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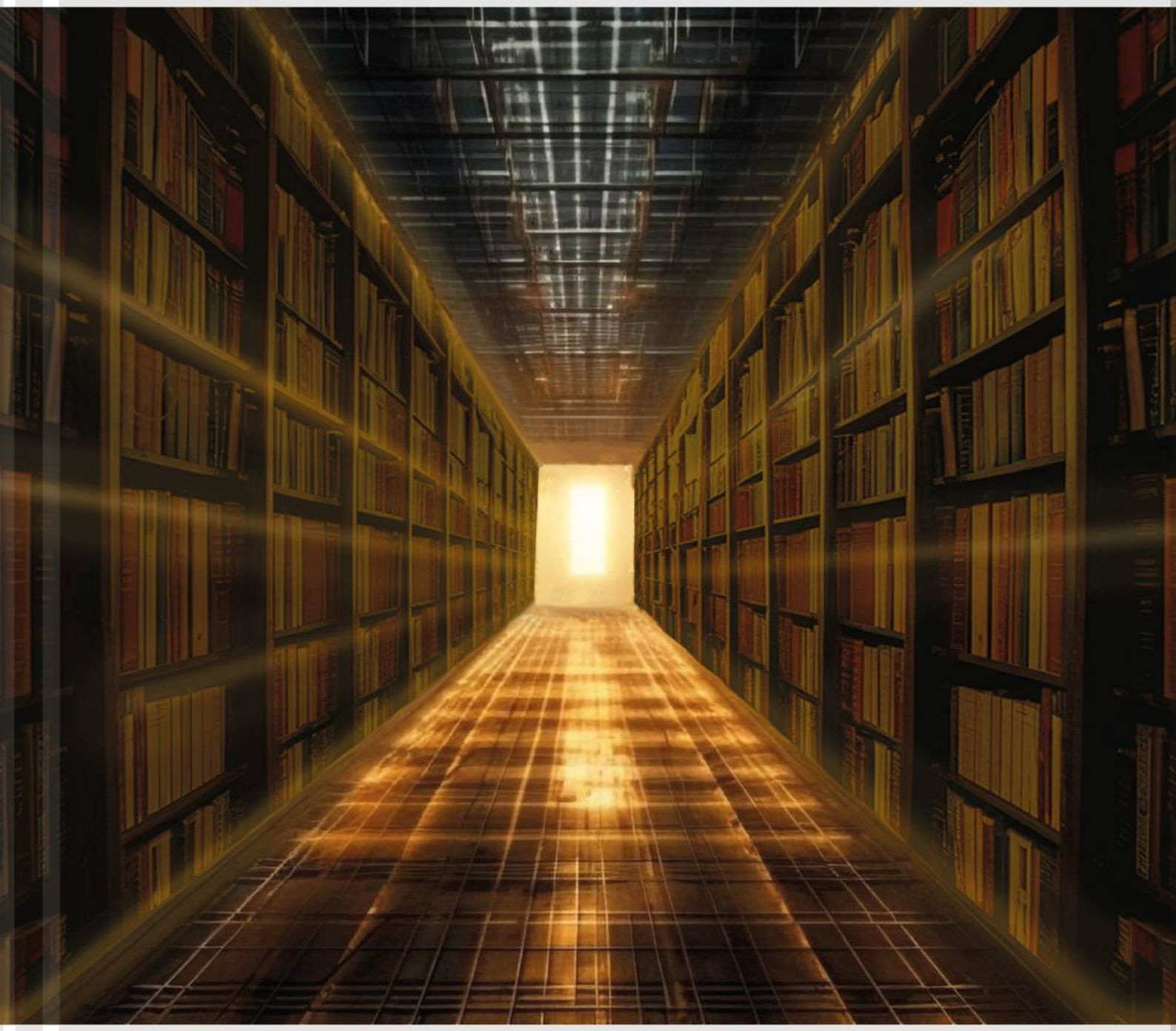

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Investigating the Relationship between Transformational Leadership and Employee Creativity: Moderating Role of STARA Awareness[a]

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Investigating the Relationship between Transformational Leadership and Employee Creativity: Moderating Role of STARA Awareness

Dönüştürücü Liderlik ile Çalışan Yaratıcılığı Arasındaki İlişkinin İncelenmesi: AYZERA Farkındalığının Düzenleyici Rolü

Abstract

Background. Although previous studies have revealed the relationship between transformational leadership and employee creativity, the role of recently conceptualized phenomena, such as STARA (smart technologies, artificial intelligence, robotics, and algorithms) awareness in this process should be investigated. STARA awareness has the potential to be a negative phenomenon for the medical services management sector as it refers to the occupational anxiety felt by employees due to smart technologies.

Aim. This research aimed to examine the relationship between transformational leadership and employee creativity and investigated the moderating role of STARA awareness.

Method. Data were collected from 307 employees in the medical services management sector in Istanbul and Ankara using a questionnaire technique. The hypotheses were tested employing linear regression and moderation effect analysis.

Findings. The findings indicated that all four dimensions of transformational leadership, known as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, positively influenced employee creativity. However, STARA awareness moderated this relationship by weakening the effects of idealized influence, inspirational motivation, and intellectual stimulation on creativity, while the relationship between individualized consideration and creativity remained unaffected.

Conclusion. The findings are expected to provide new perspectives on how transformational leadership interacts with employees' perceptions of technology and contribute to increasing employee creativity.

Keywords: Transformational leadership, employee creativity, STARA awareness, moderator effect.

Öz

Arka plan. Dönüştürücü liderlik ve çalışan yaratıcılığı arasındaki ilişki önceki çalışmalarla ortaya koyulmuş olmasına rağmen AYZERA (akıllı teknolojiler, yapay zekâ, robotik ve algoritmalar) farkındalığı gibi yeni kavramsallaştırılan olguların bu süreçteki rolü araştırılmalıdır. AYZERA farkındalığı akıllı teknolojilerden dolayı çalışanların hissettiği mesleki kaygıları ifade ettiğinden tıbbi hizmetler yönetimi sektörü için olumsuz bir olgu potansiyeli taşımaktadır.

Amaç. Bu araştırmanın amacı, dönüştürücü liderlik ile çalışan yaratıcılığı arasındaki ilişkiyi incelemek ve bu ilişkide AYZERA farkındalığının düzenleyici rolünü araştırmaktır.

Yöntem. Araştırmanın verisi İstanbul ve Ankara'da tıbbi hizmetler yönetimi sektöründe çalışan 307 çalışandan anket tekniği kullanılarak toplanmıştır. Araştırmanın hipotezleri doğrusal regresyon ve düzenleyici etki analizleri kullanılarak test edilmiştir.

Bulgular. Bulgular, dönüştürücü liderliğin idealize edilmiş etki, ilham verici motivasyon, entelektüel uyarım ve bireysel ilgi olarak bilinen dört boyutunun çalışan yaratıcılığını olumlu yönde etkilediğini göstermiştir. Ancak AYZERA farkındalığı idealize edilmiş etkinin, ilham verici motivasyonun ve entelektüel uyarımın çalışan yaratıcılığı üzerindeki etkilerini azaltarak bu ilişkilerin şiddetini yumuşatmıştır. Buna karşın AYZERA farkındalığı bireyselleştirilmiş ilginin çalışan yaratıcılığı üzerindeki etkisini değiştirmemiştir.

Sonuç. Bulguların dönüştürücü liderliğin çalışanların teknolojiye ilişkin algılarıyla nasıl etkileşime girdiğine dair yeni bakış açıları sunacağına ve çalışanların yaratıcılığının artırılmasına katkı sunacağına inanılmaktadır.

Anahtar Kelimeler: Dönüştürücü liderlik, çalışan yaratıcılığı, AYZERA farkındalığı, düzenleyici etki.

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1. Introduction

Leadership plays a crucial role in shaping organizational success, especially in fostering employee creativity in the workplace. In recent years, transformational leadership has emerged over numerous leadership styles for its ability to inspire and motivate employees to achieve better results. As a unique leadership style coupled with behaviors that foster trust, encourage innovation, and stimulate creative thinking among employees, it has been pointed out as a key driver of organizational success (Bass & Avolio, 1993). Over the years, the transformational leadership model has gained prominence, attempting to align individual values, goals, and interests with the organization's (Başar et al., 2021). It has been identified as a key driver of organizational success, characterized by behaviors that foster trust, encourage innovation, and stimulate creative thinking among employees (Bass & Avolio, 1993). However, as organizations face rapid technological advancements, employees' attitudes toward these phenomena, such as their STARA awareness and the role of leadership styles in this process, have become critical areas of study. STARA (i.e., smart technologies, artificial intelligence, robotics, and algorithms) awareness reflects employees' attitudes toward and concerns about technological advancements, possibly replacing or modifying their jobs. This negative phenomenon can influence their creativity and their response to leadership practices. By integrating STARA awareness into the relationship between transformational leadership and employee creativity, this research aims to investigate whether it buffers this process. Therefore, this research focuses on the moderating role of STARA awareness because it is one of the under-researched conditions that must be clarified.

Research has extensively examined transformational leadership and its impact on employee creativity, demonstrating that transformational leadership enhances creativity by inspiring employees and fostering a sense of purpose (Bass & Riggio, 2006; Jyoti & Dev, 2015; Kasımoğlu & Ammari, 2020; Ma et al., 2020; Shafi et al., 2020). More recent studies (Brougham & Haar, 2018; Hur & Shin, 2024; Teng et al., 2025) highlighted the psychological effects of technological disruptions, expanding on how STARA awareness could trigger job insecurity, affect employees' engagement and performance, and thus shape workplace dynamics. However, little is known about how these factors interact. Does awareness of smart technologies, artificial intelligence, robotics, and algorithms (i.e., STARA awareness) enhance or hinder the effectiveness of transformational leadership? Are specific leadership dimensions, like individualized consideration or intellectual stimulation, more resilient to the moderating effects of STARA awareness? By addressing these questions, the study offers insights into how transformational leadership interacts with STARA awareness to shape employee creativity. As the importance of digitalization improves these days due to its significant impact on business processes, revealing how employees' STARA awareness acts in the relationship between transformational leadership can help managers and employees figure out its unavoidable role in sustaining organizational innovativeness, competitiveness, and survival in a fast-changing environment.

Accordingly, the theoretical framework section outlines key concepts of transformational leadership, creativity, and STARA awareness, supported by relevant literature. Hypotheses are developed in this section in line with the presented rationale. Then, the methodology section details the sample characteristics, data collection procedures, and analysis techniques. The fourth section presents the findings, highlighting the relationships between transformational leadership, STARA awareness, and creativity. The fifth section discusses the results, emphasizing theoretical and practical

implications, limitations, and recommendations for future research. Finally, the conclusion summarizes the key insights and contributions of the study.

2. Theoretical Framework

2.1. Transformational Leadership

Even though there are numerous definitions of leadership, the idea of a person inspiring a group to labor toward a common objective is the most frequent (Anderson, 2023). The literature underscores that effective leaders possess various characteristics, including commitment, communication skills, trustworthiness, creativity, integrity, and charisma (Abusebaa, 2023). DeRue (2011) described leadership as a dynamic, social-oriented, and adaptive process beyond reacting to environmental conditions. It involves ongoing interactional exchanges between leaders and followers within specific contexts, creating and re-creating outcomes over time (Dinh et al., 2014).

The development of transformational leadership theory has been a gradual process shaped by the contributions of several scholars. Burns (1978) introduced the transformational leadership model, with its first application primarily focused on politics. During that period, the United States saw significant rivalry between Asian and European nations. This situation required developing more efficacious leadership models within political organizations and companies (Conger, 1999). Burns (1978) fundamentally differentiated leadership into two distinct styles: Transactional and transformational. He emphasized the pivotal role of leaders in elevating followers' conscientiousness, fostering an ennobled moral dimension, and enticing individuals to adopt higher ethical standards.

Transformational leadership requires leaders to build unique connections with subordinates. It explains how leaders inspire subordinates by creating a shared vision and reciprocal relationship that exceeds expectations (Gray, 2022). Transformational leaders can affect a shift in the values, aspirations, needs, and expectations of the people they lead toward shared organizational goals. Followers embrace and integrate shared goals in this manner (Başar et al., 2021). In contrast, transactional leadership revolves around a dynamic exchange relationship where leaders promise rewards to followers in return for goal fulfillment (Yukl, 1981). Bass (1985) compared it to an "if-then" approach, wherein employees receive rewards if they meet prescribed goals and performance standards. According to Odumeru and Ogbonna (2013), transactional leadership operates on a system of rewards and punishments, primarily using external motivational factors. Transactional leadership has been criticized for its short-term character, potential for fostering animosity among workers, and limited applicability in different contexts (McClesky, 2014). When considered alone, transactional leadership must be recognized for enhancing employee engagement. Nevertheless, it catalyzes by establishing the necessary conditions for the effectiveness of transformational leadership (Blomme et al., 2015). The literature suggests combining transformational and transactional leadership styles significantly impacts employee engagement (Breevaart et al., 2014). Building upon Burns (1978), Bass (1985) improved the concept by adapting it to organizational context with his full range of leadership modeling, which includes four elements: Idealized influence, inspirational motivation, intellectual stimulation, and individual consideration, namely the dimensions of transformational leadership. Transformational leadership received further development over time, with new research examining its roles in individuals, groups, and organizations.

2.1.1. Dimensions of Transformational Leadership

The transformational leadership style has four dimensions: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Jaiswal & Dhar, 2015; Sun & Anderson, 2012). Jaiswal and Dhar (2015) and Sun and Anderson (2012) have proposed that the four dimensions are integrated and jointly used to foster a feeling of affiliation within the group and organization, demonstrate exemplary conduct as a role model, and exhibit care for subordinates' needs.

Idealized influence comprises two aspects. They are behaviors and attributes. They refer to the degree to which an individual exhibits behaviors that foster followers' identification with their leaders (Braun et al., 2013). Idealized influence attributes are associated with charismatic behavior and involve the leader using interpersonal skills, meaningful actions, and intentions to build trust with subordinates (Franke & Felfe, 2011). Idealized influence behaviors refer to the extra-role efforts of a leader to be exemplary and moral (Abbas et al., 2012). Transformational leaders' charismatic and extra-role model conduct inspires followers' devotion, adoration, and trust. Transformational leaders prioritize employee interests and progress by upholding strong ethics, morality, values, and fairness (Boamah et al., 2018).

Inspirational motivation involves how a person articulates a vision to inspire followers (Braun et al., 2013). Transformational leadership inspires followers to prioritize collective goals over self-interest through various mechanisms, including inspirational motivation and persuasive communication (Rafferty & Griffin, 2004). This approach fosters meaningful work experiences as subordinates align their roles with the organization's objectives, enhancing their connection to leaders, groups, and the organization (Tims et al., 2011). Furthermore, it creates a shared sense of purpose in the workplace (Nielsen & Daniels, 2012).

Intellectual stimulation encompasses the degree to which an individual instills people to inquire about prevailing beliefs and encourage risk-taking action (Braun et al., 2013). Leadership-follower interactions extend supervisors' professional relationship view. The transformational leader-follower connection empowers both (Barbuto, 2005). The transformational leader boosts followers' self-actualization and self-efficacy and motivates them to think creatively and solve challenges (Nguyen et al., 2019). Transformational leaders use intellectual stimulation to question followers' assumptions and foster creative and inventive thinking (Franke & Felfe, 2011). Thus, intellectual stimulation pushes followers to find inventive ways to complete work responsibilities and enjoy their jobs.

Individual consideration denotes the level of effort applied by an individual in addressing the distinct needs of followers (Braun et al., 2013). Individual consideration looks at each follower's needs and aims to give them the resources they need to create an atmosphere for learning (Ghasabeh et al., 2015). Leaders with this feature may foster a good work environment where people can share their knowledge (Rawung et al., 2015). Individually considered leaders exhibit emotional care for subordinates' needs and wants via individual coaching and mentoring (Abbas et al., 2012). These personalized leader-follower interactions boost subordinate self-esteem, value, and empowerment to contribute to the group (De Oliveira et al., 2012). The leader's focus on the follower's development shows that they are willing to give them the time, empathy, training, and coaching they need to succeed and contribute to team and organizational goals, recognizing the follower's distinctiveness and contribution to the team, group, and organization while assessing their growth (Nguyen et al.,

2019). Leaders with individualized consideration assume a dual role of coach and mentor, paying specific attention to the needs of followers in an attempt to create a supportive environment (Bass & Riggio, 2006).

2.3. Employee Creativity

Creativity has been approached from various perspectives, with an ongoing debate on whether it is an outcome or a mental process leading to an outcome. In empirical investigations, creativity is frequently designated as a result, emphasizing measurable and objective data that includes work methods, products, services, and processes (Shalley et al., 2004). Csikszentmihalyi and Asakawa (2016) identified creativity as an act, idea, or product that changes an existing domain into a new one. Therefore, a creative person is someone whose thoughts or actions evoke change (Csikszentmihalyi, 1996). However, this definition could be confused when applied to innovation, a process encompassing both the generation and execution of ideas (Anderson et al., 2014). The Woodman et al.'s (1993) definition is widely utilized in the workplace. They described creativity as "creating a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system" (Woodman et al., 1993, p. 293).

