

Climate Change Awareness and Sustainable Travel Intentions: The Mediating Role of Climate Anxiety

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Abstract

Recently, climate anxiety, climate change consciousness, and the adoption of sustainable travel practices have been considered key elements of the tourism industry. In this context, the relationships between these variables have been analyzed from a holistic perspective. The purpose of the study is to determine the impact of climate awareness on the adoption of sustainable travel intentions. Moreover, the mediating role of climate anxiety in the aforementioned relationship has also been investigated in the research. 470 guests who visited Türkiye throughout 2025 were surveyed as part of the study. The data collected have been analyzed using the New Ecological Paradigm, Climate Anxiety, and Environmentally Responsible Behavior Scales. The analysis has indicated a significant positive relationship between climate awareness and sustainable travel intention. It has also been found that climate anxiety strengthens this connection. Additionally, the partial mediating role of climate anxiety in the relationship between climate awareness and behavioral intention has been determined using structural equation modeling. In addition to these, demographic analysis has revealed that female and younger participants have higher levels of climate anxiety and greater participation in sustainable travel practices. Therefore, the research highlights the crucial role of climate anxiety in the formation of sustainable behavioral intentions. In conclusion, several suggestions have been made for the stakeholders and policymakers of the tourism industry. It's of utmost importance for them to develop strategies and organize campaigns to raise awareness because, with proper guidance, climate anxiety is thought to act as a strong motivator for encouraging people to adopt sustainable practices. The study contributes theoretically to the literature on climate psychology and sustainable tourism by clarifying the awareness–emotion–behavior relationship in the tourism context; it also provides practical recommendations for destination managers and policymakers to develop communication strategies and campaigns that channel climate anxiety into encouraging low-carbon travel choices.

Key Words: sustainable tourism, climate anxiety, climate change awareness, structural equation modelling.

JEL Classification: L83, Q01, Q54

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1. Introduction

The climate crisis is a global issue that affects us all. The scientific community is unanimous in recognizing the reality of this crisis, based on clear evidence such as the continuous rise in greenhouse

gas emissions, increasing global temperatures, melting ice caps, and the frequency of extreme weather events (Gabric, 2023; Gössling & Hall, 2021; Kumar et al., 2024; Soeder, 2025; Spirkova et al., 2022). Scientific reports published in recent years reveal that we are rapidly approaching the 1.5°C warming threshold and that tourist regions such as the Mediterranean are becoming increasingly vulnerable due to heat waves, forest fires, and rising sea levels. This situation creates a current, dynamic threat scenario that directly affects both the tourism supply and tourists' perception of risk. These concrete transformations in the climate system have been reflected in individuals' awareness and behavior, arousing feelings of growing anxiety and interest in the environmental future (Baroni et al., 2025; Lui et al., 2025). In this sense, people's attitudes and reactions towards environmental crises are defined as a consequence of the relationships between the objective and psychological dimensions. And emotional knowledge (Hong & Jeon, 2025). In this study, based particularly on the Value–Belief–Norm (VBN) approach and the Theory of Planned Behavior (TPB), it is assumed that individuals' cognitive awareness of climate change is transformed into an intention to engage in sustainable travel through emotional responses such as climate anxiety.

In the studies conducted, “an individual’s ability to understand the significance of keeping the natural balance” has been defined as climate awareness (Dunlap et al., 2000; Sapovadia, 2025). When individuals have higher levels of climate awareness, they also become more sensitive to climate change-related environmental concerns (Ge et al., 2025). Due to the awareness of people regarding environmental issues, they probably experience a high level of psychological distress or anxiety. Therefore, their sensitivity includes cognitive aspects, theoretical understanding, and emotional responses (Clayton & Karazsia, 2020; Lionetti & Pluess, 2024). In this regard, the terms “climate anxiety” and “environmental anxiety” have been coined to describe the psychological state arising from individuals' feelings of helplessness in the face of the ongoing effects of climate change, a phenomenon that has recently received widespread attention (Pihkala, 2020).

Basically, tourism increases carbon emissions and contributes to the climate crisis. The industry is directly influenced by the negative environmental impacts of climate change, including rising sea levels, extreme weather conditions, and desertification. The sector is directly exposed to the negative impacts of climate change, like rising temperatures, changing weather patterns, and their effects on tourist destinations (Rawat et al., 2024; Xu & Chen, 2025), while also contributing to increased tourism carbon emissions and the climate crisis (Belias et al., 2022; Gössling & Peeters, 2015; Peeters et al., 2024). UNWTO calculates that a range of tourism activities, from air travel and hotel accommodation to ground transportation, account for approximately 8% of total global carbon emissions (UNWTO, 2019). As travelers become more aware of environmental issues and seek to adopt more sustainable practices, this awareness clearly has a tangible impact on their travel decisions, whether in choosing destinations, modes of transportation, or types of accommodation (Demiris et al., 2025). In some field research, it has been found that environmentally conscious individuals are more willing to take part in carbon offset programs since they are sensitive about environmental sustainability. Moreover, they strive to reduce their carbon footprint by choosing environmentally friendly accommodation and transportation options. In this sense, they prefer hotels that have environmental certifications or transportation with reduced emissions. Therefore, travelers' individual behaviors play a crucial role in supporting the transition to more sustainable tourism (Gomes & Lopes, 2023; Holmes et al., 2021), as every small decision can help reduce the tourism industry's overall environmental impact (Günther et al., 2020; Weaver, 2012).

Several studies were conducted on climate issues in Türkiye, and the findings revealed that people’s awareness of these issues increased considerably. Besides, a significant increase in the concerns and fears regarding the consequences and possible impacts of climate change on daily lives was also observed (Özkan, 2025). In the study carried out by Özkan, it was stated that the individuals with developed environmental consciousness made their travel arrangements considering sustainability principles. Accordingly, they preferred geographically close destinations and avoided air travel as much as possible (Özkan, 2025). However, this increased awareness does not always lead to environmentally

responsible behaviors. Some people may develop a contradictory behavior pattern known as “last chance tourism,” in which individuals travel long distances to see endangered ecosystems or natural landmarks before they disappear completely (Burrill et al., 2025; Weaver, 2012; Wosnam et al., 2022).

Thus, the relationship between individuals' climate awareness, environmental concern, and travel behavior cannot be reduced to a single simple pattern. These variables are sometimes intertwined in contradictory ways, where increased awareness can lead to more sustainable practices or, in some cases, to conflicting behaviors. In light of this, this study seeks to understand how individuals' awareness of the climate crisis, through the emotional experience of climate anxiety, influences their intentions to travel sustainably. A significant gap in the current body of literature is the tendency to assess climate awareness primarily as a cognitive construct (i.e., knowledge level), while often overlooking how the resultant anxiety translates into tangible tourist behaviors. A significant portion of extant literature treats climate concern as a secondary outcome variable and often fails to directly test how the emotional mediating mechanism between climate awareness and sustainable travel behavior operates. Therefore, testing the awareness–concern–behavior chain within a comprehensive model in the context of tourism addresses a clear gap in the literature. This research seeks to address this lacuna by clarifying the combined influence of individuals' climate awareness and anxiety on their travel intentions within the specific context of Türkiye. Therefore, this study aims to examine how individuals' awareness of the climate crisis affects their intentions to travel sustainably through climate anxiety. To this end, a survey was administered to 470 adult tourists visiting Türkiye in 2025, and climate change awareness, climate anxiety, and sustainable travel intentions were measured using validated scales. The data obtained were analyzed within the framework of a cross-sectional and quantitative research design; first, descriptive statistics and reliability analyses were performed, then the mediating role of climate anxiety was tested using structural equation modeling.

The novelty of this research stems from the fact that it is one of the few studies that test the indirect path from climate awareness to sustainable travel intention through the mediating role of climate concern, and it is strengthened by the fact that it is conducted on a sample obtained from Türkiye. The study clarifies individual-level psychological processes, addressing the awareness–emotion–behavior relationship within a comprehensive model in the literature on environmental psychology and sustainable tourism. It also conceptualizes climate anxiety not only as a negative psychological outcome but as a potential motivator that, when appropriately channeled, can encourage low-carbon travel choices. In this regard, the research offers concrete implications for the design of climate communication and sustainable tourism strategies for destination managers, tourism businesses, and national and local policymakers.

The data for this study were collected from tourists visiting a Mediterranean destination in Türkiye. However, it offers analytical generalizability for coastal regions with increasing vulnerability to the climate crisis, destinations reliant on mass tourism, and countries with similar socio-economic characteristics. However, it is also acknowledged that caution should be exercised when transferring the findings to other contexts due to cultural, economic, and institutional differences.

The following sections of the article are structured as follows: The second section presents the literature and theoretical framework related to sustainable tourism, climate awareness, climate concern, and sustainable travel intentions in detail. The third section explains the research model, data collection process, scales used, and statistical analysis methods. The fourth section reports the empirical findings, while the fifth section discusses these findings in light of the existing literature and presents theoretical and practical implications. The final section summarizes the overall findings, highlights the limitations of the study, and offers suggestions for future research.

2. Literature review and theoretical framework

The dual imperatives of sustainability and climate action have emerged as paramount concerns for the contemporary tourism sector. A well-documented reciprocal relationship exists wherein climate

change profoundly impacts tourism destinations, while the industry itself is a significant driver of global greenhouse gas emissions (Kumar & Kaushal, 2025; Lenzen et al., 2018; Liu et al., 2025; Papageorgiou, 2025; Ramaano, 2025; Scott & Gössling, 2015; UNWTO, 2019). This dynamic has prompted a surge of interest in sustainable tourism models, leading to a substantial body of research focused on tourist environmental consciousness and resulting behaviors (Bramwell & Lane, 2012; Chakraborty et al., 2024; Cohen et al., 2011; Hares et al., 2010; Robledo, 2025). Accordingly, the subsequent sections of this review will provide a detailed exploration of the core concepts of sustainable tourism, travel behavior, climate change awareness, environmental attitudes, and climate anxiety. Each concept will be situated within its relevant theoretical framework and contextualized with pivotal findings from the extant literature.

2.1 Sustainable tourism and travel behavior

The principle of sustainable tourism seeks to improve the adverse effects of the industry by integrating the economic, social, and environmental needs of both present and future populations. The World Tourism Organization (UNWTO) articulates this as a form of tourism that comprehensively addresses its current and future economic, social, and environmental impacts while fulfilling the requirements of visitors, the industry, the environment, and host communities (Hall, 2013; UNWTO, 2019). This approach pays close attention to the need to conserve natural resources, respect the cultural specificities of local communities, and ensure the long-term sustainability of tourism institutions (Bramwell & Lane, 2012; Tehseen et al., 2024; UNWTO, 2019; Chouykaew & Jirojkul, 2022). Multiple studies indicate that the tourism industry accounts for approximately 8% of global greenhouse gas emissions, with most of these emissions attributable to transportation, particularly aviation (Lenzen et al., 2018; Scott et al., 2016). These data highlight the urgent need to adopt more sustainable tourism practices and encourage travel patterns that reduce carbon footprints and support the shift towards low-emission tourism (Baxtishodovich, 2025; Becken, 2007; Cohen et al., 2011; Higham et al., 2014; Wan et al., 2025).

