performance (OGP) were defined as the dependent variables.

The path between GTL and GOCP is represented by a_1, the path between GTL and GM is represented by a_2, the path between GOCP and EGB is represented by b_1, the path between GOCP and OGP is represented by b_2, the path between GM and EGB is represented by b_3, the path between GM and OGP is represented by b_4, the path between GOCP and GM is represented by d_{21}, the path between GTL and EGB is represented by c_1' (direct effect of X on Y), and finally the path between GTL and OGP is represented by c_2'. The model also represents the errors of the variables GOCP, GM, EGB, and OGP. The total effect of independent variable on dependent variable is represented by c (Figure 8).

$$M_1 = i_{M_1} + a_1 X + e_{M_1}$$

$$M_2 = i_{M_2} + a_2 X + d_{21} M_1 + e_{M_2}$$

$$Y = i_Y + c'X + b_1 M_1 + b_3 M_2 + e_Y$$

Figure 7. *Equations of Mediators and Regression Models for Employees' Green Behavior as Dependent Variable.*

Figure 7 presents the equations for the mediator effects and the regression model within the structure. This research models are serial multiple mediator model with two mediators (Hayes, 2022). Using employees' green behavior as dependent variable, the analysis of the mediator variables shows that the specific indirect effect of GTL (X) on EGB (Y) only through GOCP (M1) is represented by a_1b_1. The specific indirect effect through GM (M2) only is represented as a_2b_3, while the specific indirect effect through both GOCP (M1) and GM (M2) in series is represented as $a_1d_{21}b_3$. The comprehensive model indicates that the total indirect effect of GTL (X) is the sum of the three indirect effects: a_1b_1, a_2b_3, and $a_1d_{21}b_3$. The total effect of GTL is represented by c_1, which is the sum of the direct effect of GTL and the total indirect effect of GTL (Hayes, 2022). Figure 8 presents the equation corresponding to this effect.

$$c_1 = c'_1 + a_1 b_1 + a_2 b_3 + a_1 d_{21} b_3$$

Figure 8. *The Total Effect of Green Transformational Leadership on Employees' Green Behavior.*

Table 10. *Summary of Hypothesis Testing with Process Macro Results for Employees' Green Behavior*

Path		ß	SE	CI Lower 95%	CI Upper 95%
GTL → EGB		.275	.032	.095	.223
GTL → GOCP		.422	.034	.203	.335
GTL → GM		.558	.034	.335	.470
GOCP → GM		.209	.054	.131	.343
GOCP → EGB		.341	.054	.205	.415
GM → EGB		.199	.056	.049	.269
GTL → GOCP → EGB		.144	.039	.075	.226
GTL → GM → EGB		.111	.042	.030	.196
GTL → GOCP → GM → EGB		.018	.009	.003	.039
Total Indirect Effect	GL on EGB	.272	.059	.160	.392
Total Effect	GL on EGB	.275	.032	.095	.223

Note: GTL: Green Transformational Leadership, EGB: Employees' Green Behavior, GOCP: Green Organizational Climate Perception, GM: Green Mindfulness

When the regression analysis results for the employees' green behavior as dependent variable (Table 10) was examined, green transformational leadership significantly predicts the green organizational climate perception variable (ß=.422, a_1=.268, se=.03, t=8.0032, p<.0001, *LLCI*=.2027, *ULCI*=.3349). Green transformational leadership significantly predicted the green mindfulness (ß=.558, a_2=.402, se=.03, t=11.7205, p<.0001, *LLCI*=.3348, *ULCI*=.4700), green organizational climate perception significantly predicted the green mindfulness (ß=.209, d_{21}=.237, se=.05, t=4.3942, p<.0001, *LLCI*=.1309, *ULCI*=.3432). Green organizational climate perception significantly predicted the employees' green behavior (ß=.341, b_1=.310, se=.05, t=5.7963, p<.0001, *LLCI*=.2047, *ULCI*=.4151. Green mindfulness significantly predicted the employees' green behavior (ß=.199, b_3=.159, se=.06, t=2.8429, p<.01, *LLCI*=.0490, *ULCI*=.2694). The direct effect of green transformational leadership on employees' green behavior was insignificant (ß=.003, c'_1=.002, se=.04, t=.0397, p=.9683, *LLCI*=-.0770, *ULCI*=.0802). Indirect effect of green transformational leadership on employees' green behavior through green organizational climate perception was significant (ß=.144, a_1b_1=.083, BootLLCI=.0757, BootULCI=.2243). Indirect effect of green transformational leadership on employees' green behavior through green mindfulness was significant (ß=.111, a_2b_3=.064, BootLLCI=.0289, BootULCI=.1942). Indirect effect of green transformational leadership on employees' green behavior through green organizational climate perception and green mindfulness in serial was significant (ß=.0175, $a_1d_{21}b_3$=.009, BootLLCI=.0030, BootULCI=.0391). When all these results are evaluated, there is a full serial mediation model between green transformational leadership and employees' green behavior. For this reason, H7 was supported. The analysis findings are shown in Table 12 and Figure 9.

Table 11. *Summary of Hypothesis Testing with Process Macro Results for Organizational Green Performance*

Path		ß	SE	CI Lower 95%	CI Upper 95%
GTL → OGP		.233	.042	.089	.252
GTL → GOCP		.422	.034	.203	.335
GTL → GM		.558	.034	.335	.470
GOCP → GM		.209	.054	.131	.343
GOCP → OGP		.582	.062	.548	.791
GM → OGP		.053	.065	-.074	.181
GTL → GOCP → OGP		.246	.041	.166	.329
GTL → GM → OGP		.029	.044	-.057	.116
GTL → GOCP → GM → OGP		.005	.008	-.009	.024
Total Indirect Effect	GL on OGP	.280	.066	.151	.412
Total Effect	GL on OGP	.233	.042	.089	.252

Note: GTL: Green Transformational Leadership, OGP: Organizational Green Performance, GOCP: Green Organizational Climate Perception, GM: Green Mindfulness

When considering the organizational green performance output (Table 11) as the dependent variable, green organizational climate perception significantly predicted the organizational green performance (ß=.582, b_2=.669, se=.06, t=10.8044, p<.0001, *LLCI*=.5475, *ULCI*=.7913). However, green mindfulness did not significantly predict the organizational green performance (ß=.053, b_4=.054, se=.06, t=.8244, p<.4140, *LLCI*=-.0742, *ULCI*=.1812). The direct effect of green transformational leadership on organizational green performance was insignificant (ß=-.047, c_2'=-.035 , se=.05, t=-.7489, p=.4545, *LLCI*=-.1257, *ULCI*=.0564). Indirect effect of green transformational leadership on organizational green performance through green organizational climate perception was significant (ß=.246, a_1b_2=.180, BootLLCI=.1654, BootULCI=.3262). Nevertheless, indirect effect of green transformational leadership on organizational green performance through green mindfulness was insignificant (ß=.029, a_2b_4=.022, BootLLCI=-.0583, BootULCI=.1167). In addition, indirect effect of green transformational leadership on organizational green performance through green organizational climate perception and green mindfulness in serial was insignificant (ß=.005, $a_1d_{21}b_4$=.003 BootLLCI=-.0088, BootULCI=.0231). As a result, it was observed that only the perception of green organizational climate had a mediating effect on the relationship between green transformational leadership and green organizational performance. So that, H8 was supported. The analysis findings are shown in Table 12 and Figure 9.