2.4. Transformational Leadership and Employee Creativity

The convergence of multiple studies reveals a consistent and robust relationship between transformational leadership and heightened employee creativity. Extensive research underscores that transformational leaders cultivate environments that foster employees' confidence, trust, and willingness to act and take calculated risks for organizational goals. Shafi et al. (2020) indicate that transformational leadership encourages employees to embrace innovative approaches to completing tasks, fostering employee creativity. Consequently, transformational leaders ensure that followers have their support for risk-taking behavior and that they own the consequences of the actions of their followers. This supports changes in employees' attitudes and encourages them to involve themselves in creative work processes. Transformational leaders facilitate the exchange of knowledge, promote the development of innovative ideas, and assist staff in thinking creatively (Prasad & Junni, 2016). They also encourage people to overcome their fear of taking risks and change the conventional working methods, resulting in better creativity (Shafi et al., 2020). Transformational leadership comprises four dimensions that can significantly influence employee creativity. Among these dimensions, idealized influence stands out as a pivotal element. Idealized influence refers to leaders who serve as role models, inspiring trust, admiration, and respect among employees through exemplary behavior and actions (Bass & Avolio, 1995). Kammerhoff et al. (2019) highlight how leaders, through their idealized influence, establish a strong rapport with their teams, fostering an environment of trust and admiration. When leaders exhibit behaviors that encourage risk-taking, perseverance, ethical conduct, and commitment to principles, they set a standard for employees to emulate these qualities and foster a culture that nurtures creativity. They set up an environment encouraging employees to embrace innovative thinking and non-conventional approaches. Adding to this point, Kasasbeh et al. (2015) highlighted the role of idealized influence in transformational leadership by demonstrating its connection to enhanced creative abilities among employees in industrial settings (Suifan & Al Janini, 2017). In a certain way, when employees witness their leaders embodying these characteristics, they may feel more empowered to delve into new endeavors (Gilmore et al., 2013). The key aspect here is that leaders act as role models. They influence

followers' behaviors and shape the organizational atmosphere through idealized influence. This environment fosters thinking, knowledge exchange, and a culture that values innovation. Consequently, employees are motivated to engage in creative problem-solving, cultivating a workplace culture that encourages creativity. Likewise, Gilmore et al. (2013) underscore the positive impact of idealized influence on employees' creativity. They emphasize how transformational leaders, through their embodiment of admirable traits, stimulate employees to think innovatively and contribute creatively to their work environment. Kasımoğlu and Ammari (2020) compared the impact of transformational leadership components on employee creativity in Turkey and Algeria, considering the mediating role of employees' creative role identity and bringing valuable insights. As depicted by them, Algerian managers acknowledged the connection between employees' creative role identity and employee creativity. However, Turkish managers tended to believe in the individual effectiveness of each component of transformational leadership. Their findings suggest that within the transformational leadership framework, the notion of idealized influence, a key component, might have a positive impact on fostering employee creativity. This implies that when leaders demonstrate idealized influence, it will likely impact how employees imaginatively see their positions, possibly improving their creativity in the workplace. Çekmecelioğlu and Özbağ (2016) found that idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration promote creativity by creating a supportive organizational climate. Idealized influence, often synonymous with charisma, instills pride in followers for being connected with the leader. It shows that a leader would make personal sacrifices for the group. Guillory (2023) found a significant relationship between idealized influence and employee creativity. Moreover, employee job satisfaction moderated this relationship, with higher job satisfaction making idealized influence more effective. Accordingly, the first hypothesis is developed as follows:

Hypothesis 1: A positive relationship exists between idealized influence and employee creativity.

The second dimension of transformational leadership, inspirational motivation, involves leveraging symbols and emotional appeals to motivate group members to surpass their self-interest and achieve higher objectives. Leaders can create an attractive and convincing vision that inspires employees to work towards common goals by effectively expressing the vision, demonstrating confidence, and exhibiting energy and excitement. By synchronizing their efforts with this shared vision, leaders stimulate employees' creativity and inspire them to make valuable contributions (Popa, 2012). As added by Çekmecelioğlu and Özbağ (2016), communicating confidence in followers helps employees reframe troubles, perceive them as opportunities, and attempt novel approaches that can lead to creative solutions for problems emerging in their tasks. It creates an environment where creative ideas are welcomed and cultivated (Popa, 2012). A connection can be observed between inspirational motivation and employee creativity, as employees are more inclined to exhibit creativity when motivated and inspired by their leaders. Sosik et al. (1998) explain that this encouragement acts as a catalyst, driving employees' ability to explore unfamiliar options and solutions. Transformational leaders create a supportive workplace via inspirational motivation and individualized consideration. Such a supportive environment increases enjoyment and job satisfaction, which might increase employees' motivation to engage in complex work and creative initiatives (Mahmood et al., 2019). This environment also provides support and feedback in the search for innovative and optimal solutions (Tse et al., 2018). Hence, based on this premise, the second hypothesis is developed as follows:

Hypothesis 2: A positive relationship exists between inspirational motivation and employee creativity.

The third dimension of transformational leadership, intellectual stimulation, refers to a leader's behavior that stimulates employees' ability to think outside the box while solving problems and refreshing their minds (Farahdiba et al., 2022). Empirical research strongly supports the positive association between intellectual stimulation and employee creativity. This dimension, as outlined by Hater and Bass (1988), involves promoting the adoption of new views, prioritizing problem-solving skills, and emphasizing reasoning before taking action. This approach naturally fosters a mentality that actively seeks creative solutions instead of adhering to traditional methods (Cheung & Wong, 2011). Cheung and Wong (2011) posit that followers are motivated to question established norms and old assumptions, redefine problems, satisfy their intellectual curiosity, and use boundless imagination. By practicing intellectual stimulation, transformational leaders prompt employees to question established norms and create an environment that fosters curiosity and unleashes limitless imagination. It forces a shift in focus, marked by a workplace where employees or followers are more inclined to concentrate on the task rather than excessively worrying about external threats. Thus, they are better positioned to explore creative approaches to problem-solving. According to Sandvik et al. (2018), intrinsic motivation and autonomy influence the relationship between stimulation and the development of a creative environment. The research focused on how intellectual stimulation affects creating a climate within teams in professional service firms, emphasizing the role of leadership behavior in fostering such an atmosphere. The findings indicated that intrinsic motivation and autonomy entirely mediated the impact of stimulation in establishing this kind of climate. Likewise, according to Gilmore et al. (2013), intellectual stimulation improves employees' creativity and innovation. Others, like Khazanchi and Masterson (2011), suggest that innovative leaders effectively utilize existing resources and motivate their employees to think creatively to achieve their objectives. Palupi (2020) indicates that intellectual stimulation can enhance employee creativity. Therefore, transformational leaders must cultivate an environment where those involved in identifying and resolving problems can confidently share and expand on their ideas (Farahdiba et al., 2022). Accordingly, the third hypothesis is developed as follows:

Hypothesis 3: A positive relationship exists between intellectual stimulation and employee creativity.

The fourth dimension of transformational leadership, individualized consideration, involves personalized attention and support leaders provide to their followers. Transformational leaders see each employee as unique, with distinct needs, attributes, strengths, and weaknesses (Popa, 2012). Transformational leaders value each contribution. It can be understood that when leaders adjust how they operate things to fit the needs of each employee, they are more likely to create an environment where creativity thrives because everyone feels supported and respected, which leads to a more creative workforce. This personalized focus allows leaders to recognize and cultivate unique abilities, which can result in heightened levels of creativity and innovation among employees (Farahdiba et al., 2022). Also, such leaders offer communication channels to facilitate fresh learning opportunities and encourage individuals to act beyond typical behavior and explore new ideas that may flow from their divergent thinking (Çekmecelioğlu & Özbağ, 2016). Li et al. (2015) explain that personalized attention creates a reciprocal obligation among employees, fostering behaviors that benefit the organization. In other words, if a superior shows highly individualized consideration, an employee

can engage in helpful behaviors and take the required action to address challenges for the organization, including heading up with original ideas (Li et al., 2015). Ding and Lin (2021) explain the fact that through individualized consideration, transformational leaders demonstrate a genuine concern for the unique needs of each subordinate, which allows subordinates to perceive that the organization cares about their well-being and values their creative contributions, in turn, leads to increased positive affect (Caesenset al., 2016). Accordingly, the fourth hypothesis is developed as follows:

Hypothesis 4: A positive relationship exists between individualized consideration and employee creativity.

2.5. STARA Awareness

STARA is an acronym for Smart Technology, Artificial intelligence (AI), Robotics, and Algorithms. STARA awareness reflects employees' perspectives on how STARA could affect future job prospects (Brougham & Haar, 2018). STARA refers to a collection of technologies that have the potential to replace humans who perform various simple and complex jobs. STARA has transformative potential in reshaping the employment landscape (Kang et al., 2023). It is estimated that one-third of jobs that exist today could be performed by STARA by 2025 due to advances in robotic intelligence and affordable autonomous units and their outperformance in manual and conceptual jobs compared to humans (Frey & Osborne, 2013). Experts like Stephen Hawking warned that robots take human jobs and move society toward more inequality (Rathi, 2015). Brynjolfsson and McAfee (2011) resemble the impact of STARA in the service industry to a transformative industrial revolution that will take decades to fundamentally reshape employment landscapes. On the other hand, this transformation is also anticipated to create more than ninety million new roles better suited to the evolving collaboration between humans, machines, and algorithms (Tan et al., 2023).

The seeds of automation took hold during the Industrial Revolution, which predominantly focused on manufacturing and mechanization. In the mid-20th century, the introduction of computers and early automation systems began to captivate attention. Spohrer and Maglio (2008) detailed that workers typically migrated to the emerging tertiary (service) sector over time as new jobs were created. Doing so, a shift toward service-oriented economies prompted discussions regarding technology's potential impact on service roles. Starting in the 1990s, the digital age and the algorithmic revolution were spurred. During this era, the internet became widely accessible, marked by technological advancements. This led to an increase in the quantity of data and the ability to process it efficiently. In the 1990s, the digital era and the rise of algorithms began. The Internet and computer advancements led to data availability and processing capabilities explosion. As we entered the 21st century, significant advancements were made in computers, artificial intelligence, and robotics, paving the way for advanced automation (Brougham & Haar, 2018). According to Feng and Graetz (2015), the market is losing middle-class jobs due to technology like STARA's increased efficiency. The rapid advancement of technology has initiated debates and conversations about the dangers of over-reliance on technology and the possible consequences of system failures or disruptions. Ethical considerations, such as artificial intelligence bias and these technologies' impact on society, have gained prominence. Today's understanding of STARA awareness reflects a comprehensive perspective influenced by new technologies, more public debate, academic study, moral concerns, and educational initiatives.

2.6. Moderating Role of STARA Awareness

As discussed earlier, idealized influence involves leaders being role models and inspiring creativity among their followers. Individuals with strong STARA awareness may have heightened expectations for leaders to incorporate and leverage innovative technologies, AI, robotics, and algorithms to foster creativity. It becomes apparent that employees who strongly perceive their positions as vulnerable to replacement may experience heightened levels of job insecurity. Idealized influence typically fosters an environment of trust, inspiration, and commitment among followers (Braun et al., 2013). However, in the presence of STARA awareness, with employees harboring concerns about the potential obsolescence of their roles, the effectiveness of transformational leadership in inspiring creativity may be compromised. The perceived threat posed by STARA may undermine the trust and admiration typically fostered by transformational leaders through idealized influence. That negative perception may erode followers' admiration for their leaders' charismatic behavior and moral conduct, resulting in a weakened sense of connection and identification. In doing so, employees may be less receptive to the inspirational messages and visionary goals set forth by their leaders as their primary concern shifts toward job security and stability. Accordingly, the fifth hypothesis is developed as follows.

Hypothesis 5: The positive relationship between idealized influence and employee creativity will be weaker for those strongly aware of STARA.

Nguon (2022) emphasizes the interpersonal aspects essential for inspirational motivation in transformational leadership, highlighting leaders' extra-role model behavior, attentive listening, and handling team performance issues. However, transformational leaders may encounter challenges during their efforts to motivate employees toward common goals by leveraging symbols and emotional appeals. The fear of job insecurity imposed by STARA awareness may overshadow leaders' inspirational messages. Employees who strongly perceive their positions as vulnerable in front of AI revolutions and smart technologies may experience high anxiety regarding their future job prospects. As employees cope with heightened anxiety and uncertainty about their future career prospects, they may struggle to fully embrace the shared vision articulated by leaders fully, hindering their ability to make valuable contributions and explore creative solutions to organizational challenges (Popa, 2012). This specific workplace may lead some employees to view leadership through a lens of distrust marked by skepticism, resulting in an erosion of trust and confidence in leadership, which may diminish the influence of transformational leadership on employee creativity. Accordingly, the sixth hypothesis is developed as follows.

Hypothesis 6: The positive relationship between inspirational motivation and employee creativity will be weaker for those strongly aware of STARA.

As a transformational leadership component, intellectual stimulation involves challenging followers to think innovatively (Yasin et al., 2014), encouraging them to question assumptions, and fostering a culture of intellectual curiosity (Braun et al., 2013). Employees with heightened job insecurity are trapped by significant cognitive burdens, limiting their capacity to fully engage with intellectual stimulation initiatives to promote thinking outside the box (Farahdiba et al., 2022). They may prioritize concerns about their future employability over engaging in intellectually stimulating activities. This negative perception tends to engender a prioritization of skills acquisition and job preservation among employees, reflecting their immediate needs for adaptation and preservation,

diverging from the transformative vision of intellectual curiosity and innovation advocated by transformational leadership. As a result, the safeguard established climate reduces the resonance of transformational leadership efforts in fostering employee creativity. Accordingly, the seventh hypothesis is developed as follows.

Hypothesis 7: The positive relationship between intellectual stimulation and employee creativity will be weaker for those strongly aware of STARA.

The individualized support transformational leaders offer is perhaps less aligned with the self-directed learning and career trajectory most associated with technology-driven innovations. Furthermore, the threat of job loss from the expanded use of AI and robotics might lead employees to focus more on security than the personalized career development associated with individualized consideration. In this context, the model of attention that emphasizes personal growth could be overshadowed by concerns and relatives about job loss. According to Kang et al. (2023), the one-on-one support traditionally associated with attention may be seen as less relevant when compared to the urgent current need for technological skills. From that perspective, the link between individualized consideration and employee creativity could weaken (Brougham & Haar, 2018).

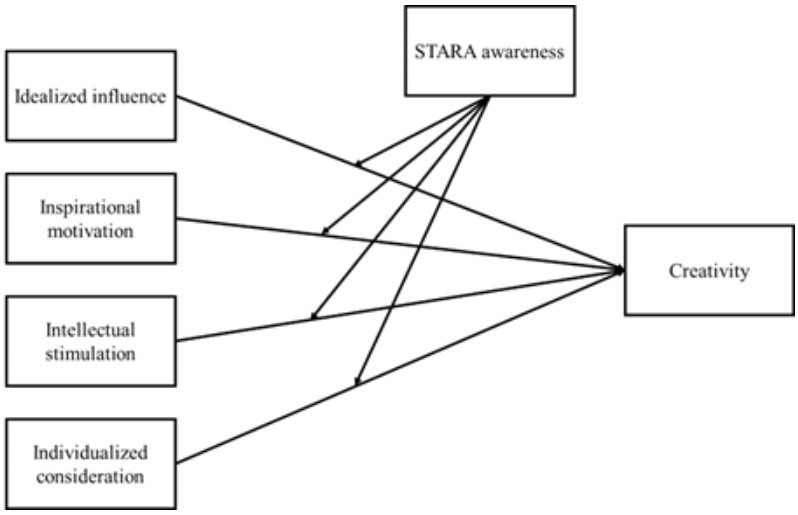
The cultural dimensions theory, developed by Hofstede (1980, 1993), gives a new frame to analyze how cultural factors influence individuals' responses to change and uncertainty (Howell, 2001; Merkin, 2006). Cultures with high uncertainty avoidance scores demonstrate exceptionally high resistance to change (Hofstede, 2001). From this point, employees in such organizations may be less receptive to initiatives promoting individualized consideration. As a result, when leaders attempt to offer employees a customized approach and create a support strategy that addresses each employee’s personal needs and expectations, they may face extreme rejection. Employees may even perceive the attention as a superficial attempt to mitigate their fears of job displacement. Furthermore, employees with high STARA awareness may exhibit psychological distance or detachment from their work environment. As suggested by Trope and Liberman (2010), the concept could reduce employees' emotional attachment to their work, making them less emotionally invested and less receptive to personalized support and development initiatives their leaders offer. As a result, we put forward the last hypothesis as follows:

Hypothesis 8: The positive relationship between individualized consideration and employee creativity will be weaker for those strongly aware of STARA.

Based on the hypotheses, the theoretical model is presented in Figure 1.