The behavior of tourists during their travels is a key factor in achieving sustainability goals. Sustainable tourism behavior is embodied in a set of conscious practices, most notably preferring modes of transportation that emit less carbon, staying in environmentally certified facilities, and participating in activities that preserve the natural and cultural heritage of the local community. This type of behavior is often linked to an individual's deeply held environmental values and beliefs. For example, the Value-Belief-Norm (VBN) theory proposes that personal norms guiding pro-environmental action are activated by an individual's core values and ecological beliefs (He et al., 2024; Steg & Vlek, 2009; Stern, 2000; Wani et al., 2025). Similarly, the Theory of Planned Behavior (TPB) suggests that sustainable tourism intentions and subsequent actions are shaped by a combination of attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991; Araujo et al., 2025; Han et al., 2010; Sulivyo & Dewi, 2024). In practice, tourists who hold favorable attitudes toward actions like choosing green hotels, minimizing waste, or offsetting carbon are demonstrably more inclined to adopt these practices (Han et al., 2010; Srivastava et al., 2024; Santos et al., 2025). In this context, VBN and TPB predict that intentions toward sustainable travel behaviors are shaped by individuals' values, environmental attitudes, and perceived responsibility and competence regarding climate change; therefore, climate change awareness and climate anxiety may be decisive factors in these intentions.

Nevertheless, the existing literature clearly shows that pro-environmental attitudes often fail to materialize as corresponding sustainable behaviors. Many tourists, despite voicing significant concern for environmental issues, exhibit a strong reluctance to alter their plans to fly or travel to remote destinations for leisure (Cohen et al., 2011; Dickinson et al., 2013; Hares et al., 2010; Viken & Heimtun, 2024). This discrepancy is known as the "value-action gap," a well-documented phenomenon in tourism (Juvan & Dolnicar, 2014; Kollmuss & Agyeman, 2002; Yang et al., 2025). For instance, a study by Hares et al. involving UK tourists revealed no significant change in air travel decisions among participants who were

otherwise concerned about climate change (Hares et al., 2010). Likewise, Dickinson et al. observed that high levels of climate change awareness and anxiety among Polish travelers did not translate into modifications of their vacation behaviors (Dickinson et al., 2013). This attitude-behavior disconnect is attributed to several barriers, including ingrained habits, the prioritization of comfort, a lack of viable alternative transportation, and a prevailing sense that individual actions are inconsequential (Gifford, 2011; Haider et al., 2019; Higham et al., 2014; Kollmuss & Agyeman, 2002). Hence, the value-action gap frequently emphasized in sustainable tourism literature is closely related not only to structural barriers but also to the complex interaction between individuals' cognitive awareness of climate change and the emotional responses triggered by this awareness (e.g., climate anxiety). Therefore, to advance the goals of sustainable tourism, awareness-raising alone is inadequate; it is essential to also implement policies, educational initiatives, and structural changes that actively facilitate and encourage behavioral shifts among travelers (Gössling et al., 2012; Hall, 2013; Talukder et al., 2024).

2.2 Climate change awareness and environmental attitudes

Climate change awareness can be understood as an individual's informed understanding of the reality, origins, and implications of a changing global climate (Reser et al., 2014; Streimikiene & Stankuniene, 2024). While global studies confirm that public consciousness of this issue has risen, its distribution is highly uneven across different nations and socio-demographic cohorts (Capstick et al., 2015; T. M. Lee et al., 2015). For example, a comprehensive Gallup poll across 119 countries found that awareness levels exceeded 90% in affluent regions like North America, Europe, and Japan. In contrast, in some low-income nations, a substantial segment of the population remained uninformed about the topic (T. M. Lee et al., 2015). The primary determinants of this awareness were identified as an individual's level of education, access to media, and degree of civic engagement (Hornsey et al., 2016; T. M. Lee et al., 2015). In the context of developing nations such as Türkiye, general awareness is on the rise, yet gaps persist in scientific literacy and the perception of associated risks. Particularly in sectors such as tourism that are highly dependent on climate, these disparities in awareness and risk perception can directly influence individuals' travel decisions and their tendency to opt for sustainable alternatives.

Environmental attitudes refer to an individual's overall dispositions, sensitivities, and value-based judgments concerning the natural world (Castillo-Plaza et al., 2025; Milfont, 2012). A general trend observed is that as climate change awareness grows, so too do feelings of environmental anxiety and personal responsibility (Bouman et al., 2020; Milfont, 2012; Morrison, 2025; O'Connor et al., 1999). The existing literature corroborates this, indicating that individuals with a robust comprehension of climate change tend to view environmental problems as more severe threats and are more inclined to support pro-environmental policies (Hornsey et al., 2016; T. M. Lee et al., 2015; Shi et al., 2016; Skeiryte, et al., 2022). To illustrate, one study found that those with high climate change awareness were significantly more likely than their less-aware counterparts to advocate for policies such as renewable energy development, carbon taxation, or forest preservation (Tjernström & Tietenberg, 2008), suggesting a positive correlation between knowledge and environmental stance. These attitudes are frequently measured using instruments like the New Ecological Paradigm (NEP) scale, with recent findings pointing to a broader societal shift toward more ecocentric (nature-centered) values (Dunlap et al., 2000; Löffström et al., 2025). Therefore, increased awareness of climate change not only leads to stronger environmental attitudes; it is also associated with a marked rise in climate anxiety, a sense of personal responsibility, and a tendency to support climate policies or sustainable lifestyles.

Several theoretical models have been proposed to explain the process by which climate awareness and attitudes are converted into tangible behavior. The Theory of Planned Behavior suggests that positive environmental attitudes, when combined with supportive social norms and a sense of personal control, strengthen an individual's intention to act sustainably (Ajzen, 1991; Camacho et al., 2025; Han et al., 2010; Jieyao et al., 2025). The Value-Belief-Norm theory, on the other hand, posits that fundamental values

shape an ecological worldview, which in turn activates a sense of personal responsibility (a norm) that drives pro-environmental action (Khan et al., 2025; Steg & Vlek, 2009; Stern, 2000).

These frameworks highlight that for awareness to translate into action, specific psychosocial conditions must be met. Critically, possessing concern or awareness about climate change is a necessary but often insufficient precondition for individual behavioral change (Gifford, 2011; Kollmuss & Agyeman, 2002; Tam & Chan, 2017). Although a large segment of individuals recognizes the seriousness of climate change, many still face significant difficulties in adjusting their daily lifestyles to reduce carbon emissions. This gap is attributable to a range of psychological and behavioral factors, such as a lack of practical knowledge about how to take effective action, economic pressures, attachment to familiar habits, and viewing climate change as a distant or intangible issue (Gifford, 2011; Lorenzoni et al., 2007). Therefore, raising public awareness and promoting positive attitudes toward the environment are essential prerequisites for achieving sustainable transformation, but they are not sufficient unless supported by practical mechanisms—such as educational initiatives, targeted awareness campaigns, and institutional reforms—that can bridge the gap between good environmental intentions and actual practices on the ground (Kollmuss & Agyeman, 2002).

In the context of tourism, climate change awareness and accompanying environmental attitudes create a cognitive and emotional foundation that can directly shape individuals' decisions regarding destination selection, travel frequency, transportation preferences, and accommodation types. A higher level of awareness can sometimes increase climate anxiety, leading to the questioning of carbon-intensive travel habits, while at other times it can create a restlessness that does not translate into action because this anxiety becomes paralyzing. This dual dynamic makes it particularly important to examine the relationship between climate awareness and sustainable travel intentions through emotional mediating variables such as climate anxiety.

2.3 Climate anxiety and psychological dimensions

Climate anxiety is defined as an individual experiencing persistent feelings of worry, fear, and helplessness regarding the current and future impacts of climate change and is sometimes discussed alongside the concepts of environmental anxiety or eco-anxiety (Bouman et al., 2020; Clayton, 2020; Clayton et al., 2017; Pihkala, 2020). Recent studies show that climate anxiety is closely related not only to the level of knowledge about climate change but also to the perceived threat, sense of control, and perception of justice regarding the possible consequences for the individual and their immediate environment; it strongly affects the perceptions of identity, future plans, and meaning of life, especially among younger generations (Cunsolo & Ellis, 2018; Doherty & Clayton, 2011; Hickman et al., 2021; Clayton, 2020).

Climate anxiety is one of the most prominent psychological repercussions of the contemporary environmental crisis. It is not a passing fear, but rather an existential experience that permeates the consciousness of people today. Climate anxiety has a complex and multifaceted psychological profile, arising not from a single factor but from the interaction of intertwined and overlapping emotions. On the one hand, this anxiety manifests itself in a deep sense of fear and sadness about environmental degradation and a sense of an uncertain and unpredictable future. On the other hand, it is linked to relatively new concepts such as “ecological grief” and “slasthalia”, a state of psychological distress resulting from negative environmental changes that cause people to lose their sense of stability and belonging (Cunsolo & Ellis, 2018; Pihkala, 2020). The effects of this anxiety are not limited to the emotional aspect but extend to daily behavior and cognitive functions. People who suffer from it face multiple difficulties: sleep disturbances, poor concentration, a tendency toward pessimism, and recurring thoughts that are difficult to control. They may also experience acute episodes of fear that resemble panic attacks in their intensity and impact (Clayton, 2020; Doherty & Clayton, 2011). These symptoms show that climate anxiety is not limited to awareness of the environmental problem but goes beyond it to

become a comprehensive psychological experience that affects both the body and the mind. From a deeper psychological perspective, this anxiety can be understood as an interaction between feelings of loss and fear. Grief over current environmental losses is mixed with persistent fears of catastrophic future scenarios. This overlap between the lost past and the unknown future is what gives climate anxiety its unique and complex character (Clayton, 2020; Cunsolo & Ellis, 2018; Mateer, 2024). Thus, climate anxiety is not merely an emotional response, but rather a reflection of a new environmental consciousness that forces humans to rethink their relationship with the natural world and the limits of their ability to cope with the transformations that threaten their very existence.

Climate anxiety reveals another aspect that is no less important than fear or sadness, namely, collective anger and frustration. This anxiety is often linked to feelings of resentment and mounting anger, particularly among young people who see their future threatened by the lack of serious action. Many express feelings of betrayal or neglect toward governments and corporations, which they accuse of failing to deal responsibly with the environmental crisis (Hickman et al., 2021; Sanson et al., 2019). This feeling is exacerbated by constant media coverage of climate events, which broadcasts news of disasters and environmental disturbances around the clock. The tangible effects of climate change—such as forest fires, floods, and unprecedented temperature rises—further deepen this sense of helplessness and anger (Clayton, 2020). Climate anxiety thus transforms from an internal fear into a complex social and psychological response, combining awareness of the danger with a sense of injustice about its causes.

The effects of climate anxiety at both the individual and societal levels paint a complex picture, capable of producing both adaptive and maladaptive outcomes. Moderate levels of anxiety can encourage individuals to understand the seriousness of the climate crisis, take responsibility, and engage in environmentally conscious behaviors such as energy conservation, consumption reduction, or participation in political processes (Poonamallee, 2025; Verplanken et al., 2020; Clayton, 2020; Heeren et al., 2022). However, when anxiety becomes too intense or chronic, the constant perception of threat can increase feelings of hopelessness and exhaustion, leading some individuals to avoid, deny, mentally distance themselves, or become inactive based on the belief that “nothing will change” (Cunsolo & Ellis, 2018; Clayton et al., 2017; Doherty & Clayton, 2011; Hickman et al., 2021; Clayton, 2020).

As a result, climate anxiety is emerging as a prominent and common psychological reaction to the current environmental crisis. Its intersection with psychology and tourism is particularly noteworthy, highlighting a need for interdisciplinary research and policy to address its far-reaching effects. An individual’s sustainable tourism practices are shaped by a confluence of cognitive awareness, environmental values, and these powerful emotional responses. The consensus in the literature is that climate anxiety should not be treated merely as a pathology to be eliminated. Instead, the focus should be on developing effective coping mechanisms and providing robust social support to channel this anxiety into constructive action (Clayton, 2020; Clayton et al., 2017; Mateer, 2024). In doing so, within both tourism and the broader sustainability movement, heightened anxiety can be transformed into meaningful behavioral change and effective policy advocacy (Hickman et al., 2021; Ogunbode et al., 2022; Verplanken et al., 2020).