Table 12. *Regression Results of the Research Model*

		GOCP (M1)				GM (M2)				EGB (Y1)				OGP (Y2)		
Antecedent		**ß**	**SE**	**p**		**ß**	**SE**	**p**		**ß**	**SE**	**p**		**ß**	**SE**	**p**
GTL (X)									c_1	0.275	0.032	<.0001	c_2	0.233	0.042	<.0001
GTL (X)	a_1	0.422	0.034	<.0001	a_2	0.558	0.034	<.0001	c_1'	0.003	0.040	0.968	c_2'	-0.047	0.046	0.455
GOCP (M1)		-	-	-	d_{21}	0.209	0.054	<.0001	b_1	0.341	0.054	<.0001	b_2	0.582	0.062	<.0001
GM (M2)		-	-	-		-	-	-	b_3	0.199	0.056	<.01	b_4	0.053	0.065	0.41
Constant	i_{M1}	3.669	0.14	<.0001	i_{M2}	1.474	0.237	<.0001	i_{Y1}	2.908	0.242	<.0001	i_{Y2}	1.242	0.28	<.0001
		R^2=.178				R^2=.453				R^2=.218				R^2=.345		
		F(1,295)=65.050, p<.0001				F(2,294)=121.825, p=<.0001				F(3,293)=27.162, p<.0001				F(3,293)=51.337, p<.0001		

Note: GTL: Green Transformational Leadership, EGB: Employees' Green Behavior, OGP: Organizational Green Performance, GOCP: Green Organizational Climate Perception, GM: Green Mindfulness

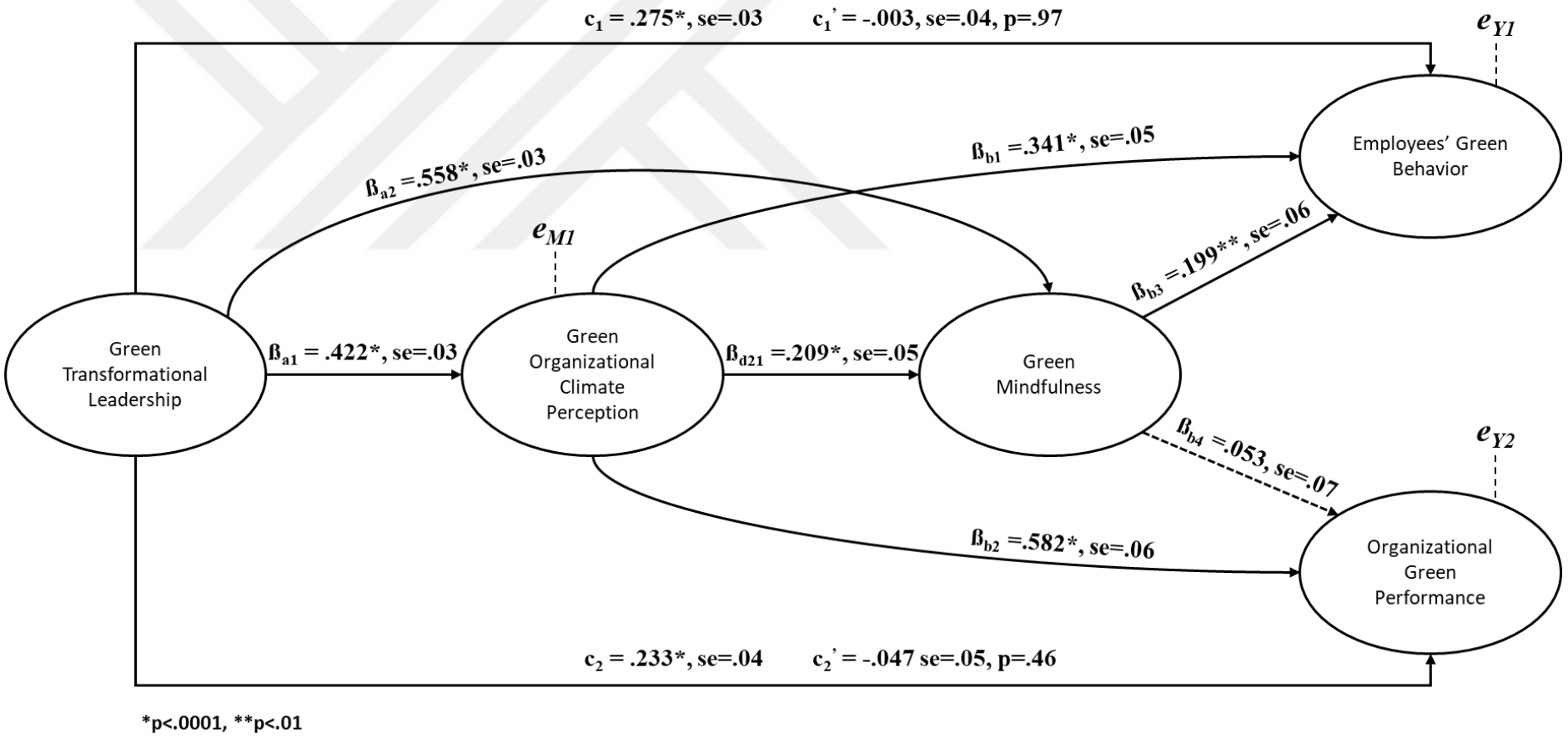


Figure 9. *Results of the Research Model*

4.3.4. Serial Mediation Analysis with R

Although Process Macro provides detailed output for serial mediation analysis, it does not provide the results of some indirect paths in the model. When we look at the indirect paths that Process Macro examines in serial mediation analysis:

- Green Transformational Leadership → Green Organizational Climate Perception → Employees' Green Behavior (a_1b_1)
- Green Transformational Leadership → Green Mindfulness → Employees' Green Behavior (a_2b_3)
- Green Transformational Leadership → Green Organizational Climate Perception → Green Mindfulness → Employees' Green Behavior ($a_1d_{21}b_3$)
- Green Transformational Leadership → Green Organizational Climate Perception → Organizational Green Performance (a_1b_2)
- Green Transformational Leadership → Green Mindfulness → Organizational Green Performance (a_2b_4)
- Green Transformational Leadership → Green Organizational Climate Perception → Green Mindfulness → Organizational Green Performance ($a_1d_{21}b_4$)

Process Macro ignores the following indirect paths:

- Green Transformational Leadership → Green Organizational Climate Perception → Green Mindfulness (a_1d_{21})
- Green Organizational Climate Perception → Green Mindfulness → Employees' Green Behavior ($d_{21}b_3$)
- Green Organizational Climate Perception → Green Mindfulness → Organizational Green Performance ($d_{21}b_4$)

The analysis of the research model was conducted again with R in order to examine the situations ignored by Process Macro. For serial mediation analysis, a code sequence was created following the code script created by Lemardelet & Pier-Olivier Caron (2022). In this code script, packages named mediation (Tingley et al., 2014), RMediation (Tofighi & Mackinnon, 2011), and pathanalysis (Caron, 2021) were used. The code script used in the analysis is given in Appendix B.

It is seen that the analysis results give the same Beta Value results as Process Macro (Table 13 and Table 14).