Figure 1

Theoretical Model



3. Method

3.1. Participants and Research Design

This research employed a cross-sectional design. The data were collected through a digital questionnaire survey from 307 employees who work in 12 companies operating in the medical services management sector, particularly on medical tourism and related services in Istanbul and Ankara. The total number of employees working in these companies was approximately 1500, which was the population size. This was an approximate number because a precise number could not be obtained from company managers for confidentiality reasons. This information was obtained from employees who participated in this research. At a 95% confidence level, 307 participants can represent 1500 individuals (Gürbüz & Şahin, 2018). Therefore, the sample size was considered adequate. STARA awareness can be perceived as a threat by every employee, regardless of their work sector, because smart technologies and intelligent systems are used in every business sector to varying degrees. These 12 companies operating in the medical services management sector were selected because the possibilities of the first author allowed only this option. The companies were mainly Turkish-owned and offered medical services for international patients. These services include facilitating medical procedures, coordinating patient care, translation, patient relations management, and logistical arrangements. The sample was determined using convenience sampling and comprised employees of diverse cultural and ethnic backgrounds of African origin. Because all participants were fluent in Turkish, the survey was conducted in Turkish. In line with the nature of their jobs, sometimes, participants work in the office and sometimes in the field. While they worked, they were in constant contact and closely coordinated with their immediate supervisors, both face-to-face and digitally. Therefore, the authors thought that perceived transformational leadership could be investigated on them. Of the participants, 244 (79.5%) were males, 63 (20.5%) were females, 200 (65.10%) were single, 107 (34.9%) were married, 19 (6.2%) had a high school degree, 2 (0.7%) had a college degree, 153 (49.8%) had a bachelor's degree, 118 (38.4%) had a master's degree, and 15 (4.9%) had a doctorate. Their tenure varied between 0 and 21 years (M = 4.73, SD = 3.70), and their ages varied between 18 and 47 years (M = 30.75, SD = 5.60).

3.2. Data Collection Instruments

3.2.1. Transformational Leadership Scale

Each participant was asked about the extent to which they perceive their first manager displays transformational leadership behaviors. For this purpose, a scale developed by Bass and Avolio (1992) and adapted to Turkish by Erkuş and Günlü (2008) was used. The scale was four-dimensional, with three items in each dimension.

3.2.2. Employee Creativity Scale

Each participant was asked to indicate to what extent they think they are creative. For this purpose, a scale developed by Zhou and George (2001) and adapted to Turkish by Nart (2015) was used. The scale is unidimensional and comprises thirteen items.

3.2.3. STARA Awareness Scale

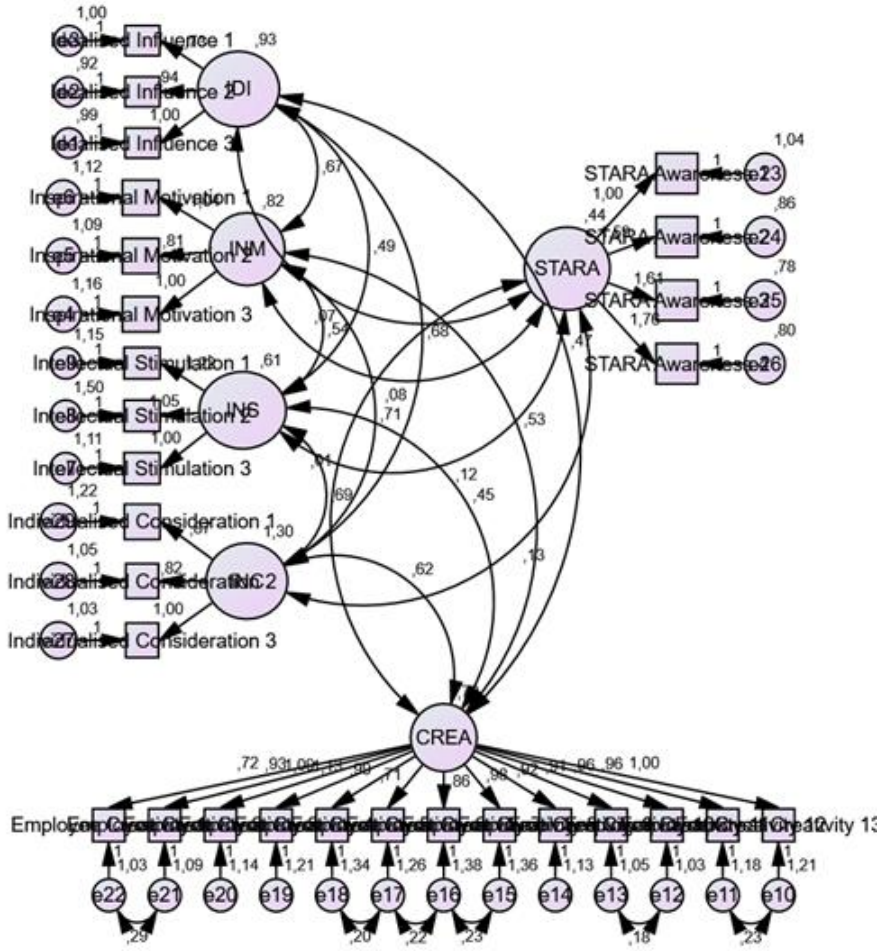
Each participant was asked to indicate to what extent they are aware of smart technologies, artificial intelligence, robotics, and algorithms. For this purpose, a scale developed by Brougham and Haar (2018) and adapted to Turkish by Başar (2023) was used. The scale is unidimensional and comprises four items. Items of each scale were scored on seven points (i.e., 1: completely disagree, 7: completely agree). High scores indicate the level at which the variable is experienced.

3.2.4. Validity and Reliability Tests

A measurement model, shown in Figure 2, was used to test the validity of the scales. Results indicated that the measurement model fits well (χ^2= 495.74, *df* = 356, *p* = 0.000, χ^2/df = 1.39, *GFI* = 0.90, *IFI* = 0.95, *TLI* = 0.94, *RMSEA* = 0.03). Hence, it is possible to say that scales are valid enough (Hair et al., 2010). Cronbach α coefficients were calculated for each scale to test their reliability. The results are shown in Table 1. Because all of them are very close or greater than 0.70, it is possible to say that the scales are reliable enough (Hair et al., 2010).

Figure 2

Measurement Model



3.3. Data Collection and Procedure

Before starting the data collection, ethical approval was taken from the Istanbul Ticaret University Ethics Committee on 03.04.2024. The ethics committee approval number is E-65836846-044-316251.

The data were collected through a digital questionnaire form. The digital questionnaire form was prepared using Google Forms, and the first author sent participants a link to the questionnaire form. Participants were determined according to the convenience sampling technique. Permission was obtained from the responsible managers in the participating organizations to collect data. The study's purpose and ethical considerations were clearly explained to responsible managers. The signed ethical approval document from the university, endorsed by the thesis advisor (i.e., the second author), has been shared with responsible managers and professionals to confirm that the data would be used solely for research purposes. Associations and alumni networks were utilized to locate and reach African employees working in the medical sector. Employees were invited to participate voluntarily, and their confidentiality was guaranteed. A clear and concise message followed the questionnaire link to encourage participation, explaining the importance of their contributions and the study's implications. Only those who consented by clicking the approve button on the first screen could proceed and fill out the questionnaire form. The link was distributed through email and WhatsApp to

maximize accessibility and allow participants to share it with their colleagues easily. Regular reminders were sent to help improve response rates.

3.4. Data Analysis Strategy

The scales' validity tests were performed on IBM SPSS AMOS through a measurement model, their reliability tests were performed on IBM SPSS, and the hypotheses were tested through linear regression on IBM SPSS.

4. Findings

Before testing the hypotheses, correlation coefficients between variables were calculated. The results are shown in Table 1.

Table 1

Descriptives, Reliability Scores, and Correlation Coefficients

	M	*SD*	*Cronbach α*	*IDI*	*INM*	*INS*	*INC*	*CREA*	*STARA*
ID1	4.43	1.02	0.70	1					
INM	4.56	1.05	0.69	0.51**	1				
INS	4.62	1.07	0.68	0.43**	0.48**	1			
INC	4.49	1.18	0.73	0.43**	0.49**	0.53**	1		
CREA	4.84	0.84	0.87	0.45**	0.52**	0.51**	0.52**	1	
STARA	4.71	1.09	0.80	0.09	0.09	0.17**	0.14*	0.03	1

Note. IDI: Idealized influence, INM: Inspirational motivation, INS: Intellectual stimulation, INC: Individualized consideration, CREA: Employee creativity, STARA: STARA awareness
* $p < .05$, ** $p < .01$

Results indicated significant and positive relationships between dimensions of transformational leadership and between employee creativity and dimensions of transformational leadership. However, STARA awareness was significantly and positively related to only intellectual stimulation and individualized consideration. Based on these findings, hypotheses are tested in the following stages. The impact of transformational leadership on employee creativity was first investigated. The results are presented in Table 2.

Table 2

The Relationship between Transformational Leadership and Employee Creativity

Independents variables	Dependent variable – Employee creativity			
	β	R^2	*F*	*Model No*
ID1	0.13*	0.41	54.41***	1
INM	0.24***			
INS	0.21***			
INC	0.23***			

Note. IDI: Idealized influence, INM: Inspirational motivation, INS: Intellectual stimulation, INC: Individualized consideration
* $p < .05$, ** $p < .01$, *** $p < .001$.

Regression model 1, presented in Table 2, indicates that all dimensions of transformational leadership positively change employee creativity. In other words, transformational leadership increases the level of employee creativity. Accordingly, hypotheses 1, 2, 3, and 4 are supported. Subsequently, moderation analyses were performed to test the rest of the hypotheses. Aiken and West's (1991) technique was employed while performing the moderation analyses. According to this technique, first, the moderator variable (i.e., STARA Awareness) and independent variables (i.e., dimensions of transformational leadership) were centralized. Then, interaction terms were produced by multiplying

the centralized scores of independent variables and the centralized score of the moderator variable (i.e., IDIxSTARA, INMxSTARA, INSxSTARA, and INCxSTARA). Following this, independent variables, the moderator variable, and interaction terms were entered into regression analyses as predictors. These tests were performed in Models 2 to 5, presented in Table 3.

Table 3

Moderation Analyses

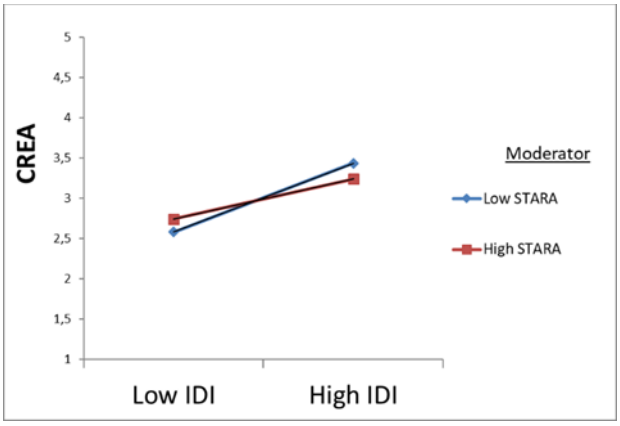
Independents variables	Dependent variable – Employee creativity			
	β	R^2	*F*	*Model No*
IDI	0.39***			
STARA	-0.00	0.21	29.03***	2
IDIxSTARA	-0.14**			
INM	0.48***			
STARA	0.00	0.30	45.45***	3
INMxSTARA	-0.18***			
INS	0.48***			
STARA	-0.04	0.27	40.31***	4
INSxSTARA	-0.14**			
INC	0.51***			
STARA	-0.04	0.27	38.58***	5
INCxSTARA	-0.04			

Note. IDI: Idealized influence, INM: Inspirational motivation, INS: Intellectual stimulation, INC: Individualized consideration, CREA: Employee creativity, STARA: STARA awareness.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Results shown in Model 2, Table 3, indicate a significant moderation (β= -0.14, p<0.01). How this interaction occurs is shown in Figure 3.

Figure 3

Moderating Role of STARA Awareness in the Relationship between Idealized Influence and Employee Creativity

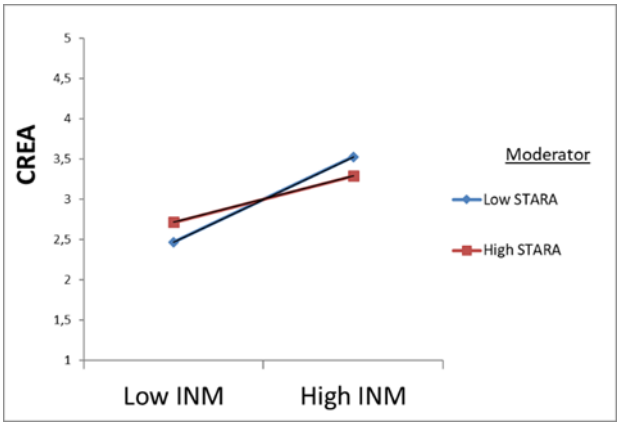


Note. CREA: Employee creativity, IDI: Idealized influence, STARA: STARA awareness

As shown in Figure 3, increased perceived idealized influence results in increased employee creativity, while STARA awareness is low or high. However, this increase is greater when STARA awareness is low and weaker when STARA awareness is high. Accordingly, hypothesis 5 is supported. Likewise, results shown in Model 3, Table 3, indicate a significant moderation (β = -.18, p < .001). How this interaction occurs is shown in Figure 4.

Figure 4

Moderating Role of STARA Awareness in the Relationship between Inspirational Motivation and Employee Creativity

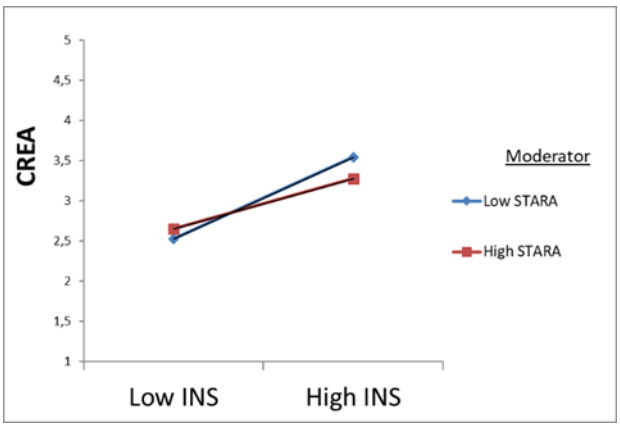


Note. CREA: Employee creativity, INM: Inspirational motivation, STARA: STARA awareness

As shown in Figure 4, increased perceived inspirational motivation results in increased employee creativity, while STARA awareness is low or high. However, this increase is greater when STARA awareness is low and weaker when STARA awareness is high. Accordingly, hypothesis 6 is supported. Similarly, results shown in Model 4, Table 3, indicate a significant moderation (β = -.14, p < .01). How this interaction occurs is shown in Figure 5.

Figure 5

Moderating Role of STARA Awareness in the Relationship between Intellectual Stimulation and Employee Creativity



Note. CREA: Employee creativity, INS: Intellectual stimulation, STARA: STARA awareness

As shown in Figure 5, increased perceived intellectual stimulation results in increased employee creativity, while STARA awareness is low or high. However, this increase is greater when STARA awareness is low and weaker when STARA awareness is high. Accordingly, hypothesis 7 is supported. However, in Model 5, Table 3, the interaction term (i.e., INCxSTARA) does not positively relate to employee creativity, as opposed to these cases. Therefore, hypothesis 8 is not supported.

5. Discussion

This study investigates the relationship between transformational leadership and employee creativity, together with the moderating role of STARA awareness in this process. This study provides valuable insights into leadership dimensions in fostering creative outcomes. The results demonstrate

that all four dimensions of transformational leadership, idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration, positively influence employee creativity. This suggests that transformational leaders, as role models, inspire shared visions, challenge conventional thinking, give personalized support, and foster an environment where employees feel empowered to engage in creative problem-solving and innovative thinking. Thus, aligning with previous studies, the results support Bass and Avolio (1995), who emphasized the role of transformational leadership in fostering trust and collaboration, as well as Podsakoff et al. (1990), who identified leadership dimensions like intellectual stimulation and individualized consideration as critical for fostering creativity. These results are also consistent with recent studies like Shafi et al. (2020), which emphasize the role of transformational leadership in driving creativity and adopting innovative thinking. This finding also overlaps with the results of other recent studies, such as Bass and Riggio (2006), Jyoti and Dev (2015), Kasımoğlu and Ammari (2020), and Ma et al. (2020), ensuring the critical role of transformational leadership in fostering employee creativity.