In the context of tourism, climate concern is emerging as a powerful driving force that can steer individuals toward sustainable choices such as reducing air travel, opting for closer destinations, or seeking eco-friendly accommodation options. On the other hand, when concerns reach excessive and unmanageable levels, individuals may exhibit indecision, avoidance, or passivity in their travel decisions, thinking that “nothing will change anyway.” This dual dynamic makes it particularly important to empirically test the impact of climate anxiety on sustainable travel intentions and its potential mediating role in the relationship between climate awareness and behavior.

2.4 Relationships between climate awareness, anxiety, and travel behavior

Climate change is a multifaceted challenge, extending beyond its environmental consequences to encompass significant psychological and behavioral dimensions (Clayton, 2020). The attitudes and

actions individuals adopt in response to this global crisis are fundamentally shaped by their level of awareness and the subsequent emotional responses this knowledge provokes (Dunlap et al., 2000; Pihkala, 2020). In this context, the interplay between climate awareness and climate anxiety has been identified as a critical factor influencing tourist decision-making. The following review will, therefore, synthesize the literature to examine these three concepts and clarify the relationships between them, drawing upon both theoretical frameworks and empirical findings.

2.4.1 Climate awareness and climate anxiety

Climate awareness is one of the fundamental pillars of human understanding of the relationship between humans and their environment. It reflects the extent to which individuals understand the causes and effects of climate change and the possible solutions to deal with it (Dunlap et al., 2000). A higher level of awareness usually contributes to a deeper understanding of environmental challenges, which in turn reinforces a sense of responsibility towards the environment and encourages more sustainable behaviors (Ojaghlou & Uğurlu, 2023; Özkara & Elmaz, 2024). However, this increased awareness is not without psychological consequences. The more individuals realize the scale and complexity of the crisis, the more they feel the weight of responsibility and the difficulty of confronting it. The abstract and complex nature of global environmental issues—chief among them climate change—can create a growing psychological burden for individuals, as these problems sometimes seem beyond the capacity of any single person to solve or fully understand. Clayton and Karazsia have pointed out that increased awareness of these issues is often associated with higher levels of anxiety and psychological stress (Clayton & Karazsia, 2020). It can therefore be stated that climate awareness, despite its importance in motivating environmental action, carries with it a psychological paradox: it opens the door to understanding and change, but at the same time deepens feelings of helplessness and anxiety about the future.

Delineating this psychological response, Clayton (2020) observes that climate change can evoke profound feelings of uncertainty and helplessness, potentially leading to the condition known as “eco-anxiety” (Clayton, 2020). In contrast, Pihkala argues that climate anxiety should not be viewed solely as a negative emotion, proposing that it can also serve as a powerful catalyst that motivates individuals toward action (Pihkala, 2020). Thus, a greater awareness of the climate crisis can simultaneously sharpen an individual's sensitivity to environmental issues while inducing a state of increased psychological tension.

These dynamics have been confirmed by academic studies conducted in Türkiye. Özkan's study, which reveals a significant positive correlation between high climate awareness and increased climate anxiety, indicates that this trend is notably more pronounced among younger generations (Özkan, 2025). In a similar study, Özkara and Elmas found that individuals who report high levels of eco-anxiety are more likely to engage in environmentally friendly behaviors, even though these behaviors sometimes jeopardize their personal well-being (Özkara & Elmaz, 2024). These findings reinforce the direct and positive relationship between an individual's awareness of the climate crisis and their experience of climate-oriented anxiety. Based on these findings, this study assumes that the level of climate awareness is positively related to climate concern and tests this empirically under the H1 hypothesis.

2.4.2 Climate anxiety and travel behaviors

Climate anxiety can influence travel behavior in several different and sometimes even contradictory ways. Increased anxiety, due to the well-documented role of air travel in the climate crisis and carbon emissions, may reduce the appeal of long-distance travel in particular (UNWTO, 2019). For example, Demiris et al. found that members of Generation Y with high climate anxiety tend to shift toward more sustainable transportation methods such as public transport, cycling, or walking, rather than

totally eliminating travel habits (Demiris et al., 2025). This indicates that anxiety may function as a transformative catalyst, directing individuals toward more sustainable travel practices rather than resulting in the complete abandonment of travel.

On the other hand, ironically, climate anxiety can also strengthen the travel motivation of some individuals. This situation is most clearly observed in the behavior model known as “last chance tourism,” which encourages individuals who want to see threatened natural environments before they disappear to embark on long-distance, high-emission trips (Weaver, 2012). In the study carried out by Özkan in the context of Türkiye in 2025, he stated that the aforementioned motivation is a particularly important factor in the travel plans of young individuals (Özkan, 2025).

Furthermore, even when travel frequency remains unchanged, climate anxiety can alter destination preferences. Gössling and Hall reported that individuals with heightened climate anxiety are more inclined to choose local or regional destinations, thereby avoiding long-haul flights (Gössling & Hall, 2021). In this manner, climate anxiety has the potential to encourage the adoption of local and nature-oriented travel patterns, which are inherently associated with a lower carbon footprint. Therefore, this study predicts that climate concern will be positively related to sustainable travel intentions and will strengthen individuals' orientation toward lower-carbon transportation and accommodation options; this expectation is tested under hypothesis H3.

2.4.3 Climate awareness and travel behaviors

The connection between climate awareness and travel practices has been extensively explored in academic literature. Studies consistently show that individuals with a high degree of environmental consciousness demonstrate a greater propensity for engaging in carbon offset programs, selecting sustainable accommodations, and choosing transportation methods with a lower environmental impact, even when their travel frequency is not reduced (UNWTO, 2019; Weaver, 2012). In their research on Generation Y, Demiris and colleagues similarly observed that a heightened climate awareness steers individuals toward more environmentally responsible options (Demiris et al., 2025).

It is crucial to note, however, that awareness does not automatically translate into action. Despite being concerned about climate change, individuals may opt for less sustainable choices due to overriding economic, cultural, or social factors. Pihkala introduced the term “value-action gap” to describe this phenomenon, where a psychological understanding of a problem does not lead to the corresponding behavioral response needed to address it (Pihkala, 2020). This discrepancy between awareness and behavior is particularly pronounced among low-income populations, a gap often attributed to the prohibitive cost of many sustainable travel alternatives. Based on this, it is assumed that individuals with higher climate awareness will also have a higher intention to travel sustainably, and that there will be a positive relationship between climate awareness and sustainable travel intentions; this relationship is concretized in hypothesis H2.

2.4.4 Analytical perspective and orientations

The existing literature largely affirms a positive correlation between climate awareness and climate anxiety, with awareness exerting a complex influence on travel behavior. An elevated understanding of environmental issues can concurrently foster pro-environmental actions in some individuals while provoking feelings of anxiety in others. This dynamic is further complicated by a paradoxical effect, wherein heightened awareness can sometimes lead to an increased desire to travel (Clayton, 2020; Özkan, 2025).

In the context of Türkiye, both heightened awareness and anxiety are particularly prominent among younger demographics. This cohort may simultaneously display a tendency toward making ecologically responsible travel choices and an inclination for “last-chance tourism” (Özkan, 2025; Özkara

& Elmaz, 2024). However, there remains a notable scarcity of research that examines awareness and anxiety in conjunction to determine their combined impact on individuals' intentions for sustainable tourism.

Addressing this gap, the present study is designed to empirically investigate the relationships among climate awareness, climate anxiety, and sustainable travel intentions within a Turkish sample, guided by the framework established in the literature. A core objective is to determine whether climate anxiety mediates the relationship between awareness and travel intentions. Consequently, this research aims to contribute to the theoretical foundations of environmental psychology and consumer behavior while also generating actionable insights for the tourism industry. Based on these theoretical and empirical findings, this study hypothesizes that climate anxiety plays a mediating role in the relationship between climate awareness and sustainable travel intention (H4) and that climate anxiety and sustainable travel intentions differ significantly by gender (H5). These hypotheses are tested within the research model developed in the following section.

2.5 Research model and hypotheses

The research model presented in this section is structured based on the VBN approach and the TPB, which have been highlighted in previous theoretical discussions. Accordingly, climate awareness is considered the primary independent variable, representing individuals' knowledge about the climate crisis and their cognitive assessments of the scope of the threat; climate anxiety is considered the mediating variable, reflecting the emotional response triggered by this awareness. Sustainable travel intention is the dependent variable, expressing the behavioral tendency shaped by these cognitive and emotional processes. The model also considers potential gender differences in climate concern and sustainable travel intention, as indicated by previous research, as an analytical focus point. Climate awareness involves an understanding of how climate change personally affects one's life, enabling more informed decision-making on environmental matters (Dunlap et al., 2000). Existing literature suggests that this cognitive awareness can trigger a psychological state known as climate anxiety, which subsequently acts as a catalyst for individuals to adopt more environmentally friendly behaviors (Clayton & Karazsia, 2020; Pihkala, 2020).

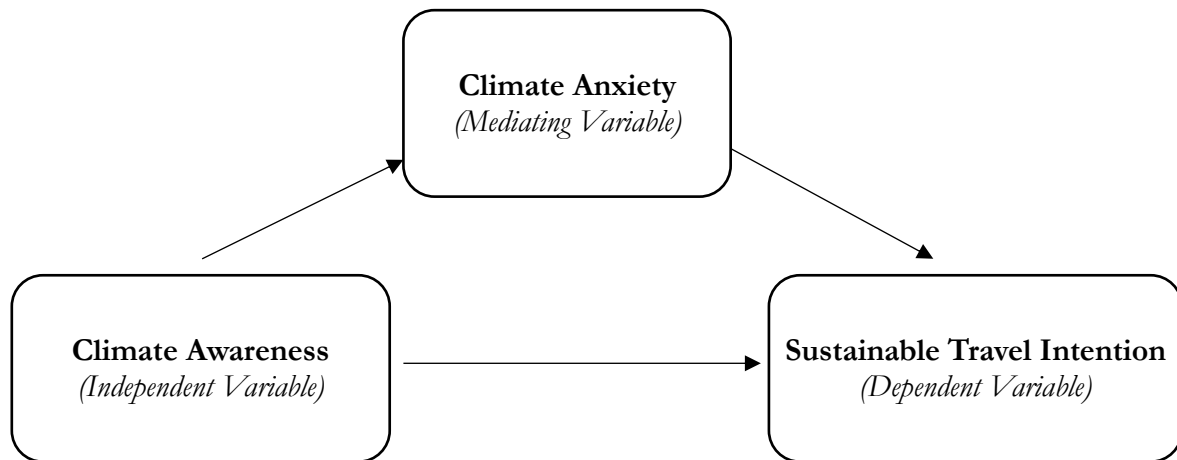
However, the path from awareness to behavior is not always linear. Anxiety, as a potent emotional response, is known to mediate this relationship (Clayton, 2020). A high degree of awareness can have a dichotomous effect: it can either motivate individuals to act on their behavioral intentions or, if the anxiety becomes overwhelming, lead to avoidance behaviors (Hoggett, 2019; Özkan, 2025). It is therefore proffered that the influence of awareness on behavior may be indirect, channeled through the experience of climate anxiety (Özkara & Elmaz, 2024).

Research within the tourism sector corroborates these findings, showing that individuals with a strong environmental consciousness are more predisposed to engage in sustainable practices. This tendency is often amplified by the emotional response of anxiety (Demiris et al., 2025; Weaver, 2012). For instance, Gössling and Hall observed that highly aware individuals tend to prefer local destinations, undertake shorter journeys, and participate in carbon offset initiatives (Gössling & Hall, 2021).