Table 13. *Summary of Hypothesis Testing with R for Employees' Green Behavior*

Path		ß	SE	CI Lower 95%	CI Upper 95%
GTL → EGB		.275	.063	.155	.403
GTL → GOCP		.422	.068	.293	.557
GTL → GM		.558	.076	.410	.705
GOCP → GM		.209	.065	.080	.333
GOCP → EGB		.341	.077	.191	.494
GM → EGB		.199	.073	.056	.340
GTL → GOCP → GM		.088	.031	.033	.154
GTL → GOCP → EGB		.144	.041	.072	.233
GTL → GM → EGB		.111	.040	.032	.192
GOCP → GM → EGB		.042	.021	.008	.087
GTL → GOCP → GM → EGB		.018	.010	.003	.040
Total Indirect Effect	GL on EGB	.272	.061	.159	.397
Total Effect	GL on EGB	.275	.063	.155	.403
Direct Effect	GL on EGB	.003	.075	-.142	.150

Note: GTL: Green Transformational Leadership, EGB: Employees' Green Behavior, OGP: Organizational Green Performance, GOCP: Green Organizational Climate Perception, GM: Green Mindfulness

Table 13 shows the results when employee green behavior is the dependent variable. When these results are examined, The indirect effect of green transformational leadership on employees' green behavior through green organizational climate perception is significant (a_1b_1) ß = .144, CI[.072,.233]. Also, The indirect effect of green transformational leadership on employees' green behavior through green mindfulness is significant (a_2b_3) ß = .111, CI[.032,.192]. The indirect effect of green transformational leadership on green mindfulness via green organizational climate perception is significant (a_1d_{21}) ß = .088, CI[.033,.154]. The indirect effect of green organizational climate perception on employees' green behavior via green mindfulness is significant ($d_{21}b_3$) ß = .042, CI[.008,.087]. Indirect effect of green transformational leadership on employees' green behavior through green organizational climate perception and green mindfulness in serial was significant ($a_1d_{21}b_3$) ß=.018, CI[.003,.040]. When all these results are evaluated, there is a full serial mediation model between green transformational leadership and employees' green behavior.

Table 14. *Summary of Hypothesis Testing with R for Organizational Green Performance*

Path		ß	SE	CI Lower 95%	CI Upper 95%
GTL → OGP		.233	.066	.104	.365
GTL → GOCP		.422	.070	.287	.562
GTL → GM		.558	.074	.415	.707
GOCP → GM		.209	.065	.079	.337
GOCP → OGP		.587	.062	.463	.704
GM → OGP		.053	.080	-.101	.210
GTL → GOCP → GM		.088	.032	.031	.154
GTL → GOCP → OGP		.246	.046	.160	.340
GTL → GM → OGP		.029	.045	-.058	.116
GOCP → GM → OGP		.011	.018	-.021	.053
GTL → GOCP → GM → OGP		.005	.008	.009	.024
Total Indirect Effect	GL on OGP	.280	.070	.149	.423
Total Effect	GL on OGP	.233	.066	.104	.365
Direct Effect	GL on OGP	-.047	.083	-.212	.116

Note: GTL: Green Transformational Leadership, EGB: Employees' Green Behavior, OGP: Organizational Green Performance, GOCP: Green Organizational Climate Perception, GM: Green Mindfulness

When considering the organizational green performance output (Table 14) as the dependent variable, indirect effect of green transformational leadership on organizational green performance through green organizational climate perception was significant (a_1b_2) ß=.246 CI[.160, .340]. Indirect effect of green transformational leadership on green mindfulness through green organizational climate perception was significant (a_1d_{21}) ß=.088 CI[.031, .154]. However, green mindfulness did not significantly predict the organizational green performance (b_4) ß=.053, CI[-.101,.210]. For this reason, indirect effect of green transformational leadership on organizational green performance through green mindfulness was insignificant (a_2b_4) ß=.029, CI[-.058,.116). Also, indirect effect of green organizational climate perception on organizational green performance via green mindfulness was insignificant ($d_{21}b_4$) ß=.011 CI[-.021,.053]. In addition, indirect effect of green transformational leadership on organizational green performance through green organizational climate perception and green mindfulness in serial was insignificant ($a_1d_{21}b_4$) ß=.005, CI[-.009,.024). As a result, it was observed that only the perception of green organizational climate had a mediating effect on the relationship between green transformational leadership and green organizational performance.

Hypothesis testing results are summarized in Table 15.

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Table 15. *Hypothesis testing results with supported or rejected*

Hypotheses	Supported/Rejected
H1: Green transformational leadership is positively correlated with employees' green behavior.	Supported
H2: Green transformational leadership is positively correlated with organizational green performance.	Supported
H3: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and employees' green behavior.	Supported
H4: Green mindfulness has a mediating role in the relationship between green transformational leadership and employees' green behavior.	Supported
H5: Green organizational climate perception has a mediating role in the relationship between green transformational leadership and organizational green performance.	Supported
H6: Green mindfulness has a mediating role in the relationship between green transformational leadership and organizational green performance.	Supported
H7: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and employees' green behavior.	Supported
H8: Green organizational climate perception and green mindfulness have a serial mediating role in the relationship between green transformational leadership and organizational green performance.	Rejected

4.4. Difference Test for Demographic Variables

In this section, changes in demographic variables are examined within the scope of employee green behavior, organizational green performance and green transformational leadership. In this context, one-way Anova and t-test were conducted. Firstly, independent sample t-test was applied to measure the differences for gender variables (Table 16).

Table 16. *Independent Sample T-Test Results According to Gender*

Variables	Gender	N	Mean	SD	*df*	*t*	*p*
Green Transformational Leadership	Female	150	4.06	1.27	295	.660	.510
	Male	147	3.97	1.05			
Employees' Green Behavior	Female	150	5.20	.63	295	3.834	<.001
	Male	147	4.91	.69			
Organizational Green Performance	Female	150	4.49	.86	295	-.272	.786
	Male	147	4.52	.85			
Green Organizational Climate Perception	Female	150	4.80	.71	295	1.201	.231
	Male	147	4.70	.78			
Green Mindfulness	Female	150	4.29	.86	295	1.589	.113
	Male	147	4.14	.83			

The analysis of gender revealed that there was no statistically significant variation in green transformational leadership or organizational green performance; however, a significant difference was observed in employees' green performance (Table 16). The average green behavior of females (M=5.20, SD=.63) was significantly higher than the average of males (M=4.91, SD=.69).

According to analysis of marital status, there was no statistically significant differences between groups (Table 17).

Table 17. *Independent Sample T-Test Results According to Marital Status*

Variables	Gender	N	Mean	SD	*df*	*t*	*p*
Green Transformational Leadership	Married	167	3.97	1.16	295	-0.723	0.470
	Single	130	4.07	1.19			
Employees' Green Behavior	Married	167	5.12	0.65	295	1.855	0.065
	Single	130	4.97	0.70			
Organizational Green Performance	Married	167	4.47	0.82	295	-.837	0.403
	Single	130	4.55	0.90			
Green Organizational Climate Perception	Married	167	4.77	.72	295	.605	.546
	Single	130	4.72	.77			
Green Mindfulness	Married	167	4.19	.83	295	-.550	.583
	Single	130	4.25	.86			

One-way ANOVA test was applied to measure the differences for education level (Table 18).