As distinct from earlier studies, this study revealed the moderating role of STARA awareness, indicating that STARA awareness weakens the positive relationships between idealized influence, inspirational motivation, intellectual stimulation, and employee creativity. However, STARA awareness did not significantly moderate the relationship between individualized consideration and employee creativity. STARA awareness weakens the strength of the relationships between three dimensions of transformational leadership and employee creativity because, as indicated in Figures 3 to 5, in conditions when SATA awareness is high, the strength of the relationship between three dimensions of transformational leadership and employee creativity is weaker compared to the conditions when STARA awareness is low. This is how moderation analysis results are interpreted (Aiken & West, 1991). STARA awareness is not a phenomenon specific to the sample of this study. As mentioned, every employee, regardless of sector, is expected to be affected by STARA. This study examined employees in the medical services management sector because the first author had only the means to do so. Based on this, it can be concluded that personalized support and individualized consideration provided by leaders continue to promote creativity regardless of employees' technological concerns or fears. To the authors' knowledge, this is the first time revealing the moderating role of employees' STARA awareness in the relationship between transformational leadership and employee creativity, a significant contribution to the literature on leadership, management, and organization.

From a practical perspective, the results of this study provide valuable insights for leaders and organizations that aim to foster creativity in the workplace. First, understanding the crucial role of transformational leadership can guide organizations in designing and promoting training programs focusing on leaders' abilities to inspire, challenge, and support their followers effectively. Organizations open a road to setting up an adequate workplace for enhanced creativity in this effort to align with desirable leadership abilities. Secondly, recognizing the moderating role of STARA awareness emphasizes the importance of considering employees' concerns about technology. Organizations can implement fitted strategies to provide upskilling opportunities for employees, thus helping to reveal and address their anxieties about job security. Through this approach, employees' mindsets could be set up to accept technology as a tool for enhancing creativity rather than a threat. Ultimately, this can be particularly beneficial in building trust and psychological safety. Additionally, the role of individualized consideration as a leadership dimension not affected by STARA awareness

underscores the value of personal mentoring and individualized support. Managers, in understanding this aspect, have a strategic pivot to strengthen employees' confidence. Investing and taking action to understand and address the unique needs of their employees can provide a sense of stability and encouragement regardless of technological awareness.

Results indicated that medical services management sector employees perceive STARA as a threat, as they do in other sectors (Brougham & Haar, 2018; Hur & Shin, 2024; Teng et al., 2025). Because medical service management sector employees maintain constant contact with their managers and customers, being familiar with high technology and smart devices can ease and simplify their jobs. Intelligent systems and devices in information technology can improve the speed and accuracy of medical transactions and patient satisfaction. Considering the challenges of patients from different countries, such intelligent technologies can help them deal with their anxieties about visiting a foreign environment.

Therefore, new interventions must be designed to eliminate negative perceptions of medical services management sector employees derived from STARA. These interventions can include but are not limited to developing user-friendly software applications for mobile phones and tablet computers, designing simulations for unexpected cases and conditions to be used in training sessions, providing free software and hardware to employees, allocating time for employees to experience these technologies, encouraging voluntary application of employees to developmental activities, and rewarding employees who successfully adapt to STARA. These interventions must make employees familiar with such technologies and be able to use them in their daily operations. This can increase the strength of the positive relationship between transformational leadership and employee creativity.

Although this research has significant contributions, it also has some limitations. Firstly, the sample used for this study comes from the medical services management sector in Istanbul and Ankara, which may limit the applicability of the findings to other sectors and contexts. Expanding the research to include diverse industries and cultural contexts could provide a more comprehensive understanding. Additionally, the sample included employees from varied cultural and technological backgrounds, which was determined according to convenience sampling. Using convenience sampling limits generalizing the findings to larger contexts. Moreover, some may approach technological advancements with a mindset of rapid adaptation, particularly for regions with limited technological infrastructure. This could introduce a bias in how they perceive and respond to leadership and technological changes. A comparison of cultural differences between countries could lead to more global and more profound findings. Qualitative methods, such as interviews, could also complement quantitative approaches used in the study by providing richer insights into employees' perceptions and experiences. Furthermore, the COVID-19 period opened the path to the expansion of digital workplaces where employees interact remotely with organizations. Exploring how transformational leaders incorporate this new reality, marked with limited personal interactions, could offer updated practical guidance for organizations to enhance creativity.

6. Conclusion

The importance of speed, accuracy, and smoothness of medical services and the satisfaction of international patient customers grows these days as medical tourism becomes one of the important economic assets and a factor that enables cures for people regardless of where they are. Therefore, companies delivering medical services require transformational leaders and more creative employees

who can effectively deal with unexpected situations and solve unmet problems. Digitalization is an unavoidable external factor impacting every company irrespective of their sectors. Although it disrupts old habits in organizations, it presents novel ways to do business. However, employees not used to these technologies can perceive them as threatening their jobs. Likewise, the findings proved this. Therefore, company managers at every level must familiarize employees with these technologies. By adopting a learning organizational culture under the guidance of transformational leaders, companies must change themselves and adapt to new conditions. Companies operating in the medical services management sector and other sectors can outperform their competitors and provide more quality services to their customers with employees who can control and use smart technologies. This study underscores this fact by revealing the buffering effect of employees' STARA awareness on the relationship between transformational leadership and employee creativity and addressing the necessity of assisting employees in changing their negative attitudes toward smart technologies.

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Green Organizational Behavior: A Systematic Review

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Green Organizational Behavior: A Systematic Review

Abstract

Background. Since it is current, it is important to systematically examine the concept of green organizational behavior, to provide researchers with a general view of the point where the concept has reached in the national literature and to give direction to future research.

Aim. It systematically reviews the findings from the articles written between 2017-2024 on the Turkish sample groups regarding the topics of green organizational behavior.

Method. The concept in question was examined using the systematic review method. In the systematic review, empirical studies on the concept were categorized in terms of author, publication year, sector, sample group and number, scale and statistical analyses used, descriptive statistics and difference test results, and the antecedents and consequences of the concept.

Findings. It was determined that the first studies on the concept were conducted in 2017, the most frequently used scale as a data collection tool in the literature belonged to Erbaşı (2019), and the number of studies based on causality on the subject increased with this developed scale. It was determined that the vast majority of quantitative studies were conducted to determine the antecedents of the concept, and the number of studies conducted to determine its sequels was very limited. It was determined that there was only one qualitative and brand/firm review study. It was determined that a significant portion of the studies were conducted in the private sector and mixed sample groups in terms of the sample group.

Conclusion. Based on the systematic review, various recommendations were made for researchers.

Keywords: Green organizational behavior, systematic review, literature review.

Yeşil Örgütsel Davranış: Sistematik Bir Derleme

Öz

Arka plan. Güncel olması sebebiyle, yeşil örgütsel davranış kavramını sistematik bir incelemeden geçirerek, araştırmacılara kavramın ulusal yazında geldiği noktanın genel bir görüntüsünü ortaya koymak ve bundan sonraki yapılacak araştırmalara yön vermek önem arz etmektedir.

Amaç. Yeşil örgütsel davranış konusunda 2017-2024 yılları arasında Türkiye örneklem grupları üzerinde yazılmış makalelerden elde edilen bulguları sistematik olarak incelemektedir.

Yöntem. Araştırmaya konu olan kavram sistematik derleme çalışma yöntemi kullanılarak incelenmiştir**.** Yapılan sistematik incelemede kavrama ilişkin yapılan ampirik araştırmalar, yazarı, yayın yılı, sektörü, örneklem grubu ve sayısı, kullanılan ölçek ve istatiksel analizler, tanımlayıcı istatistik ve fark test sonuçları, kavramın öncülleri ve ardılları yönüyle kategorize edilmiştir.

Bulgular. Kavrama ilişkin yapılan ilk araştırmaların 2017 yılında gerçekleştiği, alan yazında veri toplama aracı olarak en sık kullanılan ölçeğin Erbaşı (2019)'na ait olduğu, geliştirilen bu ölçek ile konu üzerinde nedensellik ilişkisine dayanan araştırma sayısının arttığı tespit edilmiştir. Yapılan nicel araştırmaların büyük bir çoğunluğunun kavramın öncüllerini belirlemeye yönelik yapıldığı, ardıllarını tespit etmeye yönelik yapılan çalışma sayısının çok kısıtılı olduğu belirlenmiştir. Sadece bir adet nitel araştırma ve firma/marka incelemesi araştırması olduğu tespit edilmiştir. Örneklem grubu itibari ile çalışmaların önemli bir bölümünün özel sektör ve karma örneklem grupları üzerinde gerçekleştirildiği belirlenmiştir.

Sonuç. Yapılan sistematik inceleme temelinde araştırmacılara yönelik çeşitli önerilerde bulunulmuştur.

Anahtar Kelimeler: Yeşil örgütsel davranış, sistematik derleme, yazın taraması.

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1. Introduction

The rapid increase in the world population brings with it a decrease in environmental resources, and the increasing desire for consumption also causes the unconscious use of these resources, pollution of the environment, and an increase in ecological problems, as well as climatic changes. These problems, essentially a social agenda, emerge as an essential issue that must be addressed for businesses whose existence depends on the continuity of their resources. For this reason, an environmental (green) approach dominates all business activities, from production to marketing, from human resources management to R&D, and the concept of green is gaining more and more importance in the management and organizational behavior literature (Kerse et al., 2021).

Green organizational behavior is voluntary behavior in which employees demonstrate their willingness to cooperate with the organization and its members by engaging in behaviors that benefit the natural environment at work. Employees can exhibit green organizational behavior in various ways. For example, "they can develop and suggest new practices on environmental issues to help reduce waste or improve environmental performance at work" (Paille & Borial, 2013, p. 119). Ones and Dilchert (2012) define green organizational behavior as all behaviors created to ensure the continuity of the environment and the existence of businesses. Erbaşı (2019) defines green organizational behavior as behaviors exhibited by the management and employees of the company that protect the environment.

Many businesses and organizations, both in Türkiye and around the world, strive to contribute to environmental sustainability by adopting green business behavior. According to 2020 data, 70% of businesses in Türkiye state that they aim to switch to green practices. In addition, according to a KPMG report, 60% of CEOs in Türkiye stated that sustainability is an important part of their business strategies (KPMG Türkiye Sustainability Report, 2022).

This importance has also attracted the attention of scientists and field practitioners. Many green-themed concepts have been introduced in recent years, especially in business science. One of these is green organizational behavior. Green organizational behavior has become an important and popular subject that has attracted the attention of scientists with the increase in the number of studies conducted in the literature in recent years. The concept, which emerged in Western literature, has reached a certain point with the compilation and research articles conducted in the national literature. At this point, the study aims to systematically review the literature on green nation literature, to present a general view of the point the concept has reached in the national literature to the readers, and to be able to guide future research with suggestions to be presented. In this respect, the research and compilation of articles conducted between 2017 and 2024 will be examined under specific categories. In this review, the studies conducted on the concept are discussed under the titles of scale development and validation, difference tests and frequency analyses, and the antecedents and successors of the concept. In addition, during this review, the studies were examined in terms of the author/authors of the study, publication year, sector, sample group and number, scale used, statistical analyses and research results. The findings obtained from this systematic review were evaluated, and suggestions for future research were presented.

2. Methodology

The research will discuss the concept of green organizational behavior, a new concept in organizational behavior and national literature, using the systematic review method. Systematic

Review is the systematic and unbiased scanning of studies conducted on the same subject per the specified criteria to find an answer to a research question prepared on a particular subject, evaluating the studies' validity and combining them by synthesizing (Çınar, 2021). To conduct systematic review research, examining all studies conducted within a particular scope on a particular subject is necessary. Therefore, researchers who want to conduct systematic review should be experts in their field, equipped with all scientific studies, including experimental, cross-sectional, case-control, cohort, and qualitative research, systematic review and meta-analysis studies, and traditional review articles (Karaçam, 2013).

Herdman (2006) states that there are four essential criteria that a review article should have. According to the researcher, the systematic study should be related to the research question developed by the researcher. A synthesis should be made on the summary results of the research conducted on the concept. The researcher should express the missing and controversial points in the literature due to the examination of the findings obtained. Various suggestions should be presented for future research. Well-structured and standardized systematic reviews are at the top of the evidence pyramid. They are a unique source that presents the existing evidence for the research question of interest together (Çınar, 2021).

In the study, a detailed literature review was conducted on articles on the concept of green organizational behavior in the national literature in line with the purpose of the research and the determined method. Master's and doctoral theses and papers (congress, symposium) were excluded from the scope of the research. The systematic review covers the period between 2017, when the first scientific study on Turkish sample groups was conducted, and 2024. For the literature review, the key concept of 'green organizational behavior' was searched in national academic databases such as Google Scholar, ULAKBİM, YÖK Academic, and SOBIAD. The reason why these databases and indexes were preferred is that the aim of the study is to examine the national literature. In the identified studies, the criteria for the researchers obtaining data in the context of Turkish samples or businesses was taken as the basis. As a result of the literature review conducted in line with the determined key concepts, 37 articles were identified. 31 of these studies were research articles, and 6 were review articles. All identified articles were subjected to content analysis. The criteria used to select the studies are shown in Table 1.

Table 1

The Criteria Used To Select The Studies

Scope of the study	Studies Conducted on Turkish Sample Groups / Studies Published in Turkish
Time (year) range	2017-2024
Keyword	Green Organizational Behavior
Databases and indexes	Google Scholar, ULAKBİM, YÖK Academic, and SOBIAD

3. Findings

The articles identified as a result of the systematic review will be examined within certain categories. First, the findings of the scale development and validation studies conducted on the concept are presented in Table 2.

Table 2

Studies Conducted for Scale Development and Validation

Author/ Authors	Year	Publication Type	Public /Private	Sector	Sample/Sample Size	Type of Analysis	Factors	Conclusion
Erbaşı	2019	Research Article	Private	Mixed	Konya Independent Industrialists and Businessmen Association Members (n:500)	EFA CFA	Environmental awareness, Environmental participation, Economic awareness, Green purchasing, Technological awareness	The developed scale (green organizational behavior) was found to be a theoretically and statistically appropriate, reliable and valid measurement tool.
Kerse, Maden & Selçuk	2021	Research Article	Private	Mixed	Automotive Sector Employees (n:143) Textile Sector Workers (n:174)	EFA CFA	One Factor	In the study, it was determined that the Turkish form of the scale developed by Bissing-Olson et al. (2013) with 3 items and a single dimension was a valid and reliable measurement tool.
Kuzgun	2023	Book Chapter	Private	Mixed	ISO 500 and ISO Second 500 Company Employees (n:486)	EFA CFA	Green Initiatives Green Civic Engagement Help the Environment	The scale developed by Boiral and Paillé (2012) was adapted into Turkish. It was found that the scale was a theoretically and statistically appropriate, reliable and valid measurement tool.

The first scale development research on the concept was conducted by Erbaşı (2019). As a result of the statistical analysis, a scale consisting of 5 dimensions and a total of 27 statements was formed. Environmental awareness is measured with eight statements, environmental participation with seven statements, economic awareness with five statements, green purchasing with four statements, and technological awareness with three statements. In the studies of Kerse et al. (2021), the Turkish validity and reliability analysis of the single-factor scale of Bissing-Olson et al. (2013) was carried out. In the study by Kuzgun (2023), the Turkish form of the scale consisting of 3 dimensions and 10 statements belonging to Boiral and Paillé (2012) was validated.

As a result of the literature review, it was determined that various studies apply different tests (t-test, ANOVA) to measure the green organizational behavior levels of other professional groups and to determine whether the perceptions of green organizational behavior change with demographic variables. These studies are presented in Table 3, including their author, publication year, sector, sample group, sample number, analysis type, and results.

Table 3

Studies Conducted on Descriptive Statistics and Difference Tests

Author	Year	Publication Type	Public /Private	Sector	Sample/Sample Size	Type of Analysis	Scale	Difference Test Groups	Conclusion
Erbaşı	2017	Research Article	Private	Tourism	Staff working in 12 different 5-star hotels (n:319)	*t* test ANOVA	Robertson and Barling (2013)	Education Gender Marital Status Age Educational Status Income Level Seniority	There is a significant difference in employees' green organizational behavior tendencies
Sönmez	2020	Research Article	Public	Education	School administrators working in Cizre official state schools (n:103)	*t* test ANOVA	Erbaşı (2019)	Age Education Years of Study School Type	No significant difference was found in terms of demographic variables. According to the research, it was found that the green organizational behavior levels of school employees and administrators were high.
Yiğit	2022a	Research Article	Private	Mixed	White-collar workers in Istanbul (n:302)	*t* test ANOVA	Kim vd. (2014)	Age Education Gender Years of Work Time at Current Workplace	It was found that there was no statistically significant difference in voluntary green behaviors in the enterprise according to the gender, marital status and education level of the employees. No significant difference was found according to age, working in the profession and working time in the current workplace.
Yüksel, Uçkun & Uçkun	2022	Research Article	Private	Security	Private security sector employees (n:402)	*t* test Correlation Analysis	Erbaşı (2019)	Environmental Awareness Environmental Participation Green Purchasing Technological Awareness Economic Awareness	It has been determined that employees have high sensitivity to green organizational behavior.
Aslan, Zengin & Polat	2023	Research Article	Private	Health	Employees of a private hospital operating in the Southeastern Anatolia Region (n:262)	Descriptive Statistics *t* test ANOVA	Erbaşı (2019)	Green Organizational Behavior	According to the study, it was determined that the awareness level of healthcare professionals regarding green organizational behavior is low.