Building on this framework, the present study puts forward a model that explicitly examines the mediating role of climate anxiety in the relationship between climate awareness and sustainable travel intention. This model is constructed around these three principal variables:

- Climate awareness (independent variable)
- Climate anxiety (mediating variable)
- Sustainable travel intention (dependent variable)

Figure 1. Research model



Source: Authors' own elaboration

The proposed model can be summarized as follows:

The heightened awareness of climate change has been shown to engender a corresponding increase in climate anxiety, thereby strengthening individuals' intentions to travel sustainably.

As discussed in the previous subsections, climate awareness can shape individuals' cognitive assessments of the severity, causes, and consequences of the climate crisis, thereby increasing their levels of climate anxiety; and this emotional response can influence both their intentions to travel sustainably and their orientation toward lower-carbon transportation and accommodation choices (Clayton & Karazsia, 2020; Pihkala, 2020; Verplanken et al., 2020; Van Valkengoed et al., 2023). Additionally, the literature indicates that higher climate awareness and environmental attitudes are generally associated with stronger sustainable behavior intentions; women, in particular, report higher environmental concern and a greater tendency toward climate-friendly behavior compared to men (Gifford, 2011; Higham et al., 2014; Löfström et al., 2025; Stober, 2019). These findings theoretically justify the study's testing of direct relationships between climate awareness and climate concern, the effect of climate concern on sustainable travel intentions, the possible mediating role in the awareness–intention relationship, and gender-based differences in all these variables at the hypothesis level. Accordingly, the following hypotheses have been developed:

- H1: There is a positive relationship between climate awareness and climate anxiety.
- H2: There is a positive relationship between climate awareness and sustainable travel intentions.
- H3: There is a positive correlation between climate anxiety and sustainable travel intentions.
- H4: Climate anxiety mediates the relationship between climate change awareness and sustainable travel intentions.
- H5: Climate anxiety and sustainable travel intentions significantly differ by gender.

In this study, the mediating effect of climate anxiety was analyzed in the axis of the relationship between climate awareness and sustainable travel intentions.

Accordingly, in the research model, climate awareness is positioned as the primary independent variable, climate concern as the mediating variable, and sustainable travel intention as the dependent variable; gender is treated as a group variable to examine potential differences in these relationships. The formulation of these hypotheses is grounded in a synthesis of several theoretical domains, integrating insights from climate psychology (Clayton, 2020; Pihkala, 2020), environmental behavior (Dunlap et al., 2000; Özkara & Elmaz, 2024), and tourism research (Gössling & Peeters, 2015; Weaver, 2012). In the subsequent phase of this study, the proposed model will be empirically tested to investigate the influence of climate awareness and anxiety on the travel preferences of tourists in Türkiye.

3. Method

This section presents the methodological framework of the study. The study design, sample, data collection process, scales used, and analysis techniques are explained systematically, clarifying the assumptions and limitations underlying the interpretation and generalizability of the findings. This structure aims to test the relationships between variables in a reliable and valid manner, consistent with quantitative research standards.

3.1 Research design

This study adopts a cross-sectional, quantitative, and explanatory design to examine the relationships between climate awareness, climate anxiety, and sustainable travel intentions. Data were collected at a single point in time through a structured questionnaire, and direct and indirect relationships between variables were tested using structural equation modeling (SEM). This design provides an appropriate framework for testing the previously developed theoretical model and simultaneously evaluating the possible mediating role of climate anxiety.

3.2 Sample and data collection process

This study targeted adults in Türkiye who had traveled for tourism purposes at least once in the past three years. The research data were collected using a convenience sampling method via an online survey form; the survey link was shared on various social media platforms and travel-focused online groups. A total of 470 valid surveys were included in the analysis. This sample size exceeds the minimum level recommended for structural equation modeling and allows for reliable estimations when considering the number of parameters in the model (Hair et al., 2019; Kline, 2016). However, the fact that the sample consists of participants from a single country and volunteers should be considered a factor limiting the generalizability of the findings to other contexts.

3.3 Scales and measurement tools

Data was collected via a structured questionnaire divided into three main sections: demographic information, climate awareness, and measuring sustainable travel intentions. This division helped simplify responses and ensure accurate and reliable data collection.

- **Climate Awareness:** The Turkish adaptation of the New Ecological Paradigm (NEP) scale (5) was employed in this study (Bektaş & Şirin, 2018). The scale under consideration consists of 15 items and a 5-point Likert-type response scale. The objective of the study is to assess environmental attitudes and awareness. This choice is consistent with the structure of the NEP, which aims to capture cognitive assessments of the seriousness of environmental problems, human–nature relationships, and ecological limits (Dunlap et al., 2000; Milfont, 2012). Similarly, previous studies using indicators derived from the NEP in the context of sustainable tourism and environmental responsibility have shown that such items are effective in explaining individuals' environmental awareness and attitudes (Becken, 2007; Lee et al., 2013).
- **Climate Anxiety:** The scale consists of items covering symptoms such as constant anxiety about the climate crisis, difficulty sleeping and concentrating, helplessness, and pessimism about the future (Clayton & Karazsia, 2020). Using a five-point Likert-type response category (1 = strongly disagree, 5 = strongly agree), this measure aims to capture both the emotional and cognitive dimensions of climate anxiety (Hickman et al., 2021; Pihkala, 2020). Recent studies have shown that similar scales have been successfully used to examine the relationships between climate

anxiety and environmental behaviors and sustainability orientations (Özkara & Elmaz, 2024; Pinho, 2025).

- Sustainable Travel Intention: This scale consists of items that measure participants' intentions to choose eco-friendly accommodation businesses in the future, opt for low-carbon transportation options, and consider environmental impacts in their travel plans. All items are rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree), and higher scale scores indicate stronger sustainable travel intentions. Similar scales measuring environmentally responsible travel intentions have been successfully used in the tourism literature before; they have been tested particularly in relation to accommodation and transportation preferences, green hotel selection, and perceptions of sustainable destinations (Han et al., 2010; Lee et al., 2013; Dickinson et al., 2013).

Tests showed that all measures used in the study, including the new environmental model, climate anxiety, and sustainable travel behavior, had high reliability and internal consistency, making them suitable for use in this research (Hair et al., 2019; Nunnally & Bernstein, 1994).

3.4 Analysis methods

Data analysis was conducted using SPSS 29 and AMOS 24 software. The analytical process began with preliminary analyses, including the calculation of descriptive statistics and tests for normality. Subsequently, the reliability of the measurement instruments was assessed using Cronbach's alpha coefficients, while their construct validity was confirmed through Confirmatory Factor Analysis (CFA).

The research model was analyzed using SEM to study the direct and indirect effects of the variables, focusing on the role of the mediating variable using the Sobel and bootstrap tests. A significance level of 0.05 was adopted, and the results were presented to clarify which hypotheses were supported and which were rejected.

During the analysis process, missing data, outliers, and the normality assumption were first checked. Following descriptive statistics, confirmatory factor analysis (CFA) was applied to test the validity of the measurement model, and it was confirmed that the fit indices were within acceptable limits (Hair et al., 2019; Hu & Bentler, 1999; Kline, 2016). Subsequently, structural equation modeling was used to test the direct effects of climate awareness on climate concern and sustainable travel intention, the mediating role of climate concern, and the path coefficients predicted in the hypotheses. The bootstrap method was used to assess the mediating effect, and additional comparative analyses (independent-samples t-test, ANOVA, and SEM with control variables) were conducted to examine gender differences.

4. Findings

This section presents the results of the descriptive analysis of the sample, including demographic characteristics, means, and standard deviations of the variables, followed by an assessment of the reliability and validity of the scales using Cronbach's alpha and confirmatory factor analysis (CFA). Next, the research hypotheses were tested using structural equation modeling (SEM) to examine the direct and indirect relationships among climate awareness, climate anxiety, and sustainable travel intention, with supplementary analyses and contextualization of the results within the current literature.

4.1 Descriptive statistics

This section presents descriptive statistics for the characteristics of the sample of 470 participants, including age, gender, educational level, income bracket, number of trips taken in the past year, preferred

type of accommodation, and employment status. Furthermore, the mean (M), standard deviation (SD), minimum, and maximum values for the three primary scales (NEP, Climate Anxiety, and Environmentally Responsible Tourism Behavior) are reported. These analyses illustrate the profile of the sample and the general trends of the scales.

Table 1. Demographic characteristics of participants (N=470)

Variable	Categories	Frequency (n)	Percentage (%)
Gender	Female / Male	255 / 215	54.3 / 45.7
Age	18–25 / 26–35 / 36–45 / 46+	120 / 190 / 110 / 50	25.5 / 40.4 / 23.4 / 10.6
Education Level	High School / Associate / Bachelor / Master+	50 / 80 / 220 / 120	10.6 / 17.0 / 46.8 / 25.6
Monthly Income (TL)	0–5.000 / 5.001–10.000 / 10.001–15.000 / 15.001–20.000 / 20.001+	90 / 140 / 120 / 70 / 50	19.1 / 29.8 / 25.5 / 14.9 / 10.6
Travel Frequency (last year)	0 / 1–2 / 3–4 / 5+	40 / 180 / 160 / 90	8.5 / 38.3 / 34.0 / 19.1
Preferred Accommodation	Hotel / Resort / Hostel / Airbnb / Family-Home / Camping / Other	200 / 60 / 40 / 50 / 80 / 30 / 10	42.6 / 12.8 / 8.5 / 10.6 / 17.0 / 6.4 / 2.1
Occupation Status	Student / Employed / Unemployed / Retired / Other	140 / 250 / 40 / 20 / 20	29.8 / 53.2 / 8.5 / 4.3 / 4.3

Source: Authors' own elaboration

As indicated in Table 1, 54% of the participants identified as female and 46% as male. The largest proportion of the sample consists of individuals aged 26–35 (40.4%). The educational attainment of the population under study is predominantly baccalaureate (46.8%) and postgraduate (25.6%) degrees. The majority of the income distribution is concentrated in the middle-income group, which receives between 5,001 and 15,000 TL. The data indicates that approximately 72% of the participants have traveled at least once in the last year, while 34% have traveled more than three times. Hotels represent the preferred accommodation option, with eco-friendly accommodation also being selected to a certain extent.

Table 2. Descriptive statistics of scales

Scale	Items (n)	M	SD	Min	Max
New Ecological Paradigm (NEP)	15	3.72	0.65	1	5
Climate Anxiety Scale	13	3.15	0.78	1	5
Environmentally Responsible Tourism Behavior	4	3.82	0.91	1	7

Source: Authors' own elaboration

The results indicate that participants demonstrated moderate to high climate awareness (NEP, $M=3.72$), with a moderate level of anxiety about climate change ($M=3.15$), while their sustainable travel practices were very high ($M=3.82$). These values reflect a consistency between their awareness and anxiety for the climate and their actual travel behavior.

4.2 Reliability and validity analyses

This section presents the results of the reliability and validity analysis of the three basic measures in the study, where internal consistency was examined using Cronbach's alpha coefficients, and construct validity was verified through confirmatory factor analysis (CFA), with convergent validity assessed using composite reliability (CR) and average variance explained (AVE) values.

Table 3. Reliability and convergent validity results

Scale	Cronbach's α	CR	AVE	Factor Loadings
New Ecological Paradigm (NEP)	0.81	0.84	0.52	0.63 – 0.78
Climate Anxiety Scale	0.86	0.88	0.56	0.65 – 0.82
Environmentally Responsible Tourism Behavior	0.79	0.82	0.51	0.61 – 0.76

Source: Authors' own elaboration

The internal consistency of the scales is indicated by Cronbach's alpha coefficients, which demonstrate that the internal consistency of the scales is at an acceptable level. The alpha coefficient for the NEP scale was 0.81, 0.86 for the Climate Anxiety Scale, and 0.79 for the Environmentally Responsible Tourism Behavior Scale. These values exceed the 0.70 threshold recommended by Nunnally and Bernstein (1994), indicating a high level of reliability (Hair et al., 2019; Kline, 2016; Nunnally & Bernstein, 1994).