Table 18. One-Way ANOVA Test Results According to Education Level

Variables	Education Level	N	Mean	SD	*df*	F	*p*
Green Transformational Leadership	Highschool	18	3.78	1.62	2	.422	.656
	Undergraduate	202	4.02	1.12			
	Postgraduate	77	4.06	1.17			
Employees' Green Behavior	Highschool	18	4.57	.88	2	5,231	.006
	Undergraduate	202	5.10	.67			
	Postgraduate	77	5.06	.58			
Organizational Green Performance	Highschool	18	4.47	.95	2	.256	.774
	Undergraduate	202	4.53	.84			
	Postgraduate	77	4.45	.87			
Green Organizational Climate Perception	Highschool	18	4.57	.93	2	.694	.500
	Undergraduate	202	4.77	.75			
	Postgraduate	77	4.72	.68			
Green Mindfulness	Highschool	18	3.84	1.21	2	1.887	.153
	Undergraduate	202	4.23	.80			
	Postgraduate	77	4.25	.83			

According to the one-way ANOVA analysis results (Table 18), while there was no statistically significant difference between education levels in green transformational leadership (F(2,294)=.422, p=.656) and organizational green performance variables (F(2,294)=.256, p=.774), a statistically significant difference was found in employees' green behavior (F(2,294)=5.231, p=.006). A post-hoc test was performed to find out which stage of education caused the difference in the employees' green behavior variable.

The Scheffe method was selected as the post-hoc test. When the number of individuals in the categories is not equal and variance homogeneity is confirmed, the Scheffe test can be performed. The Tukey test was not selected due to the major differences in the number of participants between the categories. Scheffe test for multiple comparisons found that the mean value of employees' green behavior score was significantly different between high school group and undergraduate group (p=.006, CI[-.9324,-.1263]). Also, mean value of employees' green behavior score was significantly different between high school group and postgraduate group (p=.018, CI[-.9272,-.0693]). In conclusion. groups with higher levels of education exhibit more green behavior.

T-test was conducted to look at the mean differences in individual-level variables (employees' green behavior and green mindfulness) for the questions.

Firstly, t-test analysis was conducted for "Have you participated in any environmental training programs before?" question (Table 19). This question will be named Question 1.

Table 19. *Independent Sample T-Test Results for Question 1.*

Variables	Answer	N	Mean	SD	*df*	*t*	*p*
Employees' Green Behavior	Yes	140	5.11	.62	295	1.271	.205
	No	157	5.01	.72			
Green Mindfulness	Yes	140	4.43	.74	295	4.278	<.001
	No	157	4.02	.88			

The analysis of Question 1 revealed that there was no statistically significant variation in employees' green behavior. However, a significant difference was observed in green mindfulness. The average green mindfulness of who answered yes (M=4.43, SD=.74) was significantly higher than the average of who answered no (M=4.02, SD=.88). Those who have previously attended environmental training have higher green mindfulness levels than those who have not.

Secondly, t-test analysis was conducted for "Have you ever taken part in any environmentally-related projects or events?" question (Table 20). This question will be named Question 2.

Table 20. *Independent Sample T-Test Results for Question 2.*

Variables	Answer	N	Mean	SD	*df*	*t*	*p*
Employees' Green Behavior	Yes	146	5.08	.61	295	.625	.533
	No	151	5.03	.73			
Green Mindfulness	Yes	146	4.41	.72	295	4.209	<.001
	No	151	4.03	.91			

The analysis of Question 2 revealed that there was no statistically significant variation in employees' green behavior. However, a significant difference was observed in green mindfulness. The average green mindfulness of who answered yes (M=4.41, SD=.72) was significantly higher than the average of who answered no (M=4.03, SD=.91). Individuals who have previously attended environmental related project or events have higher green mindfulness levels than those who have not.

Thirdly, t-test analysis was conducted for "Do you think your family raised you to be an environmentally conscious individual?" question (Table 21). This question will be named Question 3.

Table 21. *Independent Sample T-Test Results for Question 3.*

Variables	Answer	N	Mean	SD	*df*	*t*	*p*
Employees' Green Behavior	Yes	277	5.09	.66	295	3.317	.001
	No	20	4.58	.77			
Green Mindfulness	Yes	277	4.25	.83	295	2.860	.005
	No	20	3.70	.93			

The analysis of Question 3 revealed that there is statistically significant variation in employees' green behavior. The average green behavior of who answered yes (M=5.09, SD=.66) was significantly higher than the average of who answered no (M=4.58, SD=.77). Moreover, a significant difference was observed in green mindfulness. The average green mindfulness of who answered yes (M=4.25, SD=.83) was significantly higher than the average of who answered no (M=3.70, SD=.93). Individuals who think their family raised them an environmentally conscious individiuals have higher green mindfulness levels and show more green behavior than those who do not.

Finally, t-test analysis was conducted for "Do you talk about environmental issues when you get together with your friends?" question (Table 22). This question will be named Question 4.

Table 22. *Independent Sample T-Test Results for Question 4.*

Variables	Answer	N	Mean	SD	*df*	*t*	*p*
Employees' Green Behavior	Yes	212	5.15	.66	295	3.840	<.001
	No	85	4.82	.66			
Green Mindfulness	Yes	212	4.25	.85	295	1.075	.283
	No	85	4.13	.82			

The analysis of Question 3 revealed that there is statistically significant variation in employees' green behavior. The average green behavior of who answered yes (M=5.15, SD=.66) was significantly higher than the average of who answered no (M=4.82, SD=.66). However, there is no significant difference was observed in green mindfulness. In conclusion, individuals who talk about environmental issues with their friends show more green behavior than those who do not.

5. DISCUSSION & CONCLUSION

The purpose of this study is to investigate how green transformational leadership contributes to employees' green behaviors and the organization's green performance. At the same time, it is to investigate the mediator role of employees' organizational green climate perceptions and green mindfulness levels. There is no previous study on this model in the literature. For this purpose, research hypotheses were created. In this study, hypotheses were tested with Baron & Kenny's (1986) three-step mediator variable analysis method, Process Macro Model 6 and R. This study has made an original contribution to the literature methodologically; there is no previous study in the literature that has conducted serial mediation analysis in this way.

Firstly, the distribution of demographic data was examined. According to demographic data, 51% of the participants were women, while 49% were men. 44% of the participants were single and 56% were married. The vast majority of the participants (68%) were undergraduate graduates. The average age of the participants was 35. 47% of the participants answered yes to the question "Have you ever taken part in any environmentally-related projects before?" 49% of the participants answered yes to the question "Have you ever taken part in any environmentally-related projects before?" Almost all of the participants think that their families raised them with environmental protection awareness (93%). 71% of the participants stated that they talk about environmental issues when they get together with their friends.

When we look at the ANOVA and t-test results conducted to measure how much the demographic data (gender, marital status, education and questions) differs in the light of dependent and independent variables, there is no significant difference in the context of marital status, while a significant difference was found only in the levels of green behavior in gender and education level. Women (M=5.20) exhibit more positive behaviors towards the environment than men (M=4.91). In addition, in terms of education, undergraduate graduates (M=5.10) exhibit more green behavior than high school (M=4.57) and graduate (M=5.06) graduates.

Also, t-test for questions results revealed that who have previously attended environmental training have higher green mindfulness levels than those who have not. Individuals who have previously attended environmental related project or events have higher green mindfulness levels than those who have not. Moreover, individuals who think their family raised them an environmentally conscious individiuals have higher green mindfulness levels and show more green behavior than those who do not. In addition, individuals who talk about environmental issues with their friends show more green behavior than those who do not.