Empirical studies conducted to identify the antecedents and successors of the concept are presented in detail in Table 4 and Table 5, with author names, year of the study, publication type, sector, sample, antecedents, successors and results.

Table 4

Antecedents of Green Organizational Behavior

Author	Year	Publication Type	Public /Private	Sector	Sample/ Sample Size	Type of Analysis	Scale	Antecedents	Conclusion
Akbaba	2019	Research Article	Private	Tourism	Tourism Sector Workers (n:294)	Regression Analysis	Erbaşı (2019)	Organizational Justice	Organizational justice significantly affects green organizational behavior.
Akandere	2019	Research Article	Private	Mixed	Sports and health service workers in Konya province (n:140)	SEM	Ramus ve Steger (2000), Whitmarsh ve O'Neill (2010), Robertson ve Barling (2013), Chou (2014), Blok vd., (2015), Leygue vd., (2017), Wesselink vd., (2017), Ratliff vd., (2017), Phama vd., (2019) ve Paille ve Meija-Morelos (2019)	Environmental Passion	It has been determined that environmental passion makes a significant contribution to the implementation of green organizational behavior.
Gürsel	2020	Research Article	Private	Logistics	Logistics sector employees (n:159)	Regression Analysis	Erbaşı (2019)	Self-Esteem	Self-Esteem positively and significantly affects green organizational behavior.
Özalp & Erbaşı	2021	Research Article	Private	Tourism	Employees of 5 and 4 star hotels with environmental certificates operating in Konya province (n:293)	Regression Analysis	Erbaşı (2019)	Perception of Green Organizational Climate	The perception of green organizational climate positively affects green organizational behavior.
Akyol & Gürsoy	2022	Research Article	Public	Education	Public Educational Institutions (n:343)	Regression Analysis	Erbaşı (2019)	Organizational Reputation	Organizational reputation significantly predicts green organizational behavior.
Erbaşı, Çalışkan & Akdeniz	2022	Research Article	Private	Textile	Konya Organized Industrial Zone Workers (n:106)	Regression Analysis	Erbaşı (2019)	Personality Traits	It was determined that among the personality traits, only emotional balance has an effect on green organizational behavior.
İrge	2022	Research Article	Mixed	Education	Academicians Working in State and Foundation Universities (n:577)	SPSS Process Macro	Erbaşı (2019)	Environmental Sensitivity Personality Traits	As a result of the analysis, it was determined that environmental awareness attitude, knowledge/emotion factor, caring behavior and recycling, and personality traits such as openness to experience, gentleness, emotional balance, responsibility, and extraversion have a significant effect on green organizational behavior.

Table 4

Antecedents of Green Organizational Behavior (continued)

Kerse, Maden & Selçuk	2021	Research Article	Private	Mixed	Automotive Sector Employees (n:143) Textile Sector Workers (n:174)	SPSS Process Macro	Bissing-Olson et al. (2013)	Green Transformational Leadership Green Intrinsic Motivation	Green transformational leadership and green intrinsic motivation has a positive significant effect on green behavior.
Mansur & Gedik	2022	Research Article	Mixed	Health	Healthcare professional working in university, public and private hospitals in Ankara. (n:384)	Regression Analysis	Erbaşı (2019)	Proactive Personality Trait	Proactive Personality Trait positively affects the sub-dimensions of Green Organizational Behavior.
Kavaslar & Karavelioğlu	2023a	Research Article	Public	Mining	Employees at the Eti Mine Emet Boron Operations Directorate (n:319)	Regression Analysis	Erbaşı (2019)	Ethical Leadership	Perceived ethical leadership was found to have a significant effect on green organizational behavior.
Kırca & Salepçioğlu	2023	Research Article	Private	Food	Food Sector Workers (n:431)	SEM	Erbaşı (2019)	Total Quality Management	TQM partially affects green organizational behavior.
Mert & Saltık	2023	Research Article	Private	Tourism	Employees working in 4 and 5 star hotel businesses operating in Muğla Province (n:383)	Regression Analysis	Chou, 2014; Robertson &Barling, 2013; Fatoki, 2019; Kim vd. 2019	Job Satisfaction	According to the research, it has been determined that green organizational climate affects green behavior.
Tuna & Yıldız	2023	Research Article	Public	Health	Doctors, nurses and other healthcare personnel working in units affiliated with the University Hospital (n:305)	Regression Analysis	Bissing-Olson et al. (2013)	Green Leadership Business Performance	It was determined that green leadership has a positive significant effect on green behavior and that there is a moderate positive relationship between green behavior and job performance.
Öztırak	2023	Research Article	Private	Health	Employees of private healthcare companies operating in Istanbul (n:409)	SPSS Process Macro	Erbaşı (2019)	Green Human Resources Management Employee-Coaching Relationship	The relationship between green human resources management and coaching positively affects green organizational behavior.
Yaşar	2023	Research Article	Private	Tourism	Employees in 5-star hotels in Antalya (n:370)	Regression Analysis	Erbaşı (2019)	Green Psychological Climate	Green psychological climate positively and significantly affects green organizational behavior and its sub-dimensions.

Table 4

Antecedents of Green Organizational Behavior (continued)

Acar & Çiftçi	2024	Research Article	Mixed	Health	Ministry of Health Employees (n:476)	Regression Analysis	Erbaşı (2019)	Level of Self-Compassion Individual Responsibility Towards Society and the Environment	There are positive significant relationships between green organizational behavior sub-dimensions and self-compassion (positive dimension) and individual responsibility towards society and environment. The mediating role of self-compassion (positive dimension) on environmental awareness, environmental participation and technological awareness was determined.
Cica & Karabulut	2024	Research Article	Public	Mixed	Personnel working in three public institutions with ISO 14001 (n: 780)	SEM	Erbaşı (2019)	Organizational Commitment Organizational Identification Environmental Passion	Organizational Commitment, Organizational Identification and Environmental Passion have a positive significant effect on green organizational behavior.
Güdül & Sağır	2024	Research Article	Private	Tourism	Lower, middle and upper level managers in accommodation establishments (n:286)	Regression Analysis	Erbaşı (2019)	Global Social Responsibility	Perceived global social responsibility has an impact on green organizational behavior.
Güvendi & İyigün	2024	Research Article	Public	Mixed	Public employees in Istanbul province (n:235)	Regression Analysis	Erbaşı (2019)	Perceived Supervisor Support Psychological Well-being	Perceived managerial support and psychological well-being positively affect green organizational behavior.
Öney	2024	Research Article	Private	Transportation	Turkish Civil Aviation Sector Employees (n:308)	Jamovi Medmod	Bissing-Olson vd. (2013)	Green Business Climate Perceptions Green Motivation	It has been determined that organizational and coworkers' green climate perceptions have a positive effect on employees' green behavior.
Topaloğlu & Özen	2024	Research Article	Public	Woodworking, Paper and Paper Products	Forest engineers working at General Directorate of Forestry (n:120)	Correlation Analysis	Erbaşı (2019)	Necessity for Environmental and Nature Protection	The necessity of protecting the environment and birth and green intrinsic motivation have a positive effect on green organizational behavior.

Table 5

Consequences of Green Organizational Behavior

Author	Year	Publication Type	Public /Private	Sector	Sample/ Sample Size	Type of Analysis	Scale	Consequences	Conclusion
Bulut	2022	Research Article	Public	Education	Teachers in secondary schools under the District National Education Directorate (n:161)	Regression Analysis	Erbaşı (2019)	Sustainable Consumption Behavior	It has been determined that teachers' green organizational behavior positively and significantly affects their sustainable consumption behavior.
Kuzgun & Gözükara	2023	Research Article	Private	Mixed	Companies included in the list of Turkey's 500 Largest Industrial Enterprises in 2020 (n:948)	SEM	Boiral ve Paillé (2012)	Green Innovation Sustainability Performance	It has been found that perceived green innovation and sustainability performance have a positive impact.
Mert & Saltık	2023	Research Article	Private	Tourism	Employees working in 4 and 5 star hotel businesses operating in Muğla Province (n:383)	Regression Analysis	Chou, 2014; Robertson &Barling, 2013; Fatoki, 2019; Kim vd. 2019	Job Satisfaction	No positive and significant effect of green behavior on job satisfaction was detected.

Apart from these, two more studies were identified using company review and qualitative research methods. A study at the company review level was identified by Yiğit (2022b). This study examined the COFL (Circle of Life) brand in his study and addressed the brand's environmentally sensitive activities. The environmentally friendly approach was internalized, and small-scale production was made; energy consumption was reduced by using LED lighting and energy-saving sewing machines, waste fabrics were evaluated, rainwater collection systems were used, recycled raw materials were used, energy was produced with solar power plants, paper usage was minimized, and office waste was recycled. As a result, although green behaviors are considered voluntary, environmentally friendly behaviors for businesses have ceased to be a choice but have become necessary. Institutions should turn to green behaviors to continue their activities, existence, and sustainability. Qualitative research was identified using the concept's phenomenological design. The primary purpose of this study conducted by Selçuk and Kerse (2022) is to reveal the environmentally friendly behaviors exhibited by employees in their workplaces, whether these behaviors differ by sector, whether there is consistency between the behaviors exhibited in social life and business life, and whether the policies of the enterprises encourage these behaviors. The research conducted by Selçuk and Kerse (2022), using face-to-face interviews with employees in different sectors in Karaman province, determined that the green organizational behaviors exhibited by employees differ at the sectoral level. In addition, it was concluded in the research that the knowledge of employees about green behaviors is limited, and the practices of the enterprises are insufficient. As a result of the literature review, it was determined that various studies address green organizational behavior at a conceptual level. These studies are presented in Table 6 with the article authors, publication year, and research titles.

Table 6

Conceptual Research on Green Organizational Behavior

Author	Year	Publication Type	Research Title
Yiğit	2017	Review Article	A New Approach to Organizational Behavior: Green Employee Behavior
Eroymak, İzgüden & Erdem	2018	Review Article	Investigation Of Green Behavior Of Employees In Conceptual Framework
Yiğit	2022c	Review Article	The Categorical Analysis Of Articles In The Field Of Green Organızational Behavior
Başpınar	2023	Review Article	Factors Affecting Employees' 'Green' Behavior And Theoretical Explanations
Kavaslar & Karavelioğlu	2023b	Review Article	Conceptual Framework of Green Organizational Behavior
Yiğit	2023	Review Article	The Role Of Green Organizational Behavior In The Relationship Between Organizational Identification And Organizational Citizenship Behavior: A Conceptual Model Proposal

3.1. Distribution of Research on the Concept of Green Organizational Behavior by Year and Type

It was determined that the first articles on the concept were carried out at the conceptual level by Erbaşı (2017) and Yiğit (2017). It was determined that the number of empirical studies increased rapidly, especially with the scale validation study carried out by Erbaşı (2019). It is possible to say that the research interest in the concept, which first entered the national literature with a theoretical compilation article in 2017, increased in 2022 and 2023. The frequency values of the years and types of scientific studies are presented in Table 7.

Table 7

Frequency of Research on the Concept of Green Organizational Behavior by Year and Type

	Research Article	Review Article	Total
2017	1	1	2
2018	-	1	1
2019	3	-	3
2020	2	-	2
2021	2	-	2
2022	9	1	10
2023	8	3	11
2024	6	-	6
Total	31	6	37

Although not within the scope of the research, the publication years and types of master's and doctoral theses in the national thesis center are shown in Table 8.

Table 8

Frequency of Thesis on the Concept of Green Organizational Behavior by Year and Type

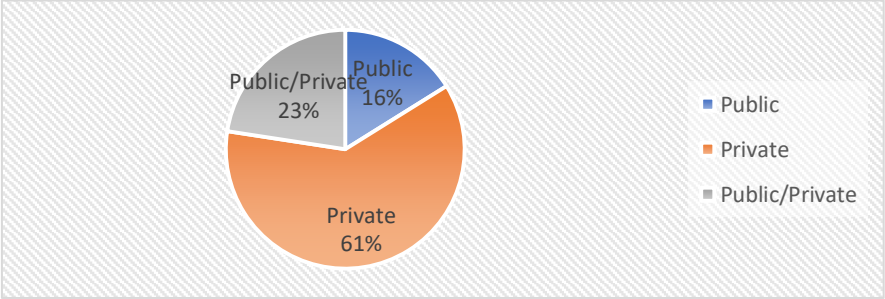
	Master	PhD	Total
2019	1	-	1
2022	5	2	7
2023	5	1	6
2024	9	2	11
Total	20	5	25

3.2. Sectoral Distribution of Research Samples

The sectoral distribution of scientific publications on green organizational behavior was analyzed. It was determined that 21 of the studies were conducted in the private sector, 5 in the public sector, and seven studies were of mixed nature; in other words, they were conducted on samples from both the public and private sectors. The proportional weight of the number of scientific studies conducted in the public and private sectors is shown in Figure 1.

Figure 1

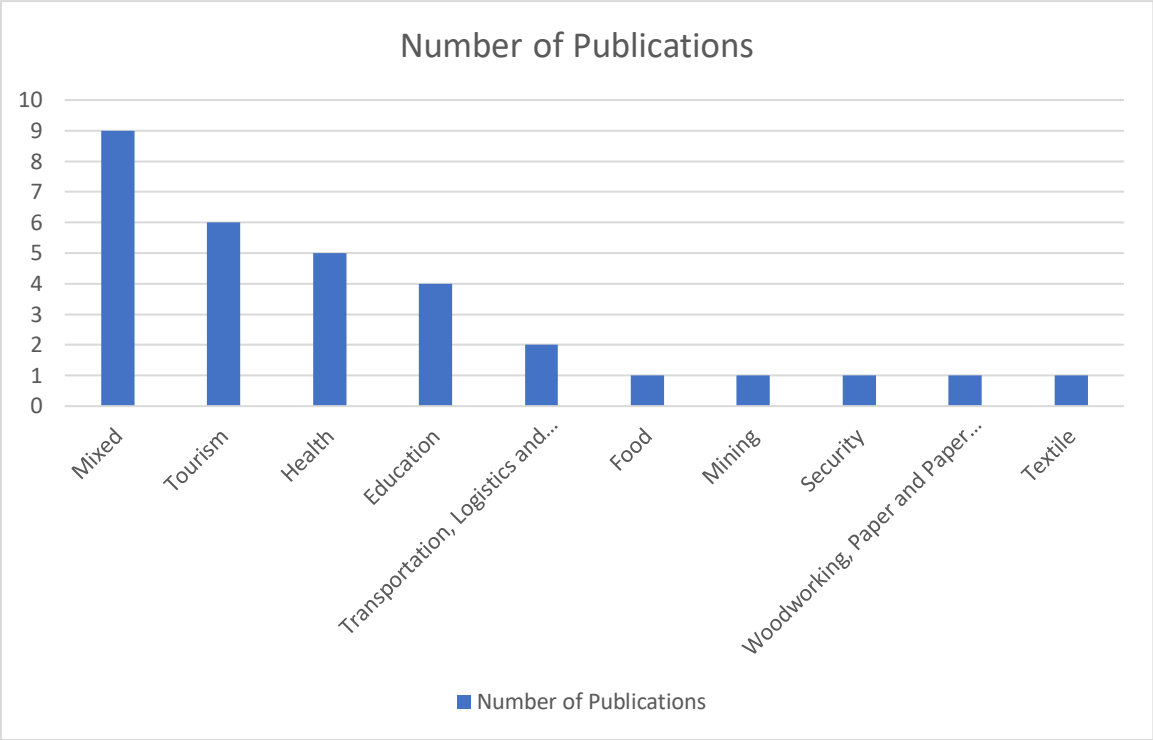
Distribution of Samples in Green Organizational Behavior Studies



At this stage of the research, the sample groups of the scientific studies were determined in which sub-sectors were located. In making this determination, the sector classification prepared by the Vocational Qualifications Institution of the Ministry of Family, Labor, and Social Services was taken as a basis (https://www.myk.gov.tr/tr/page/125). This classification was created within the European Qualifications Framework consultation document sectoral qualifications. The sector distribution of the research articles on the concept of green organizational behavior is shown in detail in Figure 2.

Figure 2

Distribution of Samples in Scientific Studies on Green Organizational Behavior Based on Sub-sectors



3.3. Analysis Methods and Data Collection Tools Used

After the examination, it was determined that 31 studies were conducted using quantitative analysis methods and were descriptive. In addition, it was seen that the studies were structured on causality, and statistical analyses such as regression analysis, structural equation model, SPSS Process Macro, and Jamovi were applied to test the research data. In addition, descriptive statistics and difference tests (t-test and ANOVA) analyses were conducted in some studies. When the data collection tools used in the studies were examined, it was determined that especially the scale developed by Erbaşı (2019). The frequency values of the frequency of use of the scales used as data collection tools in the studies are presented in Table 9.