Table 4. Confirmatory factor analysis (CFA) model fit indices

Model	χ^2/df	CFI	TLI	RMSEA	SRMR
Three-Factor Model	2.41	0.95	0.94	0.054	0.045

Source: Authors' own elaboration

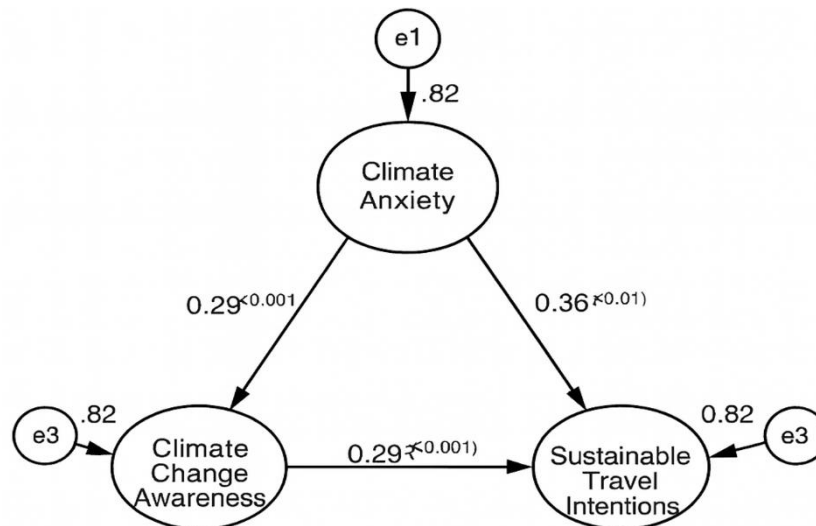
The CFA results indicated an adequate fit of the three-factor structure of the scales. The model fit indices were as follows: The results of the analysis yielded the following indices: $\chi^2/df = 2.41$, CFI = 0.95, TLI = 0.94, RMSEA = 0.054, SRMR = 0.045. These values are consistent with the acceptable fit limits proposed in the extant literature (CFI and TLI > 0.90; RMSEA and SRMR < 0.08) (Hair et al., 2019; Hu & Bentler, 1999; Kline, 2016).

In terms of convergent validity, all factor loadings were above 0.60, CR values ranged from 0.82 to 0.88, and AVE values ranged from 0.51 to 0.56. These results indicate that the scales possess structural validity (Fornell & Larcker, 1981; Hair et al., 2019). The reliability coefficients of the scales are high, the DFA fit indices are above the recommended thresholds, and the AVE-CR values are acceptable. These results provide substantial evidence to support the validity and reliability of the scales.

4.3 Model testing and hypothesis results

This section presents the results of testing the proposed mediation model using structural equation modeling (SEM). The analysis focuses on examining the effect of climate awareness on sustainable travel intention, with climate anxiety as a mediating variable. All analyses were conducted using AMOS 24 software.

Figure 2 SEM Results of Research Model



$$\chi^2/df: {}^{18} CFI) = 0.94$$

$$TLI = 0.93 \quad TLI =$$

$$RMSEA = 0.056 \quad SR = .047$$

Source: Authors' own elaboration

A thorough examination of the model fit indices revealed that the model exhibited a satisfactory fit to the data ($\chi^2/df = 2.58$; $CFI = 0.94$; $TLI = 0.93$; $RMSEA = 0.056$; $SRMR = 0.047$). These values exceed the threshold values accepted in the extant literature (CFI and $TLI > 0.90$; $RMSEA$ and $SRMR < 0.08$), thereby confirming the model's suitability (Hair et al., 2019; Hu & Bentler, 1999; Kline, 2016).

According to the results of the SEM:

- H1: Climate awareness has a positive and significant effect on climate anxiety ($\beta = 0.42$, $p < 0.001$).
- H2: Climate awareness has a direct positive effect on sustainable travel intention ($\beta = 0.29$, $p < 0.01$).
- H3: Climate anxiety has a positive and significant effect on sustainable travel intention ($\beta = 0.36$, $p < 0.001$).
- H4: Climate anxiety plays a partial mediating role in the relationship between climate awareness and sustainable travel intention (indirect effect $\beta = 0.15$, bootstrap CI [0.08–0.24], $p < 0.01$).

These results reveal that climate awareness affects sustainable travel intention both directly and indirectly through climate anxiety. These findings support the hypothesis that there is a positive relationship between climate awareness and climate concern (H1), a direct relationship between climate awareness and sustainable travel intention (H2), a positive effect of climate concern on sustainable travel intention (H3), and that climate concern plays a significant mediating role in the relationship between climate awareness and sustainable travel intention (H4).

4.4 Additional analyses

This section presents supplementary analyses that extend beyond the fundamental framework of hypothesis testing. Initially, a series of group analyses was conducted to evaluate the impact of demographic variables (e.g., age, gender, education, and income) on the research variables. In this study, additional analyses were conducted outside of the hypothesis to understand the effects of demographic variables on model variables. These analyses were conducted to identify potential discrepancies that were not initially incorporated into the model but were deemed significant in the extant literature. The examination of differences between gender and age groups contributed to a more detailed evaluation of the findings.

Table 5. Group comparisons by gender (Independent samples t-test)

Variable	Gender	M	SD	t	p
Climate Anxiety	Female	3,28	0,74	2,84	0.005
	Male	3,02	0,80		
Sustainable Travel Intentions	Female	5,88	0,90	1,12	0.262
	Male	5,75	0,92		

Source: Authors' own elaboration

In gender-based comparisons, it was found that female participants had significantly higher levels of climate anxiety than male participants ($t=2.84$, $p<0.01$). However, no significant differences were observed between gender groups in terms of sustainable travel intentions. These results support the H5 hypothesis that climate concern and intentions show significant differences by gender, indicating that female participants reported significantly higher levels of climate concern and, to some extent, stronger sustainable travel intentions.

Table 6. ANOVA results by age groups

Variable	F	p	Post-hoc Findings
Climate Anxiety	4,12	0.017	18–25 > 36–45, 46+
Sustainable Travel Intentions	3,26	0.041	26–35 > 18–25

Source: Authors' own elaboration

The results of the analysis of variance (ANOVA) conducted according to age groups demonstrated that participants aged 18–25 exhibited higher levels of climate anxiety, but lower levels of sustainable travel behavior, compared to middle-aged groups ($F=4.12$, $p<0.05$). A significant correlation was identified between education level and survey respondents' climate awareness and sustainable travel intentions. Specifically, university graduates demonstrated higher levels of awareness and intention regarding sustainable travel when compared to respondents with less formal education ($p < 0.01$).

Moreover, when travel frequency was incorporated as a control variable in the model, there was no substantial change in the model's fit indices. However, travel frequency was found to have a positive effect on sustainable travel intention ($\beta=0.21$, $p<0.05$).

Table 7. Structural equation model with control variable (Travel Frequency)

Path	β	SE	CR	p
Climate Change Awareness → Climate Anxiety	0,41	0,05	8,20	***
Climate Change Awareness → Sustainable Travel Intentions	0,27	0,06	4,50	**
Climate Anxiety → Sustainable Travel Intentions	0,34	0,07	4,86	***
Travel Frequency → Sustainable Travel Intentions	0,21	0,08	2,63	*

* → p < 0.05 (significant) / ** → p < 0.01 (highly significant) / *** → p < 0.001 (very highly significant)

Source: Authors' own elaboration

Table 8. Bootstrap results for mediation effect

Indirect Effect Path	B	95% CI (Lower–Upper)	p
Climate Change Awareness → Climate Anxiety → Sustainable Travel Intentions	0,15	0.09 – 0.25	0.001

Source: Authors' own elaboration

Finally, to conduct a robustness analysis, 5,000 samples were obtained using the bootstrap method. Consequently, the confidence interval for the mediating effect was recalculated. The bootstrap results once again confirmed that the mediating effect of climate anxiety was statistically significant (CI [0.09–0.25], p<0.01).

5. Discussion

The findings reveal a limited direct link between climate change awareness and sustainable travel behavior, a phenomenon consistent with the widely documented “attitude-behavior gap”. The literature confirms that even individuals with high environmental consciousness struggle to alter established travel habits, often employing diverse rationalizations—such as blaming external entities, compensating with other green actions, or prioritizing personal benefits—to justify high-carbon activities like air travel (Árnadóttir et al., 2021). This suggests that mere awareness of climate change is insufficient to catalyze behavioral change. Our analysis indicates that for awareness to translate into action, it must be channeled through emotional and psychological intermediaries. The critical question, therefore, concerns the mechanisms by which awareness precipitates behavioral modification, with evidence pointing to the pivotal role of emotional responses.

The results identify climate anxiety as a much stronger predictor of sustainable travel behavior. Individuals reporting high levels of climate anxiety are significantly more inclined to adopt environmentally friendly practices, a finding that aligns with extensive international research showing that negative emotions can inspire proactive engagement (Ogunbode et al., 2022). This anxiety can motivate individuals to participate in climate activism, choose sustainable transport, and adopt greener lifestyles, particularly among younger generations (Hickman et al., 2021; Hockey, 2024).

However, the influence of climate anxiety is not uniformly constructive. While moderate levels of anxiety appear to effectively motivate action, excessive or overwhelming anxiety can induce feelings of helplessness and powerlessness, leading to inaction or “eco-paralysis” (Qin et al., 2024; Verplanken et al., 2020). The impact of anxiety is therefore multifaceted, with its potential to drive positive changes being dependent on an individual's psychological coping mechanisms and the presence of a supportive framework.

Our analysis confirms that climate anxiety plays a significant mediating role in the relationship between climate awareness and sustainable travel behavior. This core finding indicates that for cognitive awareness to become behaviorally effective, it must first be transformed into an emotional response. Abstract, long-term threats like climate change often require this emotional engagement to feel personally salient and urgent enough to warrant a change in daily habits (Clayton & Karazsia, 2020). This implies that climate communication and education must evolve beyond the simple dissemination of facts to foster emotional connection and engagement.

This process is consistent with Threat-Action Paradigms, which posit that a perceived threat must elicit an emotional response (like fear or anxiety) that is then appropriately processed to motivate problem-solving action; otherwise, it can result in denial or avoidance (Clayton, 2020; Crandon et al., 2024). Therefore, strategies aimed at raising awareness are most effective when they include support mechanisms that empower individuals to channel their anxiety into constructive, tangible actions.

The relationships among awareness, anxiety, and behavior are not uniform across the population and are significantly moderated by demographic variables. Younger individuals and women consistently report higher levels of climate anxiety and demonstrate a greater propensity for sustainable choices, aligning with global trends that identify these groups as being at the forefront of climate action (Hickman et al., 2021; Pinho, 2025).

Socio-economic factors introduce further complexity. While higher education correlates with greater awareness, income presents a paradox: it provides the financial means for sustainable choices (e.g., electric vehicles) but is also linked to higher-consumption lifestyles and larger carbon footprints. Crucially, the ability to translate anxiety into action is heavily constrained by contextual and structural barriers. Financial impediments and a lack of political or infrastructural support can prevent pro-environmental behavior, even when motivation is high (Dioba et al., 2024)

Ultimately, responses to the climate crisis are not monolithic; they are shaped by a complex interplay of age, gender, education, and cultural context. The heightened engagement of youth and women, in particular, highlights key demographics for change. This underscores the necessity for target group-specific strategies in climate communication and policy design. To be effective, interventions must be tailored to the distinct psychological profiles and structural realities of different population segments, moving beyond one-size-fits-all awareness campaigns to foster supported, constructive action.