There are two separate dependent variables in the model of this study: employees' green behavior and green organizational performance. When we look at the hypothesis test results for the dependent variable

of employees' green behavior, results compatible with the literature were obtained. Green transformational leadership has a positive effect on employees' green behavior. Thus, H1 hypothesis was supported. This result supports the results of Ansari & Khan (2024), Cahvadi et al. (2022), Farrukh et al. (2022), Öğretmenoğlu et al. (2022) and Wang et al. (2018).

On the other hand, when considering the results for the second dependent variable, organizational green performance, there is a positive effects of green transformational leadership on green organizational performance. These results are coherent with the studies of Chen et al. (2014) and Khan & Kahn (2023). Green performance is directly related to the pollution prevention and clean technology strategies of the Natural Resource Based View. The pollution prevention strategy aims to reduce pollution at the source in operational processes, and green performance serves this purpose. Similarly, the clean technology strategy emphasizes the development of innovative technologies that dramatically reduce environmental impacts, which is one of the main goals of green performance.

Green transformational leadership plays a critical role in developing the strategic capabilities emphasized by the Natural Resource Based View. Hart (1995) emphasizes the importance of capabilities such as 'shared vision', 'continuous improvement' and 'stakeholder integration' for the successful implementation of environmental strategies. Green transformational leaders contribute to the development of these strategic capabilities by creating an environmental vision, stimulating employees intellectually and focusing on their individual needs. The research findings are consistent with the predictions of Hart's (1995) Natural Resource Based View Theory. The Natural Resource Based View emphasizes that certain organizational capabilities play a critical role in the implementation of environmental strategies. Green transformational leadership can positively affect green performance by developing the 'shared vision' and 'continuous improvement' capabilities emphasized by the Natural Resource Based View.

Within the framework of the Natural Resource Based View, green performance can be considered as a concrete output of pollution prevention and clean technology strategies. The findings show that green transformational leaders can ensure the development of green process innovations by encouraging employees to adopt and implement these strategies. This result supports the proposition of the Natural Resource Based View that environmental strategies can provide competitive advantage. Furthermore, considering that the strategic capabilities emphasized by the Natural Resource Based View have valuable, rare, inimitable and non-substitutable characteristics, the effect of green transformational leadership on green performance has the potential for sustainable competitive advantage.

5.1. Mediation Role of Green Organizational Climate Perception

By supporting hypotheses H3 and H5, it was confirmed that green transformational leadership has a positive effect on both dependent variables (employees' green behavior and organizational green performance) via green organizational climate perception.

When these results are examined from the perspective of Transformational Leadership Concept, the presence of leaders with green transformational leadership characteristics in an organization can affect the policies and procedures of the organization regarding the environment, and the perceptions of employees towards the organization. According to the transformational leadership classification of Avolio, Bass & Jung (1999), there are four dimensions of transformational leadership: idealized influence, inspirational motivation, intellectual stimulation, individualized consideration. The effects of green transformational leaders on employees' green behaviors can be examined according to these four categories. In the inspirational motivation dimension, green transformational leaders explain the organization's policies and procedures regarding the environment to employees so that they act in line with common goals. In this way, they ensure that the organization's vision regarding the environment is owned. In the intellectual stimulation dimension, green transformational leaders encourage their employees to produce creative ideas regarding the environment and enable them to approach problems with a questioning perspective. In this way, they ensure the development of new ideas regarding the environment that will benefit the organization. The most important feature of the leader here is that he does not evaluate the ideas produced by employees from a judgmental perspective. In the individualized consideration dimension, green transformational leaders approach their employees as mentors, act sensitively towards their environmental concerns, and support them. In this way, employees develop a consciousness and perception such as “my organization is environmentally sensitive and respectful”. Of course, in order for this perception to occur, the organization must first have procedures and policies regarding the environment. This perception that develops in employees ensures that voluntary green behaviors emerge. In fact, a chain effect occurs. Green transformational leaders create employees’ green perceptions towards their organizations, and thus employees’ green behaviors emerge. Up to this point, the formation of employees’ green behaviors has been evaluated from the “leader” perspective. We can also evaluate it from the employee dimension with the “Social Learning Theory” perspective.

According to Bandura (1977), people acquire desired behaviors through observation. From this perspective, it can be explained in line with the research model how employees acquire environmentally friendly behaviors. First of all, there needs to be a "role model" that employees can observe in the organizational environment. The people that employees will take as role models are green transformational leaders. Green transformational leaders shape the behaviors of employees by being role models for them with their behaviors. For example, a green transformational leader exhibits environmentally sensitive behaviors in the work environment. He/She separates his/her garbage into

recycling bins, turns off unnecessary burning lights, does not use disposable cups, uses rough paper, etc. Employees also observe and imitate these behaviors. At the same time, these behaviors of green transformational leaders create an environmental climate perception in the organizational environment. In fact, an institutional value is created in this way. In the eyes of employees, these behaviors are perceived not only as the behavior of the leader, but also as the general norm of the organization. For this reason, employees try to exhibit similar behaviors that they observe in order to adapt to the organization.

The effect of green transformational leadership on organizational green performance through the perception of green organizational climate can be explained within the framework of "Perceived Organizational Support Theory (Eisenberger et al., 1986)". According to the Perceived Organizational Support Theory, it is assumed that when employees feel valued and their needs are taken care of in the organization they work in, their commitment to the organization and motivation increase. Within the framework of this theory, first of all, the green transformational leader creates the perception in the minds of employees that the organization has environmental values with his/her environmentally friendly behaviors. In this way, the employees think that my organization values and supports my behaviors that are beneficial to the environment. In other words, the employee perceives that the organization he/she works in supports him/her. Thanks to this perception, the employee may have the thought that "my organization will support me when I produce something for the environment or exhibit behaviors that will be beneficial to the environment". In this way, they adopt environmental improvements in the organization's processes. They behave in a way that supports the improvements that the organization tries to make in production and service processes. In this way, the organization's green performance is supported. Here, a chain reaction occurs as follows: green transformational leaders create a perception in the minds of employees that the organization has a green climate, thus reinforcing the green performance of the organization and ensuring that the organization shows green performance.

5.2. Mediation Role of Green Mindfulness

It was determined that the findings of the investigation provided support for hypothesis H4 and H6. Green transformational leadership has a positive contribution to employees' green behavior and organizational green performance by following a mediation path through green mindfulness.

According to the results of the mediating variable role analysis of green mindfulness, hypotheses H4 was supported. In other words, green transformational leadership positively affects employees' green behaviors through green mindfulness. This finding is consistent with other studies in the literature. Aghaei et al. (2024) revealed that green mindfulness has a positive effect on employees' green behavior. Also, Chen et al. (2023) obtained results that support these results and showed that green mindfulness has a positive effect on employees' green behavior. In addition, green transformational leadership

positively affects organizational green performance through green mindfulness. This result is consistent with literature (Khan & Khan, 2023; Chen et al., 2014).