Table 9

Frequency Values of the Usage Frequency of Data Collection Tools Used in Green Organizational Behavior Studies

Scale	Frequency
Erbaşı (2019)	23
Bissing-Olson et al. (2013)	3
Boiral & Paillé (2012)	1
Robertson & Barling (2013)	1
Kim et al. (2014)	1
Chou, 2014; Robertson &Barling, 2013; Fatoki, 2019; Kim vd. 2019	1
Ramus and Steger (2000), Whitmarsh and O'Neill (2010), Robertson and Barling (2013), Chou (2014), Blok et al.,, (2015), Leygue et al.., (2017), Wesselink et al.,, (2017), Ratliff et al.,, (2017), Phama et al.,, (2019) and Paille and Meija-Morelos (2019)	1

3.4. Antecedents of Green Organizational Behavior

As a result of the literature review and in the light of the findings obtained from Table 3, the antecedents of the concept have been determined. When the studies are examined, it is seen that the antecedents of the concept are concentrated on other green-themed organizational behavior concepts. It has been determined that many factors, both organizational and individual, are focused on. In all empirical studies, it has been revealed that all organizational variables determined as antecedents of the concept have a positive effect. The antecedents of the concept are shown in Table 10.

Table 10

Antecedents of Green Organizational Behavior in Empirical Research

Organizational Justice (+) Environmental Passion (+) Self-Esteem (+) Green Organizational Climate (+) Organizational Reputation (+) Personality Traits (+) Environmental Sensitivity (+) Green Transformational Leadership (+) Green Intrinsic Motivation (+) Total Quality Management Practices (+) Proactive Personality Trait (+) Ethical Leadership (+) Job Performance (+) Job Satisfaction (+) Green Leadership (+) Green Human Resources Management (+) Employee-Coaching Relationship (+) Green Psychological Climate (+) Self-Compassion Level (+) Individual Responsibility Towards Society and Environment (+) Organizational Commitment (+) Organizational Identification (+) Global Social Responsibility (+) Perceived Manager Support(+) Psychological Well-being(+) Green Motivation(+) Necessity for Environmental and Nature Protection (+) Passion for the Environment (+)	Green Organizational Behavior

3.5. Consequences of Green Organizational Behavior

In researches, the green organizational behavior has largely been constructed as a dependent variable. Accordingly, the number of studies conducted to determine the antecedents of the concept is much higher than the number of studies conducted to determine the successors of the concept. The successors of the concept identified through empirical research are shown in Table 11.

Table 11

The Consequences of Green Organizational Behavior in Empirical Research

Green Organizational Behavior	Sustainable Consumption Behavior (+) Green Innovation (+) Sustainability Performance (+) Job Satisfaction (+)

4. Conclusion

In this research, which was carried out by systematically analyzing the research conducted on Turkish sample groups on the concept of green organizational behavior, certain findings were made. First of all, there is not a long time difference between the emergence of the concept, which was first put forward in the Western literature, and its being a subject of research in our country.

Although it has been conceptualized under different names, the first researchers to address the concept in the literature were Ones and Dilchert (2012). The first scientific studies written on the concept in our country belong to Erbaşı (2017) and Yiğit (2017). The first scientific study on the concept is a master's thesis by Özalp (2019). When the studies are evaluated according to the year of publication, it is seen that the interest in the subject increased in 2022 and 2023, and the number of studies, which was between one and three in 2017 and 2021, increased to 11 and 12. In Table 7, created in line with the data obtained from the national thesis center, it is seen that the number of theses conducted on the concept reached 11 in 2024. This situation reveals that the number of scientific studies on the subject has gained great momentum, especially in the last 3 years.

It has been determined that the vast majority of empirical research has been conducted in the private sector and mixed sectors. It is a natural result that more research has been conducted on the private sector due to the internal dynamics of the concept. When the research is examined on a sectoral basis, it is seen that mixed research is in the first place. Then comes the tourism, health, and education sectors. It has been determined that there is an interest in measuring green organizational behavior, especially in hotel businesses and health institutions.

It was determined that the scale developed by Erbaşı (2019) was the most frequently used in research. It is also possible to say that the number of scientific studies on the subject increased with the developed scale. It was determined that a few studies were using the data collection tool developed by Bissing-Olson et al. (2013) and validated by Kerse et al. (2021) along with this scale. As a result of the literature review, it was revealed that the scale validated by Kuzgun (2023), which has much fewer expressions than the 5-dimensional and 27-expression scale of Erbaşı (2019), was not used.

As a result of the systematic review, it was determined that the number of studies aimed at determining the antecedents of the concept was much higher than the number of studies aimed at determining the antecedents of the concept. While the number of studies aimed at determining the antecedents of the concept was 20, only two studies created a research model to determine the antecedents of the concept. There is only one study in which the concept was included as both an antecedent and a consequence. In all of these empirical studies, the research model was designed with research variables on which the concept could have positive effects. Although the concept has positive antecedents and antecedents, there are likely organizational and individual variables with negative consequences that prevent, reduce or decrease the realization of green organizational behavior. It is possible to say that the literature belonging to the national literature leaves this area blank. There are various studies conducted with organizational variables belonging to the green theme among the antecedents of the concept. However, it was determined that many organizational and individual variables were also included. In this respect, it is possible to say that the concept has been examined at both individual and organizational levels in terms of its antecedents. Apart from these studies, one company/brand review and one qualitative research were identified at the research article level. It can be stated that the number of studies that addressed this aspect, in particular, is very limited.

Based on these findings, it is thought that in future studies, studies should be designed to determine the antecedents of the concept that may have a negative impact, studies should be designed to reveal the successors of the concept, the number and quality of qualitative studies and company/brand studies on the concept should be increased, and the number of studies to be conducted on the public sector should be increased, which could contribute to the literature. In addition, conducting a meta-analysis study and comparing national and international literature in future studies will contribute to the literature.

In the search criteria determined in the study, only studies were conducted on the concept of 'green organizational behavior'. It should be considered that there may be studies that could not be reached due to different definitions made for the concept other than this definition. In addition, the study had limitations due to various access problems. Studies that could be detected digitally within online possibilities and were detected based on the databases specified in the method section of the study were evaluated. These issues stated are the most basic limitations of the study.

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Determination of E-Health Literacy of Healthcare Employees and Health Tourism Employees[a]

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Determination of E-Health Literacy of Healthcare Employees and Health Tourism Employees

Abstract

Background. Healthcare professionals need to have the skills to read and comprehend the health informations in order to make effective health decision making. Considering the advanced level reached by current technologies, the importance regarding the term electronic health (e-Health) literacy emerges. In the case of healthcare professionals, e-Health literacy is important in terms of accessing accurate the health information and making use of it for the benefit of society.

Aim. The aim of the present work aimed to identify and comparatively analyse the e-Health literacy levels of healthcare workers along with health tourism workers.

Method. Within the scope of the study, 427 feedbacks were obtained from the questionnaires delivered to healthcare and health tourism business employees via remote access between March and May, 2024. The obtained datas were analysed by using the SPSS program.

Findings. A statistically meaningful statistical relationship was found among the e-Health literacy levels of the employees according to their status of working as a health worker or in a health tourism business. In the study, statistically important changes were found among the e-Health literacy scores of the employees in respect to their age groups, marital status and educational status.

Conclusion. As a consequence of the research, it was found that healthcare workers' e-Health literacy levels were higher than health tourism workers. In addition, it was concluded that older age groups, married people and those with postgraduate degrees had greater levels of e-Health literacy. It is thought that the study will be important for managers and employees in the sector as well as contributing to the literature since it is the first time the study has been applied on these samples.

Keywords: Health literacy, e-Health literacy, health tourism businesses, healthcare businesses.

Sağlık Çalışanları ve Sağlık Turizm Çalışanlarının E-Sağlık Okuryazarlığının Belirlenmesi

Öz

Arka plan. Sağlık alanında hizmet verenlerin sağlık hizmetleri ile ilgili etkili kararlar almaları için sağlık ile ilgili bilgileri okuma ve anlama yeteneklerine sahip olmaları gerekmektedir. Günümüz teknolojilerinin ilerlediği düzey dikkate alındığında da elektronik sağlık (e-Sağlık) okuryazarlığı kavramının önemi ortaya çıkmaktadır. Sağlık hizmeti verenler bağlamında e-Sağlık okuryazarlığı doğru sağlık bilgilerine erişebilmek ve bunları toplumun yararına kullanabilmek açısından önem arz etmektedir.

Amaç. Bu çalışmada amaç sağlık çalışanlarının ve sağlık turizmi çalışanlarının e-Sağlık okuryazarlık düzeylerini belirlemek ve karşılaştırmalı olarak analiz etmektir.

Yöntem. Çalışma kapsamında sağlık işletmesi ve sağlık turizmi işletmesi çalışanlarına 2024 yılında Mart ile Mayıs ayları arasında uzaktan erişim yoluyla ulaştırılan anketlerden 427 geri bildirim sağlanmıştır. Anket yoluyla ulaşılan veriler SPSS programı aracılığıyla analiz edilmiştir.

Bulgular. Çalışanların sağlık işletmesi ya da sağlık turizmi işletmesinde çalışma durumlarına göre e-Sağlık okuryazarlığı düzeyleri arasındaki farkın istatistiksel olarak anlamlı olduğu belirlenmiştir. Ayrıca çalışanların e-Sağlık okuryazarlığı düzeylerinin yaş grupları, medeni durumları ve eğitim durumlarında da istatiksel açıdan anlamlı farklılıklar olduğu görülmüştür.

Sonuç. Araştırmada sonuç olarak sağlık işletmesi çalışanlarının e-Sağlık okuryazarlık düzeylerinin sağlık turizmi çalışanlarından yüksek olduğu tespit edilmiştir. Ayrıca ileri yaş grubundakilerin, evlilerin ve lisansüstü eğitim alanların e-Sağlık okuryazarlık düzeyinin daha yüksek olduğu sonucuna varılmıştır. Çalışmanın bu örneklemler üzerinde ilk defa uygulanmasından dolayı literatür katkısının yanı sıra sektördeki yöneticiler ve çalışanlar için de önem arz edeceği düşünülmektedir.

Anahtar Kelimeler: Sağlık okuryazarlığı, e-Sağlık okuryazarlığı, sağlık turizmi işletmeleri, sağlık işletmeleri.

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1. Introduction

In the last years, the notion of health literacy has received considerable attention, particularly in terms of the efforts to develop and implement interventions at different scales, to improve its measurement, and the role of populations and institutions (Lander et al., 2022). Health literacy is a basic life skills that we build and sustain our entire life. For this reason, health service providers should be conscious and friendly about health literacy. In this way, individuals in society will be able to get better health care (Ryan, 2014).

Electronic Health Literacy (E-Health Literacy) is a comparatively new framework which broadens conventional healthcare literacy studies towards internet-related health literacy and is important in enabling people to play an active role in making informed health choices (Castarlenas et al., 2021).

Health literacy is the ability to understand and comprehend health-related information in order to both improve and maintain one's health. For this reason, every adult should know the concept of health literacy. Thus, the person can follow all processes related to his/her health more easily and take better measures to improve his/her health. The importance level of this concept increases much more for the personnel working in the field of health. Because when people working in healthcare organizations are aware of their own health literacy resources, they can better understand how to meaningfully support the health literacy of the people they serve (Lander et al., 2022). In addition, health professionals with strong health literacy skills are essential for providing quality care. If health professionals themselves have health literacy needs, this may hinder their ability to support their patients. In this context, it is essential for health professionals to have knowledge about e-Health literacy as well as to be able to improve their health literacy and to understand and respond appropriately to the diversity of health literacy of societies in this age of intensive use of digital technologies. For this reason, developing technologies, global pandemics and new treatment methods have made the concept of e-Health even more important.

When studies are analyzed, it is seen that the notion of e-Health literacy is mostly investigated in terms of consumers. In this study, the research question investigates the degree of e-Health literacy of healthcare professionals. In this context, the aim regarding the e-Health literacy levels among healthcare workers and health tourism workers is to determine and comparatively analyse. In the following sections of the research, the concept of e-Health literacy is mentioned. Then, literature review, methodology and findings are discussed. Finally, conclusions and recommendations are shared in the light of the findings.

2. Conceptual Framework

2.1. Health Literacy

Health literacy means reading, understanding and acting on health information accordingly (Ryan, 2014). In health literacy, people should have not only the skills to acquire pertinent health knowledge, they should be also have the motive for doing this. Health literate people will be capable of understanding and collecting knowledge for which they are motivated. Health literacy also includes confidence and competence in the use of health knowledge. This can include activities that do not require any kind of reading or written work, such as questioning a doctor or understanding a public service announcement on radio or television. For a person to be considered health literate, he or she

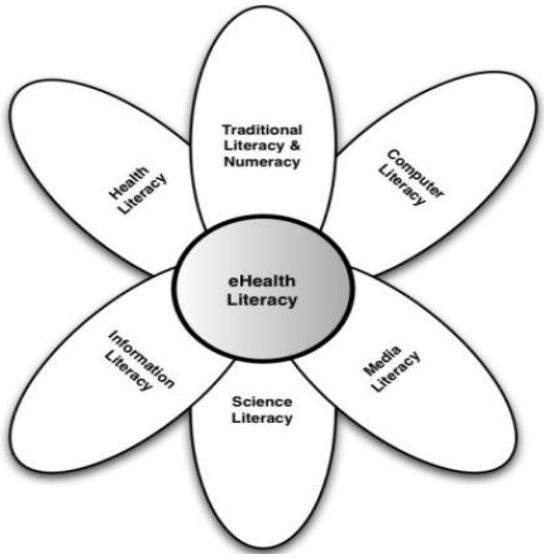
must have basic social and information infrastructure. Must have basic writing, reading and problem-solving abilities, together the ability to find and use health iknowledge (Graham & Dutta, 2008).

Electronic health provides potential benefit to the health system by increasing the effectiveness of health care quality and reducing maintenance costs. It is considered necessary to have a good e-Health literacy level and improve health care provision and care quality, as well as to authorize caregivers and patients to control care decisions (Wubante et al., 2023). E-health literacy express to individuals' awareness of resources, opportunities, education and information in digital format regarding health problems occurring in their environment (Srinivasan, 2014). According to another definition, e-Health literacy includes health literacy-related abilities like the ability to actively process health information and make informed adjudications and the capability to navigate computers and the web (Graham & Dutta, 2008).

Unlike other different types of literacy, e-Health literacy combines various aspects of different literacy skills. At its centre are six basic literacies: traditional literacy, health literacy, information literacy, scientific literacy, media literacy and computer literacy. The relationship between these literacy skills and e-health literacy is shown in Figure 1. In this figure, the 'Lily Model' is used and the leaves (literacies) feed the female organ (e-Health literacy) and the female organ overlaps the leaves and connects them to each other (Norman & Skinner, 2006, s.1).

Figure 1

E-Health Literacy Lily Model



Source: Norman & Skinner (2006)

These six types of literacy in the Lily model work together to form the core skills needed to optimise the consumers' e-Health journey to the fullest. In the Lily Model, the six types of literacy are grouped into essentially two centre varieties: analytical (traditional, information, media) and contextual (scientific, computer, health). The analytical element includes skills that can be applied to a wide variety of knowledge bases regardless of subject or contrast, whereas the contrast-relevant element is based on rather situation-specific competences. For instance, analytical competences could be applied to shopping or term paper research as much as they could be applied to public healthcare.

In the context-specific skills, the area of application is contextualised within a particular problem or situation. Computer literacy therefore depends on the kind of computer being utilised, the operating system and the intended application. For example, science literacy can be applicable to issues in which relevant knowledge about research is being provided. However, both analytical and context-specific skills are necessary to exactly connect with electronic health sources (Norman & Skinner, 2006).

The profiles of the individual literacy categories are summarised in Table 1, together with examples of services available to people in need. These six types of skills show the difficulties of e-Health to people with low literacy in any field.

Table 1

Profile of Literacy Skills Related to Health Practices

	Intended purposes	Application areas
Traditional Literacy and Numeracy	- Ability simply to read a simple language, -Ease of comprehension of published matter in everyday encounters (e.g. signage on the street)	In some countries, there are national organizations that can provide free literacy services. Some examples include the following: - Ministry of National Education General Directorate of Lifelong Learning (Turkey) (Ministry of National Education General Directorate of Lifelong Learning, n. d.). - National Literacy Trust (United Kingdom) (National Literacy Trust, 2020). - Daariz (Somali) (Miller, 2023).
Media Literacy	- Having a healthy and conscious analysis of all messages from the media and having a selective interpretation function - Understanding how media works, how it is organized and how it has meaning - To be able to introduce the theory and practice of media literacy teaching -Learning the theories and strategies necessary for successful media literacy training	Media Literacy Education- Istanbul Business Institute İİENSTITU (Turkey) (Yılmazkol, n. d.). AML; Media Literacy Association (Canada) (Association for Media Literacy-AML, n. d.). Online Professional English Network - English for Media Literacy for Educators (America) (Online Professional English Network, n. d.).
Information Literacy	- Accessing, identifying, organizing, analyzing information - Completing the research effectively -Awareness of the services available through the library, understanding the resources available, how the information is organized, and thus learning the best way to find it - To enable separates to recognize when info is needed and to have the capability to effectively find, access and utilize the info required.	Information Literacy Trainings - Koç University Suna Kıraç Library (Turkey) (Koç Üniversitesi Suna Kıraç Kütüphanesi, n. d.). The American Library Association has a web page within the scope of information literacy (American Library Association, n. d.). CILIP Institute of Licensed Librarians and Information Professionals (İngiltere) (CILIP Lisanslı Kütüphaneciler ve Bilgi Uzmanları Enstitüsü, 2020).
Computer Literacy	- Familiarity with key computing vocabulary like keyboard, e-mail, mouse, etc.	Central Educational Institutions – Basic Computer Literacy Training Course (Turkey) (Central Educational Institutions, n. d.). Empire State University - Computer Lıteracy And Resources (New York) (Empire State University, n. d.).