Although the study was conducted in the Turkish context, the findings largely correspond with the dynamics highlighted in the international literature. In particular, the observation of low levels of behavioral change despite high levels of awareness indicates that the “attitude-behavior gap” reported in many countries also persists in the field of tourism (Gifford, 2011; Kollmuss & Agyeman, 2002; Dioba et al., 2024). Similarly, the dual nature of climate anxiety, which can be both motivating and paralyzing, has been demonstrated in studies conducted in different cultural and economic contexts (Clayton, 2020; Cunsolo & Ellis, 2018; Pihkala, 2020). In this regard, the findings from the Turkish case contribute to a broader global discussion on the relationship between climate awareness, anxiety, and behavior.

5.1 Interpretation of findings

This study systematically investigated the links between climate awareness, climate anxiety, and sustainable travel. The findings reveal that climate awareness alone is insufficient to drive more sustainable travel habits. Its influence is primarily indirect, channeled through the emotional response of

climate anxiety. Our analysis confirms that anxiety acts as a crucial mediator, bridging the gap between cognitive awareness and behavioral change. This supports the concept of an “anxiety-sensitivity threshold,” in which an abstract risk such as climate change requires a palpable emotional impact to prompt changes in daily routines (Clayton, 2020; Ogunbode et al., 2022).

A key finding is that high awareness without concomitant anxiety rarely leads to behavioral change. For example, an individual who intellectually accepts climate change but feels no personal threat is unlikely to alter high-carbon travel patterns. In contrast, an individual with similar awareness who experiences significant anxiety is far more likely to adopt lower-impact alternatives, such as reducing air travel or using public transport. This distinction firmly establishes climate anxiety as the pivotal variable that activates behavioral change.

The study also confirms a positive link between climate anxiety and sustainable action as concerned individuals are more motivated to seek control over the situation. However, this effect is contingent on a critical balance. While moderate anxiety functions as a potent motivator, excessive levels can trigger hopelessness or avoidance (Qin et al., 2024; Verplanken et al., 2020). In our sample, anxiety was a constructive force for the majority, though a small subset exhibited “paralysis” despite high anxiety. This suggests that for anxiety to be an effective catalyst, it must be framed in a context that empowers individuals to act rather than overwhelming them.

5.2 Theoretical and practical contributions

Theoretically, this study addresses a key gap in the literature by demonstrating the pivotal role of emotional factors in the relationship between climate awareness and sustainable behavior. Our finding that climate anxiety is a crucial mediator offers significant insights into environmental psychology and climate communication. It supports the argument that models of pro-environmental behavior, such as the Value-Belief-Norm theory or the Theory of Planned Behavior, could enhance their predictive power by incorporating emotional variables alongside their traditional focus on cognitive elements like values and norms.

On a practical level, our findings show that policies promoting sustainable travel must address the psychological dimension. Awareness campaigns should move beyond mere information delivery to cultivate a sense of constructive anxiety that motivates action. Crucially, any communication strategy based on anxiety must be paired with clear, actionable solutions to avoid inducing hopelessness or paralysis (Crandon et al., 2024). For instance, in the transport sector, this means appealing to both rational cost-benefit calculations and emotional motivations, such as through storytelling that emphasizes the public health benefits of green transport. Specific programs can channel the high anxiety of youth into activism through educational projects, while the heightened environmental sensitivity among women can be leveraged through influential community leaders to foster social change. Engaging other groups, such as men, requires customized messages that are sensitive to their different motivations.

The results highlight that climate concerns are beginning to have a clear impact on travel behaviors, making it necessary to design environmentally friendly travel options more visibly and appealingly. This can be achieved by promoting low-emission modes of transport, such as high-speed trains, and highlighting sustainable tourism practices in marketing campaigns. It is also important to tailor messages to different age groups and genders, with campaigns encouraging young people to turn climate anxiety into positive action, while older groups focus on the link between climate action and preserving our legacy for future generations, taking into account men's interest in technological innovation and women's interest in social solidarity to ensure a broader and more effective impact. In this regard, the study differs from many others in the literature in that it considers climate anxiety not only as a negative psychological outcome but also as a potential motivating factor that can strengthen sustainable travel intentions under appropriate conditions. Furthermore, its examination of climate awareness, climate

anxiety, and sustainable travel intentions together within a single structural model and mediating effect framework fills an important gap, particularly in tourism-focused empirical research.

6. Conclusion

This study has made a comprehensive contribution to the literature on climate psychology and sustainable tourism by examining the relationships between climate awareness, climate concern, and sustainable travel intentions among adult tourists in Türkiye using quantitative data. The findings reveal that climate awareness alone has a limited direct effect on sustainable travel intentions; in contrast, climate anxiety both significantly mediates this relationship and emerges as a strong predictor on its own. Furthermore, gender comparisons showed that female participants had higher levels of climate anxiety and somewhat stronger sustainable travel intentions; these results indicate that climate-related emotional responses should be considered alongside socio-demographic factors. Overall, the study has produced findings that guide both theoretical discussions and policy and practice by revealing the complex interactions between cognitive awareness, emotional responses, and concrete behavioral intentions regarding the climate crisis in the context of tourism.

6.1 Limitations and future research directions

Despite its contributions, this study has several limitations that suggest avenues for future inquiry. First, its cross-sectional design prevents definitive causal claims; future longitudinal research is needed to understand the temporal dynamics between climate anxiety and behavior. Second, the findings are limited to a single cultural context, and cross-cultural studies are necessary to improve generalizability. Finally, the reliance on self-report data introduces potential social desirability bias. Future work should incorporate objective behavioral metrics and qualitative methods to validate these findings.

Further investigation is also required to distinguish between the constructive (motivating) and destructive (paralyzing) effects of climate anxiety. Future studies should explore the roles that factors like self-efficacy, hope, and social support play in determining whether anxiety leads to action or inaction. Developing interventions that effectively channel anxiety into constructive outcomes represents a key area for collaboration between psychology and education.

Ultimately, this research confirms that human psychology is a critical factor in addressing climate change. It is imperative that policymakers, educators, and activists develop strategies that go beyond mere information to emotionally engage and empower individuals to become part of the solution.

References

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
2. Árnadóttir, Á., Czepkiewicz, M., & Heinonen, J. (2021). Climate change concern and the desire to travel: How do I justify my flights? *Travel Behaviour and Society*, 24, 282–290. <https://doi.org/10.1016/J.TBS.2021.05.002>
3. Araújo, A., Marques, I. A., Moreno, L. L., & García, P. C. (2025). Bridging the Attitude–Behavior Gap in Sustainable Tourism: An Extended TPB Model of Green Hotel Purchase Intentions. *Tourism and Hospitality*, 6(4), 215. <https://doi.org/10.3390/tourhosp6040215>
4. Baroni, M., Valdrighi, G., Guazzini, A., & Duradoni, M. (2025). “More than a Feeling”: How Eco-Anxiety Shapes Pro-Environmental Behaviors and the Role of Readiness to Change. *Sustainability*, 17(13), 6154. <https://doi.org/10.3390/su17136154>

5. Becken, S. (2007). Tourists' Perception of International Air Travel's Impact on the Global Climate and Potential Climate Change Policies. *Journal of Sustainable Tourism*, 15(4), 351–368. <https://doi.org/10.2167/JOST710.0>
6. Belias, D., Rossidis, I., & Valeri, M. (2022). Tourism in crisis: The impact of climate change on the tourism industry. In *Tourism risk: Crisis and recovery management* (pp. 163-179). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-80117-708-520221012>
7. Bouman, T., Verschoor, M., Albers, C. J., Böhm, G., Fisher, S. D., Poortinga, W., Whitmarsh, L., & Steg, L. (2020). When worry about climate change leads to climate action: How values, worry and personal responsibility relate to various climate actions. *Global Environmental Change*, 62, 102061. <https://doi.org/10.1016/J.GLOENVCHA.2020.102061>
8. Bramwell, B., & Lane, B. (2012). Towards innovation in sustainable tourism research? *Journal of Sustainable Tourism*, 20(1), 1–7. <https://doi.org/10.1080/09669582.2011.641559>
9. Burrill, J., Dannevig, H., & Brendehaug, E. (2025). What are melting glaciers good for? Examining the extent of glacier retreat on tourist engagement with climate change. *Scandinavian Journal of Hospitality and Tourism*, 1-23. <https://doi.org/10.1080/15022250.2025.2508711>
10. Baxtishodovich, S. B. (2025). Sustainable Journeys: Rethinking Travel for the Future. *Journal of Educational Studies*, 3(1), 20-32. <https://doi.org/10.58218/jes.v3i1.1257>
11. Camacho, L. J., Banks, M., Sookhai, S., & Concepción, E. (2025). Redimensioning the Theory of Planned Behavior on Workplace Energy Saving Intention: The Mediating Role of Environmental Knowledge and Organizational Culture. *Sustainability*, 17(8), 3574. <https://doi.org/10.3390/su17083574>
12. Capstick, S., Whitmarsh, L., Poortinga, W., Pidgeon, N., & Upham, P. (2015). International trends in public perceptions of climate change over the past quarter century. *Wiley Interdisciplinary Reviews: Climate Change*, 6(1), 35–61. <https://doi.org/10.1002/WCC.321>
13. Chakraborty, D., Polisetty, A., Nunkoo, R., & Rana, N. P. (2024). What drives tourists towards sustainable behaviour? A longitudinal study. *Asia Pacific Journal of Tourism Research*, 29(3), 352-374. <https://doi.org/10.1080/10941665.2024.2324178>
14. Chouykaew, T., & Jirojkul, S. (2022). Guideline for tour operator businesses after the covid-19 in the context of Thailand. *Polish Journal of Management Studies*, 26(2), 92-111. <https://doi.org/10.17512/pjms.2022.26.2.06>
15. Clayton, S. (2020). Climate anxiety: Psychological responses to climate change. *Journal of Anxiety Disorders*, 74, 102263. <https://doi.org/10.1016/J.JANXDIS.2020.102263>
16. Clayton, S., & Karazsia, B. T. (2020). Development and validation of a measure of climate change anxiety. *Journal of Environmental Psychology*, 69, 101434. <https://doi.org/10.1016/J.JENVP.2020.101434>
17. Clayton, S., Manning, C., Krygsman, K., & Speiser, M. (2017). *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*. American Psychological Association. <https://www.apa.org/news/press/releases/2017/03/mental-health-climate.pdf>
18. Cohen, S. A., Higham, J. E. S., & Cavaliere, C. T. (2011). Binge flying: Behavioural addiction and climate change. *Annals of Tourism Research*, 38(3), 1070–1089. <https://doi.org/10.1016/J.ANNALS.2011.01.013>
19. Crandon, T. J., Scott, J. G., Charlson, F. J., & Thomas, H. J. (2024). A theoretical model of climate anxiety and coping. *Discover Psychology*, 4(1), 94. <https://doi.org/10.1007/s44202-024-00212-8>
20. Cunsolo, A., & Ellis, N. R. (2018). Ecological grief as a mental health response to climate change-related loss. *Nature Climate Change*, 8(4), 275–281. <https://doi.org/10.1038/S41558-018-0092-2;SUBJMETA>
21. Demiris, A., Fountas, G., Fonzone, A., & Basbas, S. (2025). Generation Z's Travel Behavior and Climate Change: A Comparative Study for Greece and the UK. *Big Data and Cognitive Computing*, 9 (3), 70, <https://doi.org/10.3390/BDCC9030070>