Social Learning Theory argue that employees learn environmentally friendly behaviors by observing green transformational leaders (Bandura, 1977). During the process of behavior acquisition by observing employees, they focus on the green behaviors of the leader. Green mindfulness strengthens this attention process by increasing employees' awareness of environmental stimuli and the green behaviors of the leader. Green mindfulness enables employees to consciously process and remember the green behaviors they observe. According to Social Cognitive Theory, behavior is the result of the interaction of three factors (Bandura, 1986): environmental factors, cognitive factors, and behavioral factors. The green organizational culture created by green transformational leaders within an organization, the green mindfulness level of the employee, environmental awareness and values, and the green behaviors exhibited by the employees combine to form the behavior acquisition triangle. Green mindfulness enhances employees' self-efficacy perceptions about their ability to engage in environmentally friendly behaviors. Green behaviors conducted by the leader foster the feeling that "I can do it too," facilitated by degrees of green awareness. Simultaneously, it enhances employees' capacity to observe, evaluate, and control their own actions. This promotes the sustainability of environmentally friendly habits. The mediation mechanism occurs as follows:

1. The behaviors and messages of the green transformational leader are processed more effectively at the employees' conscious level thanks to green mindfulness.

2. Mindfulness facilitates the harmony between employees' own environmental values and the leader's environmental values.

3. A conscious decision-making process is required to adopt the observed behavior. Green mindfulness activates this process.

4. The self-awareness and self-regulation provided by green mindfulness ensure that green behaviors are not one-time but continuous.

According to social cognitive theory, increased self-awareness and self-efficacy facilitate behavioral change. According to social learning theory, role models (leaders) increase the attention and awareness of observers (employees). Both theories suggest that green mindfulness plays a mediating role between green transformational leadership and green behavior.

According to Social Learning Theory, employees learn environmentally friendly behaviors by observing green transformational leaders. However, the transformation of this learning into behavior depends on employees' attention, retention and motivation processes. Green mindfulness plays a mediating role by strengthening these processes. From the perspective of Social Cognitive Theory, green mindfulness increases employees' self-efficacy beliefs and self-regulation capacities, ensuring that the leader's green behaviors are internalized and transformed into sustainable green behaviors.

When we look at the scale items used to measure green mindfulness, sample items are as follows: “our workgroup members discuss environmental issues and problems freely”, “our workgroup members are encouraged to express different views on environmental issues and problems”, “our workgroup members bring environmental information that has important implications to the table”. When we examine these items, we can say that employees need the support of green transformational leaders so that they can freely discuss environmental issues or express their ideas about the environment. Green transformational leaders can encourage employees to express their ideas freely, encourage employees to adopt the organization's vision, and motivate employees to produce innovative ideas, which can help employees develop green mindfulness. So that employees acquire environmentally friendly behaviors.

5.3. Serial Mediation Role of Green Organizational Climate Perception and Green Mindfulness

It was determined that the findings of the investigation provided support for hypothesis H7. Green transformational leadership has a positive contribution to employees' green behavior by following a serial mediation path through green organizational climate and green mindfulness. However, H8 hypothesis was rejected. It is not possible to propose a serial mediating effect on green organizational performance since green mindfulness did not have significant effects on the organizational green performance.

The serial mediating effect of green transformational leadership on employees’ green behavior supports the literature. Murali (2025) established a similar serial mediation model in her study. In her research model, she examined the serial mediating role of green mindfulness and environmental self-identity in the relationship between green transformational leadership and green organizational citizenship behavior. As a result of the research, she confirmed the serial mediating role.

On the other hand, Social Cognitive Theory (Bandura, 1985) provides a framework to explain the mediating role of green mindfulness. It was proposed by Bandura in 1985 that the Social Cognitive Theory proposed that the process of individuals learning behavior involves interactions between their behavior, their environment, and their cognitive processes. These interactions result in a development of new behaviors. On the basis of this perspective and the research that were investigated, it is possible to assert that green transformational leadership, employees’ impressions of the green organizational environment, and green mindfulness all have an effect on the development of green behaviors among employees. As a result of an increase in people' environmental knowledge and attention, it was suggested that the perception of a green organizational climate for an organization would have beneficial effects on the employees’ levels of green mindfulness.

When we examine the results of the serial mediation analysis, it is seen that the relationship between green mindfulness and organizational green performance is statistically insignificant as a result of the

model. However, in the analysis where we examine the mediating role of green mindfulness with Baron & Kenny (1986) between green transformational leadership and organizational green performance, it is seen that organizational green performance and green mindfulness have a statistically significant relationship. This finding shows how important the structure of the model used in the interpretation of mediation models is. Since the mediation effect is tested only through green mindfulness, the entire indirect relationship between green transformational leadership and organizational green performance is explained through this variable and the mediating role of green mindfulness seems significant. However, in Model 6, that is, in the serial mediation role analysis, the organizational green climate perception variable is also included in the process in addition to green mindfulness. Considering the strong effect of organizational green climate perception on organizational green performance, the independent contribution of green mindfulness has lost its meaning. In other words, the simultaneous evaluation of the effect of green transformational leadership on organizational green performance through organizational green climate perception and green mindfulness revealed that organizational green climate perception acts as a more dominant mediator.

From this point of view, when the presence of multiple potential mediator variables is not taken into account when conducting the mediation analysis, the mediating role of a particular variable may appear stronger or more significant than it actually is. Multiple and serial mediation models more accurately reflect the unique contributions of different variables in the relationships and the complex structure of the process (Hayes, 2022). The research results show that the effect of green transformational leadership on organizational green performance processes is mainly realized through organizational green climate perception, while green mindfulness does not provide an additional mediator contribution when included in the model. This result shows the importance of examining the mediation mechanisms and the relationships between variables with models that simultaneously consider multiple possible mediators instead of a single mediator variable. Thus, the relationships can be revealed in a more holistic and complete way.

5.4. Managerial Implications

This research provides significant contributions to the theoretical knowledge base for understanding the effects of green transformational leadership on organizational sustainability. The serial mediating roles of organizational green climate perception and green mindfulness provide an important theoretical framework explaining the mechanisms of green transformational leadership. This finding contributes to the literature on how leadership behaviors affect employee behaviors and organizational outcomes through organizational processes and individual psychological factors. This research goes beyond the fragmented approaches frequently seen in the environmental sustainability literature by presenting a comprehensive model that integrates the multi-level relationships among leadership, climate, individual awareness, behavior, and performance. This integrative approach paves the way for the development of

more comprehensive theories in the field of green organizational behavior. At the same time, this study provided outputs at both the organizational and individual levels.

Organizations should implement systematic programs to identify and develop managers with green transformational leadership characteristics. Priority should be given to candidates who have environmental vision, are inspiring, provide intellectual stimulation, and show individualized attention in the leader selection and promotion processes. Training programs should be designed for current managers to develop green transformational leadership skills.

Organizations should develop performance evaluation and reward systems that encourage green transformational leadership behaviors. Leaders' performance in achieving environmental goals, supporting sustainability initiatives, and encouraging employees' green behaviors should be measured and rewarded. Research findings show the significant impact of organizational green climate on green behaviors and performance. Managers should establish clear and consistent environmental policies, procedures, and goals to create a strong green climate. At the same time, increasing resource allocation for environmental sustainability, visibly recognizing and rewarding employees' environmental achievements, and developing environmental initiatives that encourage interdepartmental collaboration will also contribute.

To achieve environmental sustainability goals, organizations should increase the green awareness levels of their employees. For this purpose, environmental education and awareness programs can be organized, and regular feedback can be provided on the environmental impacts of business processes. Platforms can be created where employees can share their environmental ideas and suggestions within the organization. Environmental projects can be created and employees can be encouraged to actively participate in these projects.