Table 1

Profile of Literacy Skills Related to Health Practices (continued)

	Intended purposes	Application areas
Science Literacy	-Individuals use scientific process skills while solving and deciding, understanding and interpreting the social-environment interaction and understanding the nature of science	Good Lessons Schools - Knowledge Science and Technology Literacy (Turkey) (Science and Technology Literacy, 2017). Royal Canadian Institute for Science - Science Literacy Workshop (Canada) (Are Facts Enough? The Power of Community - Science Literacy Workshop, 2023). Royal Society – Science Education (England) (Science Education, n. d.).
Health Literacy	- Individuals should be able to have an opinion and make decisions on health-related issues; access relevant resources to protect and improve their health and develop their grade of life; and understand messages and information about health correctly	Institute Istanbul ISMEK - Basic Health Literacy (Institute Istanbul ISMEK, n. d.). Institute for Healthcare Advancement (IHA) - Health Literacy Specialist Certificate Program Package (United States) (Health Literacy Specialist Certificate Program Package, n. d.).

Source: Adapted from the table in Norman & Skinner (2006)

As seen in Table 1, these six types of literacy are essential in all areas of e-Health. Because a person must have these literacy skills in order to benefit from e-Health literacy effectively.

According to research, the level of e-Health literacy is influenced and impacted by various factors. These factors are presented below in table 2.

Table 2

Factors affecting the degree of e-Health literacy

Factor	Result
Demographic characteristics	1. A significant negative correlation was observed found to exist for age and e-Health literacy. Younger age was found to be associated with higher e-Health literacy (David et al., 2018). 2. It was found that the grade of e-Health literacy among graduate students and those studying in medical departments was higher than students in other departments (Tsukahara et al., 2020). 3. It has been defined that e-Health literacy is significantly related to age, educational status and place of residence internet usage frequency, which are socio-demographic variables, and younger, educated people living in the city use the internet more frequently (Shiferaw et al., 2020).
Behavior	1. Education level, self-perceived state of health, perceived health status, household wealth, and frequent internet usage have been set to have a substantial impact on e-Health literacy skills of consumers (Shiferaw et al., 2020). Factors such as the presence and signifance of online sources, manner and computer literacy were also found to be related to the degree of e-Health literacy (Shiferaw et al., 2020). 2. It has been found that a positive attitude towards the Internet has an important role in the development of e-Health literacy competences (Rathnayake & Senevirathna, 2019).
Reason	1. It has been determined that physical exercise, as well as age and education, has an important role on e-Health literacy. In this case, the factors influencing e-Health literacy are complex and interconnected (Xesfingi & Vozikis, 2016). 2. Factors related to e-Health literacy include internet talent, academic grade and perceptions of the utility and significance related with the internet (Tubaishat & Habiballah, 2016).

Source: Adapted from Wang et al. (2022)

In Table 2, e-Health is presented together with case studies in various forms. Table 3 demonstrates the intervention most commonly used intervention designs to improve e-Health literacy.

Table 3

Improving e-Health Literacy Interventions

Method	Subject	Conclusion
Professional health site	1. Assess the quality, availability, usability and effectiveness of a content, quality, usability and effectiveness of a web-oriented epilepsy training program (WEEP) for adolescents with epilepsy and their families (Güven et al., 2020). 2. A computer-based (two website of the National Health Institutes) has been developed for a health literacy intervention for elderly adults (60-89) (Xie, 2011).	Weep's content, quality and usability were found to be sufficient and efficacious in improving information, self-efficacy, attitudes and e-Health literacy of youth with epilepsy and parents (Güven et al., 2020). 2. The outcomes of the pretest and post- test were found to support the efficacy of the e-Health literacy intervention in various ways. Among these supports, it is said that there are positive factors such as the sites being both useful and helpful and providing support in learning how to use the information obtained in their own health services (Xie, 2011).
Education Video	1. Assessing the effectiveness of a digital literacy among students enrolled on massive open online courses (MOOCs) on cancer genomics (Blakemore, 2020). 2. An e-Health literacy intervention for older older adulthood was developed to produce empirical information on the potential effect of learning modalities and channels of knowledge delivery (Xie, 2011).	1. It has been determined how digital health literacy training activity can be successfully incorporated into a MOOC within healthcare and how online interventions improve digital health literacy (Blakemore, 2020). 2. Time of measurement was found to have statistically highly statistically insignificant effects on e-Health literacy efficacy, on perceived usability of e-Health literacy capabilities, and on e-Health literacy skills (Xie, 2011).
Health Mobile Terminal	1. Use of Mobile Health Applications (Apps) for the development of health literacy for cancer patients (Kim et al., 2017). 2. Understanding health knowledge acquisition through activity trackers (AT's) equipped with biometric sensors and ePortfolio integration to understand the physical activities of a group of students in a health science course (Sobko & Brown, 2019).	1. Mobile health apps have been found to enhance interactive patient-health worker communication and provide features or functionalities that facilitate understanding of medical information, empowering underserved cancer outpatients and their carers (Kim et al., 2017). 2. This integration has led to positive opinions about e-ports for learning and increases e-Health self-assessments (Sobko & Brown, 2019).

Source: Adapted from Wang et al. (2022)

There is no single 'best practice' method for literacy problems in healthcare. Improving this literacy is a duration that be essential coherent improvement and education over time between the patient-client, practitioners, educators, and community health organizations. It also requires constant attention and development. What is important is that the person has sufficient knowledge about a particular skill to be able to practice it at a level that helps achieve health goals (Norman & Skinner, 2006).

2.2. Literature Review

In their study in 2024, Almeida et al. aimed to evaluate the grade of knowledge of Portuguese university students' e-Health literacy and its relationship with the search for information about COVID 19. In the study, participants filled out an online survey about demographic characteristics, e-Health Literacy Scale (e-HEALS), information, attitude and health. As a result of the research, it

was concluded that e-Health literacy is united with online information seeking and that not all university students have a good grade of health literacy despite having access to online information resources.

In their study, Genç et al. (2024) evaluated the e-Health literacy grade of Health Services Vocational School students and related factors. In this context, a cross-sectional study was conducted among 778 vocational school of health services students in Elazığ province between January-February 2019. The research data collection was carried out using the 'Personal Information Form' and 'e-Health Literacy Scale (e-HeALS)'. As a result of the study, the mean e-HEALS score of the participants was found to be above average. E-HEALS scores were found to be significantly higher in women, in those who receive formal education, with high monthly income and in the pre -university cities. It was also found that e-HEALS scores did not change according to age, body mass index, smoking status, chronic disease and physical activity level.

Ramezani and Sharifi (2024) intended to evaluate the e-mental health literacy levels of parent of preschool age children and to investigate relation of literacy levels with their knowledge about common psychological disorders and problems in their children. In the study, questionnaire survey data were gathered from 14 preschool children in Zanjan city and they were analyzed using exploratory descriptive and statistical techniques. Their parents filled out online mental health status questionnaires regarding their knowledge of common mental health conditions and disorders among preschool aged kids. The findings of the analysis revealed that parents' electronic mental health literacy was high, but their knowledge about their children's mental health disorders was lower. It was also found that those parents with high electronic mental health literacy were open to professional help and sought knowledge to solve their children's emotional and social behavioral issues.

Suluhan et al. (2023) aimed to examine the e-Health literacy levels of undergraduate students studying nursing at a university in Ankara during the Covid-19 pandemic. The period in which the research was carried out includes the date of 1 December 2020 and April 1, 2021. Introductory data form and e-Health literacy survey were used in the study. As a consequence of the study, it was determined that the e-Health literacy levels of the respondents were high.

Altay (2022) in his study intended to identify the e-Health literacy skills of health tourism management students. The study included 524 students from 7 different universities through an online survey. As a consequence of the findings of the research, demographic variables did not affect the level of e-Health literacy, and it was determined that the e-Health literacy level of those students who have a computer and can access the internet is high. In addition, it was determined that students' researching health-related knowledge on the web and using the e-nabız application increased their e-Health literacy levels.

In their study, Jung et al. (2022) aimed to analyze the concept of e-Health literacy among older adults and determine its context in the field of nursing. 28 studies collected from various places were included in the study and active information search, two -way interactive communication and information usage/sharing features were categorized. As a result of the study, the concept of e-Health literacy in elderly adults has become clarified and it was determined that it provides a conceptual framework for nursing practices and research.

In 2021, Castarlenas et al. colleagues carried out a trial to investigate prevalence of internet use to search for online electronic research related to clinical pain, to determine the extent of e-Health

literacy capabilities in a sample of adults with chronic pain, and to determine the most influential factors. Assessments of Internet utilisation, e-Health literacy, pain intervention, depression, anxiety and pain-related self- efficacy were administered to 161 adults with chronic pain. As a result of the study, it was found that 70% patients actively utilised the internet to seek for medical knowledge about their health. While e-Health literacy skill level had no statistically significant relationship with participants' age or pain interaction, it had a significant negative relationship to both depression and anxiety. The results also show that selfefficacy fully explains the relation among e-Health literacy and depression, partially explains the relation with e-Health literacy and depression, and partly explains the association of anxiety and e-Health literacy.

In 2021, Özden aimed to determine the e-Health literacy levels and selected health behaviors of high school seniors. The study conducted is a quantitative study and the relevant questions were delivered to the participants via a survey. The dependent variable of the study was determined as e-Health literacy. As a result of the research, it was determined that the e-Health literacy levels of the participating students were low.

In their study, Riahi and Mousavi Chelak (2020) aimed to determine e-Health literacy among employees of state banks in Tehran. An electronic health literacy survey was used to collect data in the study. It was determined that the e-Health literacy of the employees examined in the study was above average and close to good.

In the year 2020, Wu et al. examined the association among patients' communicating with doctors and their e-Health literacy and healthy habits. Accordingly, five communication activities were identified in the study. These are; following doctors‘ social media posts, reading doctors’ posts, responding to the posts of doctors, preferring (liking) their posts, and recommend physicians to patients. In this study, following doctors‘accounts, responding to doctors’ posts and recommending doctors to others were found to be significant. It was found that follow the posts of doctors, respond to the posts of doctors, prefer the posts of doctors and recommend physicians to others are positive correlates of consumers' e-Health literacy and healthy attitudes.

The main purpose of the study conducted by Tubaishat and Habiballah (2016) is to evaluate e-Health literacy among nursing majors in Jordan and to investigate the relevant factors related to e-Health literacy. In the current findings, it was determined that students perceived to have a medium degree of e-Health literacy, were knowledgeable about available available online health resources, and were aware of the ways to searching, finding, and using them.

3. Methodology

It can be said that e-Health literacy is important for individuals to correctly evaluate alternatives both in receiving and applying treatment. The purpose of this study is to determine the e-Health literacy levels of healthcare facility and health tourism facility employees. In the study, answers are sought to the questions ‘What is the e-Health literacy level of healthcare facility and health tourism facility employees?’ ‘Does the e-Health literacy level of healthcare facility and health tourism facility employees differ according to the personal characteristics of the employees?’

The universe of the research consists of health business and health tourism business employees. In social sciences, the acceptable number of samples in the uncertain universe is accepted as 384 (Ural & Kılıç, 2013). In this study, the number of samples was determined as 384 and convenience sampling

technique was applied. Within the within of the explorative, datum collection was provided by applying a questionnaire technique. The questionnaire application was prepared online and performed through remote access. In the first part of the survey, a voluntary participation form was created for the participants. 427 survey feedback was provided from the participants included in the research. The survey take shape of two parts and the first part of the question is included in the questions to determine personal characteristics. In the second part of the survey, the Turkish adaptation of the survey improved by Norman and Skinner (2006) to measure e-Health literacy was carried out within the content of the investigate. 'E-Heals is a measurement of e-Health literacy designed to measure the combined information, convenience and relative comfort and perceived abilities of consumers to locate, evaluate and apply electronic health information to address their health problems' (Norman and Skinner, 2006, p.1). The 'e-Health Literacy (e-HEALS) Scale' consisting of 8 items on a 5-point Likert scale was used in the study. The Turkish validity and reliability study of the scale was conducted by Coşkun and Bebiş. Data collection was carried out through an online survey application offered to participants between March and May, 2024.

During the analysis of the collected data, descriptive statistics was firstly applied. The skewness and kurtosis data were examined to define whether the data were observed to be normal distribution and for further analysis, and it was observed that the kurtosis (min: .127, max: .1377) and skewness (min: -1.424, max: -.824) values were between ±1.5 levels. In line with the results obtained, the data showed normal distribution and parametric tests were continued. The Cronbach Alpha coefficient value of the e-Health literacy scale used in the study was determined as 0.94. Based on the data obtained, it can be said that the scale is reliable. In the hypothesis tests, independent group 'T-Test' is used in paired groups and 'One Way ANOVA' test is used in hypothesis tests for two or multiple groups.

3.1. Procedure

The research is confirmatory and was conducted using the survey method, which is one of the quantitative research methods. This study aims to contribute to the literature in terms of investigating the level of e-Health literacy on both healthcare professionals and employees of health tourism businesses that have health-protective, health-promoting and health-treating features. It is also important because it sheds light on whether the e-Health literacy levels of the employees of the two businesses vary according to their personal characteristics. For this research, the necessary approval was received by Tokat Gaziosmanpaşa University Social and Human Sciences Research Ethics Committee on 26.03.2024, session no 06, decision no 17.

4. Findings

Table 4

Personal Characteristics of Individuals Participating in the Research

	Number (n)	Percentage (%)
Gender		
Woman	236	55.3
Man	191	44.7
Total	427	100
Age		
25 age and under	91	21.3
Between 26-35 age	145	34.0
Between 36-45 age	133	31.1
Between 46-55 age	39	9.1
56 age and above	19	4.4
Total	427	100
Marital Status		
Married	258	60.4
Single	169	39.6
Total	427	100
Education		
High School	102	23.9
Associate Degree	105	24.6
Bachelor's Degree	150	35.1
Postgraduate	70	16.4
Total	427	100
Worked Institution		
Health Enterprise	228	53.4
Health Tourism Business	199	46.6
Total	427	100

When the distribution of health business and health tourism business employees included in the study was examined according to gender, it was determined that 55.3% (*n* = 236) of the 427 employees were women and 44.7% (*n* = 191) were men. When the distribution of employees by age groups is examined, it is seen that 21.3% (n = 91) are 25 years old and below, 34.0% (*n* = 145) are in the 26-35 age group, 34.1% (*n* = 133) are in the 36-45 age group, 9.1% (*n* = 39) are in the 46-55 age group and 4.4% (*n* = 19) are in the 56 and above age group.

It is determined statistically that most of the employees (60.4%; *n* = 258) are married and 39.6% (*n* = 169) are single. When the distribution of the employees with respect to their educational background is examined, it is seen that 23.9% (*n* = 102) have high school education, 24.6% (*n* = 105) have associate's degree, 35.1% (*n* = 150) have bachelor's degree and 16.4% (*n* = 70) have postgraduate education. When the employment status of the participants in a health enterprise or a health tourism enterprise was analyzed, it was found that 53.4% (*n* = 228) worked in a health enterprise and 46.6% (*n* = 199) worked in a health tourism enterprise.

Table 5

Descriptive Statistics of the Questions Asked to Individuals Participating in the Research

	Number (n)	Percentage (%)
Can you use the information on the internet when deciding on your health?		
Yes	268	62.8
No	159	37.2
Total	427	100
How important is it for you to access health resources on the Internet?		
Never not important	25	5.9
Not important	14	3.3
Neither important nor not important	54	12.6
Important	248	58.1
Very important	86	20.1
Total	427	100
How often do you use the internet to access Health Resources?		
Never	19	4.4
Rarely	51	11.9
Sometimes	124	29.0
Often	126	29.5
Always	107	25.1
Total	427	100

It was determined that a significant portion of the study participants (62.8%; *n* = 268) used information on the Internet when making decisions about their health, while 37.2% (*n* = 159) did not use information on the Internet during the decision phase. When the data regarding the matter of access to health sources on the internet directed to employees is examined, it is seen that the majority (78.2%; *n* = 334) find it important, 9.2% (*n* = 39) find it unimportant and 12.6% (*n* = 54) are undecided on the issue.