22. Dickinson, J. E., Robbins, D., Filimonau, V., Hares, A., & Mika, M. (2013). Awareness of Tourism Impacts on Climate Change and the Implications for Travel Practice. *Journal of Travel Research*, 52(4), 506–519. <https://doi.org/10.1177/0047287513478691>
23. Dioba, A., Kroker, V., Dewitte, S., & Lange, F. (2024). Barriers to pro-environmental behavior change: A review of qualitative research. *Sustainability*, 16(20), 8776. <https://doi.org/10.3390/su16208776>
24. Doherty, T. J., & Clayton, S. (2011). The psychological impacts of global climate change. *The American Psychologist*, 66(4), 265–276. <https://doi.org/10.1037/A0023141>
25. Dunlap, R. E., Van Liere, K. D., Mertig, A. G., & Jones, R. E. (2000). New Trends in Measuring Environmental Attitudes: Measuring Endorsement of the New Ecological Paradigm: A Revised NEP Scale. *Journal of Social Issues*, 56(3), 425–442. <https://doi.org/10.1111/0022-4537.00176>
26. Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
27. Gabric, A. J. (2023). The climate change crisis: a review of its causes and possible responses. *Atmosphere*, 14(7), 1081. <https://doi.org/10.3390/atmos14071081>
28. Ge, J., Pan, W., Liang, X., & Zhang, J. (2025). Complex psychological responses to climate change: a longitudinal study exploring the interplay between climate change awareness and climate change anxiety among Chinese adolescents. *BMC Public Health*, 25(1), 2139. <https://doi.org/10.1186/s12889-025-23282-2>
29. Gifford, R. (2011). The Dragons of Inaction: Psychological Barriers That Limit Climate Change Mitigation and Adaptation. *American Psychologist*, 66(4), 290–302. <https://doi.org/10.1037/A0023566>
30. Gomes, S., & Lopes, J. M. (2023). Insights for pro-sustainable tourist behavior: The role of sustainable destination information and pro-sustainable tourist habits. *Sustainability*, 15(11), 8856. <https://doi.org/10.3390/su15118856>
31. Gössling, S., & Hall, C. M. (2021). International tourism and global climate change. In S. Gössling & C. M. Hall (Eds.), *Tourism and global environmental change: Ecological, economic, social and political interrelationships*. (2nd ed., pp. 1–34). Routledge.
32. Gössling, S., & Peeters, P. (2015). Assessing tourism’s global environmental impact 1900–2050. *Journal of Sustainable Tourism*, 23(5), 639–659. <https://doi.org/10.1080/09669582.2015.1008500>
33. Gössling, S., Peeters, P., Hall, C. M., Ceron, J. P., Dubois, G., Lehmann, L. V., & Scott, D. (2012). Tourism and water use: Supply, demand, and security. An international review. *Tourism Management*, 33(1), 1–15. <https://doi.org/10.1016/J.TOURMAN.2011.03.015>
34. Günther, S. A., Staake, T., Schöb, S., & Tiefenbeck, V. (2020). The behavioral response to a corporate carbon offset program: A field experiment on adverse effects and mitigation strategies. *Global Environmental Change*, 64, 102123. <https://doi.org/10.1016/J.GLOENVCHA.2020.102123>
35. Haider, S. W., Zhuang, G., & Ali, S. (2019). Identifying and bridging the attitude-behavior gap in sustainable transportation adoption. *Journal of Ambient Intelligence and Humanized Computing*, 10(9), 3723–3738. <https://doi.org/10.1007/s12652-019-01405-z>
36. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis. In *Multivariate data analysis* (8th ed.). Cengage Learning.
37. Hall, C. M. (2013). Framing Tourism Geography: Notes from the Underground. *Annals of Tourism Research*, 43, 601–623. <https://doi.org/10.1016/J.ANNALS.2013.06.007>
38. Han, H., Hsu, L. T. (Jane), & Sheu, C. (2010). Application of the Theory of Planned Behavior to green hotel choice: Testing the effect of environmental friendly activities. *Tourism Management*, 31(3), 325–334. <https://doi.org/10.1016/J.TOURMAN.2009.03.013>

39. Hares, A., Dickinson, J., & Wilkes, K. (2010). Climate change and the air travel decisions of UK tourists. *Journal of Transport Geography*, 18(3), 466–473. <https://doi.org/10.1016/J.JTRANGEO.2009.06.018>
40. Hayes, A. F. (2018). *From Guilford Introduction to Mediation, Moderation, and Conditional Process Analysis AF2E*. Guilford Press.
41. He, Y., Xu, F., Wang, L., & Nguyen, H. (2024). Modeling tourists' pro-environmental behavior: a combination of the value-belief-norm theory and environmental identity theory. *Journal of Environmental Planning and Management*, 67(14), 3694–3717. <https://doi.org/10.1080/09640568.2023.2232944>
42. Heeren, A., Mouguiama-Daouda, C., & Contreras, A. (2022). On climate anxiety and the threat it may pose to daily life functioning and adaptation: a study among European and African French-speaking participants. *Climatic Change*, 173(1–2), 1–17. <https://doi.org/10.1007/S10584-022-03402-2/TABLES/4>
43. Hickman, C., Marks, E., Pihkala, P., Clayton, S., Lewandowski, R. E., Mayall, E. E., Wray, B., Mellor, C., & van Susteren, L. (2021). Climate anxiety in children and young people and their beliefs about government responses to climate change: a global survey. *The Lancet Planetary Health*, 5(12), e863–e873. [https://doi.org/10.1016/S2542-5196\(21\)00278-3](https://doi.org/10.1016/S2542-5196(21)00278-3)
44. Higham, J. E. S., Cohen, S. A., & Cavaliere, C. T. (2014). Climate Change, Discretionary Air Travel, and the “Flyers’ Dilemma”. *Journal of Travel Research*, 53(4), 462–475. <https://doi.org/10.1177/0047287513500393>
45. Hockey, J. A. (2024). Young Climate Activists: A ‘Gritty’ Hope for Things to be Better than They Are Now. *Journal of Applied Youth Studies*, 1-20. <https://doi.org/10.1007/s43151-024-00152-z>
46. Hoggett, P. (2019). *Climate Psychology*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-11741-2>
47. Holmes, M. R., Dodds, R., & Frochot, I. (2021). At home or abroad, does our behavior change? Examining how everyday behavior influences sustainable travel behavior and tourist clusters. *Journal of Travel Research*, 60(1), 102-116. <https://doi.org/10.1177/00472875198940>
48. Hong, J., & Jeon, C. Y. (2025). Linking Perceptions, Emotions, and Actions: How Psychological Distance, Media Framing, and Guilt About Climate Crisis Promote Communication and Pro-Environmental Behavior. *Sustainability*, 17(6), 2409. <https://doi.org/10.3390/su17062409>
49. Hornsey, M. J., Harris, E. A., Bain, P. G., & Fielding, K. S. (2016). Meta-analyses of the determinants and outcomes of belief in climate change. *Nature Climate Change*, 6(6), 622–626. <https://doi.org/10.1038/NCLIMATE2943;TECHMETA>
50. Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55. <https://doi.org/10.1080/10705519909540118>
51. Jieyao, Z., Kumar, J., & Rasoolimanesh, S. M. (2025). Pro-environmental behavioural intention towards ecotourism: integration of the theory of planned behaviour and theory of interpersonal behaviour. *Journal of Ecotourism*, 1-38. <https://doi.org/10.1080/14724049.2025.2509648>
52. Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. *Annals of Tourism Research*, 48, 76–95. <https://doi.org/10.1016/J.ANNALS.2014.05.012>
53. Karasar, N. (2016). *Bilimsel araştırma yöntemi* (13. Baskı). Nobel Yayıncılık.
54. Kline, R. B. (2016). *Principles and practice of structural equation modeling* (4th ed.). Guilford Press.
55. Khan, S., Zhang, Q., Khan, I. U., Khan, S. U., & Mehmood, S. (2025). Tourists’ pro-environmental behaviour in an autonomous vehicle’s adoption: Aligning the integration of value-belief-norm theory and the theory of planned behaviour. *Current Issues in Tourism*, 28(4), 604–621. <https://doi.org/10.1080/13683500.2024.2325491>

56. Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
57. Kumar, A., & Kaushal, R. (Eds.). (2025). *Eco-Resilience Biology: An Exploration of Climate-Forest Connection*. CRC Press.
58. Kumar, S., Chatterjee, U., David Raj, A., & Sooryamol, K. R. (2024). Global warming and climate crisis/extreme events. In *Climate crisis: Adaptive approaches and sustainability* (pp. 3-18). Cham: Springer Nature Switzerland.
59. Lee, T. H., Jan, F. H., & Yang, C. C. (2013). Conceptualizing and measuring environmentally responsible behaviors from the perspective of community-based tourists. *Tourism Management*, 36, 454–468. <https://doi.org/10.1016/J.TOURMAN.2012.09.012>
60. Lee, T. M., Markowitz, E. M., Howe, P. D., Ko, C. Y., & Leiserowitz, A. A. (2015). Predictors of public climate change awareness and risk perception around the world. *Nature Climate Change*, 5(11), 1014–1020. <https://doi.org/10.1038/NCLIMATE2728;SUBJMETA>
61. Lenzen, M., Sun, Y. Y., Faturay, F., Ting, Y. P., Geschke, A., & Malik, A. (2018). The carbon footprint of global tourism. *Nature Climate Change*, 8(6), 522–528. <https://doi.org/10.1038/S41558-018-0141-X;TECHMETA>
62. Lionetti, F., & Pluess, M. (2024). The role of environmental sensitivity in the experience and processing of emotions: implications for well-being. *Philosophical Transactions of the Royal Society B*, 379(1908), 20230244. doi: 10.1098/rstb.2023.0244
63. Liu, H., Chen, W., Yuan, P., & Dong, X. (2025). How does climate change affect productivity in tourism? A spatial analysis based on Chinese cities. *Tourism Review*. <https://doi.org/10.1108/TR-08-2024-0682>
64. Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change*, 17(3–4), 445–459. <https://doi.org/10.1016/J.GLOENVCHA.2007.01.004>
65. Löfström, E., Santandrea, C., & Hellevik, C. C. (2025). Using (disruptive) eco-visualization to reconnect humans to nature: results from workshops with youth and adults. *Frontiers in Psychology*, 16, 1690875. <https://doi.org/10.3389/fpsyg.2025.1690875>
66. Lui, A. L. C., Wong, G. K., & Not, C. (2025). The role of emotional messaging in climate education: Hope vs. fear appeals and student efficacy. *The Journal of Environmental Education*, 1-15. <https://doi.org/10.1080/00958964.2025.2558524>
67. Mateer, T. J. (2024). A call for intergenerational solidarity in climate change education: Outlining a strategy to manage climate anxiety and facilitate action. *European Journal of Education*, 59(3), e12659. <https://doi.org/10.1111/ejed.12659>
68. Milfont, T. L. (2012). The interplay between knowledge, perceived efficacy, and concern about global warming and climate change: a one-year longitudinal study. *Risk Analysis: An Official Publication of the Society for Risk Analysis*, 32(6), 1003–1020. <https://doi.org/10.1111/J.1539-6924.2012.01800.X>
69. Morrison, S. (2025). Not Just in Our Heads: Eco-Anxiety and the Politics of Responsibility. *Capitalism Nature Socialism*, 1-19. <https://doi.org/10.1080/10455752.2025.2570513>
70. Nunnally, J. C., & Bernstein, I. H. (1994). Psychometric theory. In *Measuring Usability* (3rd ed.). McGraw-Hill.
71. O'Connor, R. E., Bord, R. J., & Fisher, A. (1999). Risk perceptions, general environmental beliefs, and willingness to address climate change. *Risk Analysis*, 19(3), 461–471. <https://doi.org/10.1023/A:1007004813446/METRICS>
72. Ogunbode, C. A., Doran, R., Hanss, D., Ojala, M., Salmela-Aro, K., van den Broek, K. L., Bhullar, N., Aquino, S. D., Marot, T., Schermer, J. A., Wlodarczyk, A., Lu, S., Jiang, F., Maran, D. A., Yadav, R., Ardi, R., Chegeni, R., Ghanbarian, E., Zand, S., ... Karasu, M. (2022). Climate anxiety,