In addition to the organizational dimension, when we look at the study results, it can be very effective for families to raise their children with environmental awareness in order for children to display environmentally friendly behaviors in later ages. Governments can raise awareness by conducting studies within the scope of family and social studies and providing environmental information training to families.

5.5. Limitations

This study provides significant contributions to the literature by examining the effects of green transformational leadership on employees' green behaviors and organizational green performance, and by revealing the serial mediating role of organizational green climate perception and green conscious awareness. However, the study has some limitations. This study was conducted using a cross-sectional data collection method. This approach reflects the status of the relationships between variables at a specific point in time, but limits the full determination of causal relationships. A longitudinal research

design would have been more appropriate to understand the development of the effects of green transformational leadership over time and the dynamic relationships between variables more comprehensively.

Although the sample size is sufficient for statistical analyses, repeating the study on a larger and more diverse sample could strengthen the validity of the findings. In addition, including a larger number of organizations for organizational-level analysis could provide a better understanding of the effects of organizational variables.

Although the variables included in the research model were determined after a comprehensive literature review, there may be other variables that may affect the relationship between green transformational leadership and employees' green behaviors and organizational green performance. For example, motivation, employee personality traits, compatibility of individuals' and managers' environmental values, etc.

Although the validity and reliability analyses of the scales used in the study have been conducted, the use of more advanced and multidimensional measurement tools, especially in the measurement of complex structures such as green mindfulness and organizational green performance, can provide a deeper understanding of these concepts.

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7. APPENDICES

Appendix A

BİLGİLENDİRİLMİŞ ONAM FORMU

Sayın Katılımcı,

Bu araştırma Marmara Üniversitesi Örgütsel Davranış Tezli Yüksek Lisans Öğrencisi Gözde Erarslan tarafından Prof. Dr. Nurdan Özarallı danışmanlığında tez çalışması olarak yürütülmektedir. Lütfen aşağıdaki açıklamaları dikkatlice okuyunuz.

Araştırma, çalışanların iş ortamındaki çevreyle ilgili davranışlarını ölçümlemek amacıyla yapılmaktadır. Çalışmada yaklaşık 8-10 dakika süren ölçek uygulaması yapılacaktır. Araştırmaya katılımın size hemen dönecek bir faydası bulunmamakla beraber, araştırma sonuçlarınızın gelecekte topluma ve bilime faydalarının olacağı umulmaktadır.

Bu araştırmaya katılmak tamamen **gönüllülük** esasına dayanmaktadır. Sizden elde edilen **tüm veriler anonim olarak gizli tutulacaktır.** Verilere yalnızca araştırma ekibi erişebilecek, veriler üçüncü kişi ve kurumlarla paylaşılmayacak ve bilimsel amaçlarla kullanılacaktır.

Eğer araştırmanın amacı ve verilerin kullanımı ile ilgili verilen bu bilgiler dışında araştırma öncesinde veya sonrasında daha fazla bilgiye ihtiyaç duyarsanız sorularınızı araştırmacıya sorabilirisiniz.

Sizden beklenilen, çalışmadaki ifadelere katılma derecenize göre yalnızca tek seçeneği işaretleyerek cevap vermeniz. İfadelerin doğru ya da yanlış cevabı bulunmamaktadır. Bu sebeple size en uygun olan seçeneği işaretleyiniz.

Çalışmaya katılım ve katkılarınız için teşekkür ederiz.

*Yukarıda yer alan bilgileri okudum ve çalışmaya gönüllü olarak katılmayı onaylıyorum.

Okudum ve onaylıyorum

Demografik Bilgiler

Yaşınız	
Cinsiyetiniz	Kadın Erkek
Medeni durumunuz	Evli Bekar
Eğitim durumunuz (en son mezun olduğunuz okul)	İlkokul Ortaokul Lise Üniversite Lisansüstü
Daha önce çevreyle ilgili herhangi bir eğitim programına katıldınız mı?	Evet Hayır
Daha önce çevreyle ilgili herhangi bir projede ya etkinlikte yer aldınız mı?	Evet Hayır
Ailenizin, sizi çevreye duyarlı bir birey olarak yetiştirdiğini düşünüyor musunuz?	Evet Hayır
Arkadaşlarınızla bir araya geldiğinizde çevreyle ilgili konularda sohbet eder misiniz?	Evet Hayır

Bölüm 1 – Yeşil Dönüşümcü Liderlik Ölçeği
Green Transformational Leadership Scale

Bu bölümde doğrudan bağlı olduğunuz yöneticiniz/amiriniz ile ilgili birtakım ifadeler yer almaktadır. Lütfen bu ifadelere ne kadar katılıp katılmadığınızı "1- Kesinlikle Katılmıyorum"dan "6- Tamamen Katılıyorum"a kadar uzanan ölçek üzerinde değerlendiriniz.

1- Kesinlikle Katılmıyorum, 2- Katılmıyorum, 3- Pek Katılmıyorum, 4- Biraz Katılıyorum, 5- Katılıyorum, 6- Tamamen Katılıyorum

Maddeler	1. Kesinlikle Katılmıyorum	2. Katılmıyorum	3. Pek Katılmıyorum	4. Biraz Katılıyorum	5. Katılıyorum	6. Tamamen Katılıyorum
1. Yöneticim, çalışanlarının izlemesi için net bir çevreci (çevre dostu) vizyon hazırlar.	( )	( )	( )	( )	( )	( )
2. Yöneticim, çevreci (çevre dostu) planlarıyla çalışanlarına ilham verir.	( )	( )	( )	( )	( )	( )
3. Yöneticim, çalışanlarının aynı çevreci (çevre dostu) hedefler için birlikte çalışmalarını sağlar.	( )	( )	( )	( )	( )	( )
4. Yöneticim, çalışanlarını çevreci (çevre dostu) hedeflere ulaşmaya teşvik eder.	( )	( )	( )	( )	( )	( )
5. Yöneticim, çalışanlarının çevreye ilişkin inançlarını dikkate alarak hareket eder.	( )	( )	( )	( )	( )	( )
6. Yöneticim, çalışanlarını yeşil (çevreci) fikirler geliştirmeye teşvik eder.	( )	( )	( )	( )	( )	( )

Bölüm 2 – Yeşil Bilinçli Farkındalık Ölçeği
Green Mindfulness Scale

Bu bölümde iş grubunuzdaki çalışanlarla ilgili bir takım ifadeler yer almaktadır. Lütfen bu ifadelere ne kadar katılıp katılmadığınızı "1- Kesinlikle Katılmıyorum"dan "6- Tamamen Katılıyorum"a kadar uzanan ölçek üzerinde değerlendiriniz.