When the data regarding the frequency of participants' use of the internet to access health resources were examined, it was determined that 4.4% (*n* = 19) answered never, 11.9% (*n* = 51) rarely, 29.0% (*n* = 124) sometimes, 29.5% (*n* = 126) often and 25.1% (*n* = 107) always.

Table 6

Arithmetic Mean and Standard Deviation Values Regarding E-Health Literacy Scale Expressions

	Arithmetic Mean	Standard Deviation
1. "I know how to find useful health resources on the Internet"	3.82	1.13
2. "I know how to use the internet to answer my health questions"	3.95	1.18
3. "I know which health resources are on the Internet"	3.90	1.11
4. "I know where to find useful health resources on the Internet"	3.89	1.16
5. "I know how to use the health information I found on the Internet to help me"	3.87	1.05
6. "I have the skills I need to evaluate the health resources I found on the Internet"	4.22	1.07
7. "I can distinguish the high quality of health resources on the Internet from the low quality"	4.15	1.02
8. "I trust myself to use information on the internet when making health decisions"	4.16	1.10
General Average	4.00	0.94

In general, it is seen that the data related to the level of participation in the expressions of health enterprises and health tourism enterprises on the e-Health literacy scale have high averages ($\bar{x}$ = 4.00, *SD* = .94).

When the responses of the employees regarding the statements of the E-Health Literacy Scale are examined, the statements with the highest mean are; "I have the skills I need to evaluate the health resources I find on the Internet" ($\bar{x}$ = 4.22), "I am confident in using the information on the Internet when making health-related decisions" ($\bar{x}$ = 4.16) and "I can distinguish high quality health resources on the Internet from low quality ones" ($\bar{x}$ = 4.15). The statements with the lowest mean in the scale are "I know how to find useful health resources on the Internet" ($\bar{x}$ = 3.82) and "I know how to use the health information I find on the Internet to help me" ($\bar{x}$ = 3.87).

Table 7

T-Test Results Showing the Differences in Participants' e-Health Literacy Levels According to Gender

Trait	Dependent Variable	Groups	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances			*t*	*df*	Sig.
						F	Sig.			
Gender	E-Health Literacy	Woman Man	4.00 3.99	.81.65 1.0829	Equal Not equal	24.710	.000	.120 .117	425 345.885	.904

Not. n = 427, *df*: degrees of freedom, *Sig.:* Significant,
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 7 includes the T-test results conducted to define whether the arithmetic mean of the answers to the e-Health literacy scale shows a statistically importance distinction according to the gender of the employees. The independent group T-test data showed that there was no significant differences in the e-Health literacy levels of the employees by gender variable ($t = .117$, $p > .05$). In other words, it is thought that the grade of e-Health literacy is not related to being male or female.

In Table 8, one-way variance analyze (ANOVA) conducted for determining whether the arithmetic mean of the e-Health literacy scale showed a statistically importance distinction according to the age groups of the employees showed a significant difference ($F_{4\text{-}426} = 7.195$; $p < .05$). As a result of Levene's test, which was performed to define which age group caused the significant distinction detected after ANOVA, it was determined that the variances were not homogeneous for age groups (p>.05). Due to non-homogeneous variances, Tamhane's T2 Multiple Comparison Test was applied. According to Tamhane's T2 test results, it is seen that employees aged 56 and above (M = 4.70) have higher e-Health literacy levels than employees aged 25 and under (M = 3.70) and those aged 26-35 (M = 3.89). In addition, it is observed that employees aged 36-45 (M = 4.70) have higher e-Health literacy levels than employees aged 25 and under (M = 3.70). The findings obtained in general show that as the age progresses, the grade of e-Health literacy increases.

Table 8

One-Way ANOVA Test Results Showing the Differences in Employees' E-Health Literacy Levels According to Age Variable

			Descriptive Statistics			
			Age	*n*	Average	*SD*
E-Health Literacy			25 age and under	91	3.70	.63
			Between 26-35	145	3.89	1.06
			Between 36-45	133	4.18	.94
			Between 46-55	39	4.09	.91
			56 age and above	19	4.70	.50
E-Health Literacy	Variance Source	*df*	Sum of Squares	Average of Squares	*F*	Sig.
	Intergroup	4	24.230	6.057		
	Within Groups	422	355.286	.842	7.195	.000**
	Total	426	379.515			
Multiple Comparisons E-Health Literacy Tamhane's T2 Test						
(I) Age			(J) Age		Average Difference (I-J)	Sig.
25 age and under			Between 26-35 age		-.19773	.491
			Between 36-45 age		-.48930*	.001
			Between 46-55 age		-.39560	.163
			56 age and above		-1.00340*	.000
Between 26-35 age			25 age and under		.19773	.491
			Between 36-45 age		-.29157	.064
			Between 46-55 age		-.19788	.754
			56 age and above		-.80567*	.003
Between 36-45 age			25 age and under		.48930*	.001
			Between 26-35 age		.29157	.064
			Between 46-55 age		.09370	.981
			56 age and above		-.51410	.152
Between 46-55 age			25 age and under		.39560	.163
			Between 26-35 age		.19788	.754
			Between 36-45 age		-.09370	.981
			56 age and above		-.60779	.126
56 age and above			25 age and under		1.00340*	.000
			Between 26-35 age		.80567*	.003
			Between 36-45 age		.51410	.152
			Between 46-55 age		.60779	.126

Not. n = 427, *df*: degrees of freedom, *Sig.* Significant, F. F Value
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 9

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Marital Status

Trait	Dependent Variable	Groups	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances			*t*	*df*	Sig.
						F	Sig.			
Marital Status	E-Health Literacy	Married Single	4.11 3.83	.9538 .9050	Equal Not equal	.420	.517	3.046 3.079	425 372.492	.002**

Not. n = 427, *df*: degrees of freedom, *Sig.:* Significant,
* $p < .05$, ** $p < .01$, *** $p < .001$.

A T-test has been done to determine whether the arithmetic mean of the e-Health literacy scale shows a statistically significant different based on the marital status of the employees. The independent group T-test revealed a highly meaningful differences between the e-Health literacy levels of the employees based on their marital status (t = 3.046, p < .05). In line with these results, it is possible to say that the e-Health literacy levels among married employees are higher than single employees.

Table 10

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Educational Status

			Descriptive Statistics			
			Educational Status	*n*	Mean	*SD*
E-Health Literacy			High School	102	3.70	1.00
			Associate Degree	105	3.97	.77
			Bachelor's Degree	150	3.92	.94
			Postgraduate	70	4.61	.82
	Variance Source	*df*	Sum of Squares	Average of Squares	*F*	Sig.
E-Health Literacy	Intergroup	3	36.341	12.114		
	Within Groups	423	343.174	.811	14.932	.000**
	Total	426	379.515			

Multiple Comparisons E-Health Literacy Tukey Test			
(I) Education	(J) Education	Average Difference (I-J)	Sig.
High School	Associate Degree	-.26782	.143
	Bachelor's Degree	-.21711	.239
	Postgraduate	-.91008*	.000
Associate Degree	High School	.26782	.143
	Bachelor's Degree	.05071	.971
	Postgraduate	-.64226*	.000
Bachelor's Degree	High School	.21711	.239
	Associate Degree	-.05071	.971
	Postgraduate	-.69298*	.000
Postgraduate	High School	.91008*	.000
	Associate Degree	.64226*	.000
	Bachelor's Degree	.69298*	.000

Not. n = 427, *df*: degrees of freedom, *Sig.:* Significant, F.: F Value
* p < .05, ** p < .01, *** p < .001.

In accordance with Table 10, it was determined that as a result of the one-way analyses of variation (ANOVA) conducted to find out whether the arithmetical average of the e-Health literacy scale showed a meaningful difference according to the educational levels of the employees ($F_{3\text{-}426}$ = 14.932, p < .05). As a result of the Levene test performed to determine which education level the significant difference determined after ANOVA was caused by, it was determined that the variances were homogeneous for education levels (p < .05). Since the variances were homogeneous, Tukey Multiple Comparison Test was applied. According to the results of Tukey test, it is seen that employees with postgraduate education (M = 4.61) have higher e-Health literacy levels than employees with high school (M = 3.70), associate degree (M = 3.97) and undergraduate (M = 3.92) education. In the light of these findings, it is possible to say that a linear relationship exists between the increase in e-Health literacy level and educational level.

Table 11

T-Test Results Showing the Difference of the E-Health Literacy Levels of the Participants According to the Institution in which They Work

Trait	Dependent Variable	Groups	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances			*t*	*df*	Sig.
						F	Sig.			
Worked Institution	E-Health Literacy	Health Enterprise Health Tourism Business	4.25 3.70	.6961 1.0946	Equal Not equal	38.821	.000	6.284 6.105	425 326.943	.000**

Not. n = 427, *df*: degrees of freedom, *Sig.:* Significant,
* $p < .05$, ** $p < .01$, *** $p < .001$.

The results of the T-test is offered to reveal if there is a important distinction in the arithmetic mean of the e-Health literacy level scale according to the organization in which the employees work are presented in Table 11. The independent group T-test revealed that the difference between the e-Health literacy levels of the employees according to whether they work in a health enterprise or a health tourism enterprise ($t = 6.105$, $p < .05$) is statistically significant. In the light of these data, it is possible to say that the e-Health literacy literacy skills of employees working in a health enterprise are higher than those of employees working in a health tourism enterprise.

Table 12

T-Test Results Showing the Differences in Participants' E-Health Literacy Levels According to Their Internet Usage Status in Health Decisions

Trait	Dependent Variable	Groups	Arithmetic Mean	Standard Deviation	Levene's Test for Equality of Variances			*t*	*df*	Sig.
						F	Sig.			
Internet Usage	E-Health Literacy	Yes No	4.11 3.80	.8289 1.0848	Equal Not equal	20.410	.000	3.411 3.189	425 267.429	.001**

Not. n = 427, *df*: degrees of freedom, *Sig.:* Significant,
* $p < .05$, ** $p < .01$, *** $p < .001$.

A T-test was performed to define if the mean arithmetic of the e-Health literacy scale showed a significant difference according to the internet usage status of the employees in health decisions. The difference between the e-Health literacy levels of the employees according to their internet use in health decisions ($t = 3.189$, $p < .05$) was found to be statistically important as a result of the independent group T-test. In the light of these data, it is possible to say that the e-Health literacy levels among employees who prefer to utilize the internet in health decisions are higher than those who do not prefer to utilize the internet in health decisions.

5. Conclusion

E-Health literacy abilities and competencies are significant in terms of accessing accurate health-related information, improving health, and playing a role in making appropriate health care decisions. In this study, it is purposed to determine and analyze the e-Health literacy levels of health employees and health tourism employees. In this context, the study seeks answers to two questions. The first of

these; ‘What is the level of e-Health literacy of health business and health tourism business employees?’ as determined. Another; ‘Does the e-Health literacy level of health business and health tourism business employees differ according to the personal characteristics of the employees?’ is the question.

According to the data obtained from the research, it has been determined that the e-Health literacy levels of the employees in the health business are higher than the employees in the health tourism business. Our results are supported by the fact that with the spread of communication and information technology in the medical field, many health institutions and organizations have increasingly started to publish health information on the internet and the internet has become an indispensable resource for attribute health information (Alhodaib, 2022). In our findings, e-Health literacy levels of health tourism employees were found to be lower than those of health enterprise employees. However, in health tourism enterprises, many services such as health tourism, especially healthy nutrition, spa and sea water treatment for the purpose of treatment are provided. For this reason, it is one of the responsibilities of the employees to provide guests with information about these diseases and to help their treatment. In line with the data obtained, training and seminars can be given to health tourism employees to increase their e-Health literacy skills. Various activities and events can be carried out to support e-Health literacy in health tourism businesses. In addition, health literacy and e-Health literacy can be added to the course curriculum during the training periods of employees.

According to the results of the research, the grade of e-Health literacy was found to increase with increasing age. In general, it seems inevitable that there is a connection between e-Health literacy and use of technology. The greater an individuals use of technology, the greater the likelihood of developing the skills to use that technology as a tool (Norman & Skinner, 2006). In this context, given the current situation and the familiarity of young people with technology, their e-Health literacy levels are expected to be relatively better. Wang et al. (2022) find a significant correlation between age and e-Health literacy and find that older age is associated with higher e-Health literacy. Again, Shiferaw et al. (2020) found that young people use the internet more frequently in their study. However, on the basis of the findings of this study, the e-Health literacy levels of people aged 56 years and over were found to be higher. This result can be attributed to the fact that the participants have gained more experience.

In the light of the data obtained in the study, it is seen that married individuals have higher levels of e-Health literacy than single individuals. The institution of marriage adds the responsibility of thinking about the health of one's life partner as well as one's own life. If there are children in the family, this sense of responsibility increases even more. Since e-Health literacy is also created with a sense of responsibility, it is thought that married individuals have a higher level of e-Health literacy.

According to the results of the research, it is seen that the e-Health literacy levels of employees with postgraduate education are higher than those of employees with undergraduate, associate and high school education. In the light of these findings, it is possible to say that there is a linearity in the increase in the level of education and e-Health literacy level. These results are compatible with the results of Özden (2021), Tsukahara et al. (2020), Tubaishat and Habiballah (2016) and Shiferaw et al.

Research results show that the e-Health literacy levels of employees who prefer to usage the Internet for health decisions are higher than those of employees whose employees do prefer not to

utilize the Internet for health decisions. E-Health literacy is characterized as either a factor or a function of personal skills and motivation to utilize the Internet for health purposes. According to the Integrative e-Health Utilisation Model (IMeHU), individuals who have low e-Health literacy are likely to be either lower motivated to use online for health information, have lower competence, or perceive themselves as less capable of using online for health information. In other words, individuals' incentives and skills to utilise sources of online healthcare knowledge are highly likely to affect their general levels of health and computer literacy. In this context, for example, people who use online health resources are likely to have higher e-Health literacy levels (Graham & Dutta, 2008). In the responses given to the scale statements in our study, it was determined that the participants were confident in evaluating data and information about health resources when using the internet and that they could distinguish the quality of the information. However, it was also determined that they did not have sufficient information on using the health resources they could access. It is also seen that the generality of the subscribers benefit from the information on the internet in the decision-making process about their health and find access to health resources on the internet important. When evaluated in this context, it is important that the content shared on the internet, especially by health experts, is accessible and safe. The accuracy of the information shared on web pages should be reviewed and their content should be suitable for the user. For example, after providing information about the disease, no medication recommendations should be made, and it should be stated that a doctor should definitely be consulted in case of various complications.

Considering the worldwide, the rapid development of internet technology has become the most significant resource to access information. Due to the variety, abundance and ease of access to health information sources available on the Internet, people are increasingly turning to the Internet instead of health information sources such as periodicals, newspapers or doctor's offices. In addition, the privacy of some diseases, difficulties in reaching expert personnel, researching different treatment methods after consulting a doctor, or wanting to research incomprehensible subjects in a way they understand, also lead people to internet sources. It is essential to have information about health literacy in order to be efficient. Because the health field has its own terminology. When examined within the scope of e-Health literacy, it is inevitable that users need some basic knowledge in order to find reliable information sources, analyze and evaluate the information found, and apply the information obtained in real-life contexts. Because using information technology for health requires e-Health literacy, that is, reading, using computers, searching for information, understanding health information, and connecting them. E-health literacy can be understood as a combination of various literacy or information that can be used in analyzing, accessing and evaluating online health information (Alhodaib, 2022; Kim vd. 2017; Wang, 2022; Yüksel, 2024).

Today, people learn most of the information they learn from information sources such as the media and the internet. They directly apply what they have learned without any research or believe the news they hear. In order to prevent this, people need to be inquisitive and research what they learn. Being able to have research information should be a feature that is basically instilled in people. For this reason, people should be given this characteristic from an early age, especially in schools. In particular, literacy knowledge and research methods, which are expected to be added to course curricula and may vary according to departments, should be given to students. In this way, people can reach the expected level of literacy related to their professions in the future. Especially when it comes to health, literacy becomes even more important. In general, people think that they can get any

advice or information about health from any person working in a hospital. It is not very important whether the employee is a doctor, nurse, laborant, etc. In addition, the health service provided or to be provided can be offered to patients in different ways by different health professionals. For example, in the treatment process, at the point where the doctor says 'you should definitely have surgery!', another doctor may say 'there is no need for surgery, use these medications and come back in a month'. At this point, all health personnel working in hospitals are expected to have a good command of health literacy. Because health literacy can only be targeted, reasonable and meaningful when it is accurately predicted by relevant professionals. The same situation is also necessary in other businesses providing health-related services. This is because people come there either to improve or maintain their health or to be treated. Health tourism businesses are one of the sectors that serve people in this direction.

According to the result we obtained in our research, the e-Health literacy levels of health tourism employees were found to be lower than the staff working in health enterprises. The health tourism businesses surveyed were selected as hotels providing services such as spa, medical and thermal. In future studies, a research can be conducted by selecting employees of health tourism businesses that provide services in only one direction. At the same time, the research can be repeated in certain periods and improvements in the process can be monitored. Thus, the results to be obtained can become more efficient.

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