- wellbeing and pro-environmental action: correlates of negative emotional responses to climate change in 32 countries. *Journal of Environmental Psychology*, 84, 101887. <https://doi.org/10.1016/j.jenvp.2022.101887>
73. Ojaghlu, M., & Uğurlu, E. (2023). Urbanization and climate change: Environmental Kuznets Curve (EKC) and STIRPAT analysis for Turkey. *Economics and Sociology*, 16(1), 259-270. doi:10.14254/2071-789X.2023/16-1/16
74. Özcan, A. (2025). Son Şans Turizmi: İklim Krizi Çağında Seyahat Etmenin Psikolojisi. *Bitlis Eren Üniversitesi Sosyal Bilimler Dergisi*, 14(1), 74–87. <https://doi.org/10.47130/BITLISSOS.1649973>
75. Ökara, U., & Elmaz, P. (2024). Eko-anksiyetenin sürdürülebilir tüketim davranışları ve iklim değişikliği inkârı ile ilişkisinde ekolojik ayak izi farkındalığının rolü. *Nesne*, 12(33), 351–367.
76. Paageorgiou, M. (2025). Spatial Planning for Tourism Destinations Resilient to Climate Change. *Tourism and Hospitality*, 6(1), 8. <https://doi.org/10.3390/tourhosp6010008>
77. Peeters, P., Çakmak, E., & Guiver, J. (2024). Current issues in tourism: Mitigating climate change in sustainable tourism research. *Tourism Management*, 100, 104820. <https://doi.org/10.1016/j.tourman.2023.104820>
78. Pihkala, P. (2020). Eco-Anxiety and Environmental Education. *Sustainability* 12(23), 10149. <https://doi.org/10.3390/SU122310149>
79. Pinho, M. (2025). Climate change anxiety and pro-environmental behaviours: disentangling gender disparities. *Frontiers in Sociology*, 10, 1589501. <https://doi.org/10.3389/FSOC.2025.1589501/BIBTEX>
80. Poonamallee, L. (2025). Countering climate fear with mindfulness: a framework for sustainable behavioral change. *Sustainability*, 17(14), 6472. <https://doi.org/10.3390/su17146472>
81. Qin, Z., Wu, Q., Bi, C., Deng, Y., & Hu, Q. (2024). The relationship between climate change anxiety and pro-environmental behavior in adolescents: the mediating role of future self-continuity and the moderating role of green self-efficacy. *BMC Psychology*, 12(1), 1–12. <https://doi.org/10.1186/S40359-024-01746-1/FIGURES/4>
82. Ramaano, A. I. (2025). Toward tourism-oriented community-based natural resource management for sustainability and climate change mitigation leadership in rural municipalities. *Journal of Humanities and Applied Social Sciences*, 7(2), 107-131. <https://doi.org/10.1108/JHASS-07-2024-0099>
83. Rawat, A., Kumar, D., & Khatri, B. S. (2024). A review on climate change impacts, models, and its consequences on different sectors: a systematic approach. *Journal of Water and Climate Change*, 15(1), 104-126. <https://doi.org/10.2166/wcc.2023.536>
84. Reser, J. P., Bradley, G. L., & Ellul, M. C. (2014). Encountering climate change: ‘seeing’ is more than ‘believing’. *Wiley Interdisciplinary Reviews: Climate Change*, 5(4), 521-537. <https://doi.org/10.1002/wcc.286>
85. Robledo, M. A. (2025). The evolution of tourist consciousness: a developmental model of tourist behavior. *Consumer Behavior in Tourism and Hospitality*. 20(3), 313-327. <https://doi.org/10.1108/CBTH-10-2024-0334>
86. Sanson, A. V., Van Hoorn, J., & Burke, S. E. L. (2019). Responding to the Impacts of the Climate Crisis on Children and Youth. *Child Development Perspectives*, 13(4), 201–207. <https://doi.org/10.1111/CDEP.12342>
87. Santos, J. A. C., Fernández-Gámez, M. A., Puig-Cabrera, M., & Santos, M. C. (2024). Sustainability in business events: how hybrid formats shape attendee decision-making. *Journal of Tourism and Services*, 15(29), 320-348. <https://doi.org/10.29036/jots.v15i29.1006>
88. Sapovadia, V. K. (2025). The Art of Balance: A Holistic Exploration through Nature's Lens. Available at SSRN 5319160.
89. Scott, D., & Gössling, S. (2015). What could the next 40 years hold for global tourism? *Tourism Recreation Research*, 40(3), 269–285. <https://doi.org/10.1080/02508281.2015.1075739>

90. Scott, D., Hall, C. M., & Gössling, S. (2016). A review of the IPCC Fifth Assessment and implications for tourism sector climate resilience and decarbonization. *Journal of Sustainable Tourism*, 24(1), 8–30. <https://doi.org/10.1080/09669582.2015.1062021>
91. Shi, J., Visschers, V. H. M., Siegrist, M., & Arvai, J. (2016). Knowledge as a driver of public perceptions about climate change reassessed. *Nature Climate Change*, 6(8), 759–762. <https://doi.org/10.1038/NCLIMATE2997;TECHMETA>
92. Skeirytė, A., Krikštolaitis, R., & Liobikienė, G. (2022). The differences of climate change perception, responsibility and climate-friendly behavior among generations and the main determinants of youth's climate-friendly actions in the EU. *Journal of environmental management*, 323, 116277. <https://doi.org/10.1016/j.jenvman.2022.116277>
93. Soeder, D. J. (2025). *Greenhouse gas and climate change*. In *Energy futures: The story of fossil fuel, greenhouse gas, and climate change* (pp. 97-141). Cham: Springer Nature Switzerland
94. Spirkova, D., Mura, L., Stehlikova, B., Hruska, R. (2022). Quantification of Economic, Ecological and Social Impacts of Climate Change in the EU. *European Journal of Interdisciplinary Studies*, 14 (2), 63-81. <http://doi.org/10.24818/ejis.2022.21>
95. Srivastava, P., Mishra, N., Singh, N., & Ramkissoon, H. (2024). Beyond carbon footprints: the 'Greta Thunberg Effect' and tourist hotel preferences. *Journal of Travel & Tourism Marketing*, 41(4), 578-595. <https://doi.org/10.1080/10548408.2023.2293017>
96. Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309–317. <https://doi.org/10.1016/J.JENVP.2008.10.004>
97. Stern, P. C. (2000). New Environmental Theories: Toward a Coherent Theory of Environmentally Significant Behavior. *Journal of Social Issues*, 56(3), 407–424. <https://doi.org/10.1111/0022-4537.00175>
98. Streimikiene, D., & Stankuniene, G. (2024). Climate Change Mitigation Measures In Households. *Economics & Sociology*, 17(4), 82-102. DOI:10.14254/2071789X.2024/17
99. Sulivyo, L., & Dewi, F. M. (2024). Exploration of subjective norms of tourists in the application of planned behavior theory to predict the intention to visit tourist objects in Indonesia. *Jurnal Indonesia: Manajemen Informatika dan Komunikasi*, 5(2), 1459-1466. <https://doi.org/10.35870/jimik.v5i2.697>
100. Tam, K. P., & Chan, H. W. (2017). Environmental concern has a weaker association with pro-environmental behavior in some societies than others: A cross-cultural psychology perspective. *Journal of Environmental Psychology*, 53, 213–223. <https://doi.org/10.1016/J.JENVP.2017.09.001>
101. Talukder, M. B., Khan, M. R., & Kumar, S. (2024). Socioeconomic Gaps and Foster Inclusive Growth: Sustainable Tourism Initiatives. In *Building Community Resiliency and Sustainability with Tourism Development* (pp. 56-82). IGI Global.
102. Tehseen, S., Hossain, S. M., Ong, K. Y., & Andrews, E. (2024). Sustainable Tourism in a Changing Climate: Balancing Growth and Environmental Responsibility. In *The Need for Sustainable Tourism in an Era of Global Climate Change: Pathway to a Greener Future* (pp. 69-94). Emerald Publishing Limited. <https://doi.org/10.1108/978-1-83608-668-020241012>
103. Tjernström, E., & Tietenberg, T. (2008). Do differences in attitudes explain differences in national climate change policies? *Ecological Economics*, 65(2), 315–324. <https://doi.org/10.1016/J.ECOLECON.2007.06.019>
104. UNWTO. (2019). *International Tourism Highlights, 2019 Edition*. World Tourism Organization (UNWTO). <https://doi.org/10.18111/9789284421152>
105. Verplanken, B., Marks, E., & Dobromir, A. I. (2020). On the nature of eco-anxiety: How constructive or unconstructive is habitual worry about global warming? *Journal of Environmental Psychology*, 72, 101528. <https://doi.org/10.1016/J.JENVP.2020.101528>

106. Viken, A., & Heimtun, B. (2024). Tourism mobilities and climate crisis dilemmas: Tourists traveling towards a climate apocalypse?. *Annals of Tourism Research*, 109, 103841. <https://doi.org/10.1016/j.annals.2024.103841>
107. Wan, S., Liu, L., Chen, G., Wang, P., Lan, Y., & Zhang, M. (2025). Low-Carbon Transformation of Tourism in Characteristic Towns Under the Carbon Neutral Goal: A Three-Dimensional Mechanism Analysis of Tourists, Residents, and Enterprises. *Sustainability*, 17(11), 5142. <https://doi.org/10.3390/su17115142>
108. Van Valkengoed, A. M., Steg, L., & De Jonge, P. (2023). Climate anxiety: A research agenda inspired by emotion research. *Emotion Review*, 15(4), 258-262. <https://doi.org/10.1177/17540739231193752>
109. Wani, M. D., Dar, S. N., & Mohanty, P. P. (2025). Integrating the Value Belief Norm Theory and Theory of Planned Behavior to Predict the Climate Change Mitigation and Adaption Behaviors in Agriculture Production. *Environmental Management*, 75, 2659-2673. <https://doi.org/10.1007/s00267-025-02217-y>
110. Weaver, D. B. (2012). Organic, incremental and induced paths to sustainable mass tourism convergence. *Tourism Management*, 33(5), 1030–1037. <https://doi.org/10.1016/j.TOURMAN.2011.08.011>
111. Woosnam, K. M., Ribeiro, M. A., Denley, T. J., Hehir, C., & Boley, B. B. (2022). Psychological antecedents of intentions to participate in last chance tourism: Considering complementary theories. *Journal of Travel Research*, 61(6), 1342-1357. <https://doi.org/10.1177/00472875211025097>
112. Yang, X., Chen, S., Liu, T., Luo, J., & Tang, Y. (2025). Practice Primacy: Revisiting the Knowledge–Action Gap in Pro-Environmental Behavior with eXplainable AI. *Sustainability*, 17(21), 9916. <https://doi.org/10.3390/su17219916>.
113. Xu, M., & Chen, Z. (2025). The Spatiotemporal Characteristics and Flow Pattern of Inbound Tourist Flow Based on UGC Data: A Case Study of Southern Jiangsu (C. Rongrong, Trans.). *Transformations In Business & Economics*, 24(1 (64), 33-54. <https://doi.org/10.15388/Tibe.2025.24.1>

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