1- Kesinlikle Katılmıyorum, 2- Katılmıyorum, 3- Pek Katılmıyorum, 4- Biraz Katılıyorum, 5- Katılıyorum, 6- Tamamen Katılıyorum

Maddeler	1. Kesinlikle Katılmıyorum	2. Katılmıyorum	3. Pek Katılmıyorum	4. Biraz Katılıyorum	5. Katılıyorum	6. Tamamen Katılıyorum
1. İş grubumuzdaki çalışanlar, çevresel konuları ve sorunları özgürce tartışırlar.	( )	( )	( )	( )	( )	( )
2. İş grubumuzdaki çalışanlar, çevresel konular ve sorunlar hakkında farklı görüşler ifade etmeye teşvik edilir.	( )	( )	( )	( )	( )	( )
3. İş grubumuzdaki çalışanlar, beklenmedik çevresel konular ve sorunlar ortaya çıktığında ne yapılması gerektiğiyle ilgilenirler.	( )	( )	( )	( )	( )	( )
4. İş grubumuzdaki çalışanlar, önemli sonuçları olan çevreyle ilgili bilgileri gündeme getirirler.	( )	( )	( )	( )	( )	( )
5. İş grubumuzdaki çalışanlar, yeni çevresel bilgi ve verileri paylaşıp duyurduklarında ödüllendirilir.	( )	( )	( )	( )	( )	( )
6. İş grubumuzdaki çalışanlar, beklenmedik çevre sorunları ortaya çıktığında danışabilecekleri kaynakların farkındadır.	( )	( )	( )	( )	( )	( )

Bölüm 3 – Yeşil Çalışan Davranışı Ölçeği
Employees' Green Behavior Scale

Bu bölümde iş yerinizdeki çevreyle ilgili davranışlarınıza yönelik birtakım ifadeler yer almaktadır. Lütfen her bir ifadede belirtilen davranışı ne sıklıkla yaptığınızı "1- Hiçbir Zaman"dan "6- Her Zaman"a kadar uzanan ölçek üzerinde değerlendiriniz.

1- Hiçbir Zaman, 2- Nadiren, 3- Bazen, 4- Genellikle, 5- Çoğu Zaman, 6- Her Zaman

Maddeler	1. Hiçbir Zaman	2. Nadiren	3. Bazen	4. Genellikle	5. Çoğu Zaman	6. Her Zaman
1. İş yerinde çevreye dikkat ederim ve çöpleri ayrımlarına göre geri dönüşüm kutularına atarım.	( )	( )	( )	( )	( )	( )
2. İş yerinde ekipman ve kaynakları çevre dostu olarak kullanırım (örn. odadan çıkarken ışığı kapatırım, odaları fazla ısıtmam, su tüketimimi kontrol ederim,... vb.).	( )	( )	( )	( )	( )	( )
3. İş yerinde geri dönüştürülebilir malzemeleri yeniden kullanırım (örn. not almak için basılı belgelerin arkasındaki boş sayfaları kullanırım,... vb.).	( )	( )	( )	( )	( )	( )
4. İş yerinde mümkün olduğunca ekolojik ürün ve hizmetleri kullanmaya çalışırım (örn. tek kullanımlık bardaklarda içecek almam, video konferans araçlarını kullanırım,... vb.).	( )	( )	( )	( )	( )	( )
5. Ofis ekipmanlarına özen gösterir ve dikkatli kullanırım (örn. bilgisayarı ihtiyaç olmadığında kapatırım, şirket aracını çevre dostu olarak kullanırım,... vb.).	( )	( )	( )	( )	( )	( )

Bölüm 4 – Yeşil Organizasyonel Performans Ölçeği
Organizational Green Performance Scale

Bu bölümde kurumunuzla ilgili birtakım ifadeler yer almaktadır. Lütfen bu ifadelere ne kadar katılıp katılmadığınızı "1- Kesinlikle Katılmıyorum"dan "6- Tamamen Katılıyorum"a kadar uzanan ölçek üzerinde değerlendiriniz.

1- Kesinlikle Katılmıyorum, 2- Katılmıyorum, 3- Pek Katılmıyorum, 4- Biraz Katılıyorum, 5- Katılıyorum, 6- Tamamen Katılıyorum

Maddeler	1. Kesinlikle Katılmıyorum	2. Katılmıyorum	3. Pek Katılmıyorum	4. Biraz Katılıyorum	5. Katılıyorum	6. Tamamen Katılıyorum
1. Kurumumuzun üretim süreci, tehlikeli madde veya atık emisyonunu etkin bir şekilde azaltır.	( )	( )	( )	( )	( )	( )
2. Kurumumuzun üretim süreci, işlenmelerine ve yeniden kullanılmalarına izin veren atıkları ve emisyonları geri dönüştürür.	( )	( )	( )	( )	( )	( )
3. Kurumumuzun üretim süreci su, elektrik, kömür veya petrol tüketimini azaltır.	( )	( )	( )	( )	( )	( )
4. Kurumumuzun üretim süreci hammadde kullanımını azaltır.	( )	( )	( )	( )	( )	( )

Bölüm 5 – Yeşil Organizasyonel İklim Algısı Ölçeği
Green Organizational Climate Perception Scale

Bu bölümde kurumunuzla ilgili birtakım ifadeler yer almaktadır. Lütfen bu ifadelere ne kadar katılıp katılmadığınızı "1- Kesinlikle Katılmıyorum"dan "6- Tamamen Katılıyorum"a kadar uzanan ölçek üzerinde değerlendiriniz.

1- Kesinlikle Katılmıyorum, 2- Katılmıyorum, 3- Pek Katılmıyorum, 4- Biraz Katılıyorum, 5- Katılıyorum, 6- Tamamen Katılıyorum

Maddeler	1. Kesinlikle Katılmıyorum	2. Katılmıyorum	3. Pek Katılmıyorum	4. Biraz Katılıyorum	5. Katılıyorum	6. Tamamen Katılıyorum
1. Kurumumuz çevreye olan etkilerini önemser.	( )	( )	( )	( )	( )	( )
2. Kurumumuz, çevreyle ilgili hareketlerin desteklenmesiyle ilgilenir.	( )	( )	( )	( )	( )	( )
3. Kurumumuz, çevreyi korumanın önemli olduğuna inanmaktadır.	( )	( )	( )	( )	( )	( )
4. Kurumumuz, daha fazla çevre dostu olma konusunda ilgili gösterir.	( )	( )	( )	( )	( )	( )
5. Kurumumuzda çalışanlar, çevreyle ilgili konulara dikkat ederler.	( )	( )	( )	( )	( )	( )
6. Kurumumuzda çalışanlar, çevre dostu bir şekilde hareket etmeye özen gösterirler.	( )	( )	( )	( )	( )	( )
7. Kurumumuzda çalışanlar, çevreye verilen zararı en aza indirmeye çalışırlar.	( )	( )	( )	( )	( )	( )
8. Kurumumuzda çalışanlar, çevreye önem verirler.	( )	( )	( )	( )	( )	( )

Appendix B

R Codes for Serial Mediation Analysis

```
library(mediation)
library(RMediation)

indirect<-function(data){

  a1<-coef(lm(GOCP ~ GTL, data=data))["GTL"]
  b2<-coef(lm(GM ~ GOCP + GTL,data=data))["GOCP"]
  c2<-coef(lm(OGP ~ GM + GOCP + GTL, data=data))["GM"]
  return(a1b2c2 = a1 + b2 + c2)
}

boot <- function(data, stat, nrep=5000, alpha=.05){
  n <- nrow(data)
  est <- as.numeric()
  Results <- list()
  for(k in 1: nrep){
    index <- sample(n, replace=TRUE)
    est[k] <- stat(data)
  }
  Results$Estimate <- mean(est)
  Results$'S. E.' <- sd(est)
  Results$CI <- quantile(est, prob = c(alpha/2, (1-alpha/2)))

  return(Results = Results)
}

boot(data = data,stat=indirect)

install.packages("devtools")

devtools::install_github(repo="quantmeth/pathanalysis")

library(pathanalysis)

mediation(model= OGP~GM~GOCP~GTL, data=data, standardized=TRUE)
```