Iranian Journal of Insurance Research
(IJIR)

Homepage: https://ijir.irc.ac.ir/?lang=en

Insurance Research Center (IRC)

ORIGINAL RESEARCH PAPER

The Impact of Environmental Awareness on Willingness to Purchase Green Insurance in Iran

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ARTICLE INFO

Article History:
Received: 10 December 2025
Final revision: 3 January 2026
Accepted: 17 May 2026
Early online access: 17 May 2026
Published: 23 September 2026

Keywords:
Environmental insurance
Environmental knowledge
Insurance industry
Multidimensional biospheric concern
Sustainable consumer Behavior

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DOI: 10.22056/ijir.2026.S1.09

ABSTRACT

BACKGROUND AND OBJECTIVES: Environmental crises, including rapid climate change, global warming, and resource degradation, pose major challenges to the global community. Rapid industrial growth, urbanization, and expanding consumerism have contributed to a sharp increase in greenhouse gas emissions, creating significant threats to biodiversity, human health, and ecosystem quality. In this context, promoting pro-environmental behavior has become a critical priority that extends beyond traditional environmental sectors and places increasing responsibility on financial and insurance institutions to support sustainable development. As a cornerstone of the modern economy, the insurance industry is uniquely positioned to mitigate environmental risks through risk-transfer mechanisms and the development of green insurance products. This financial instrument incorporates sustainability considerations into product design, contractual arrangements, and investment policies, thereby discouraging environmentally harmful activities while promoting environmentally responsible projects. Despite its considerable potential to alleviate environmental pressures, the market penetration of green insurance remains limited in developing countries such as Iran, where environmental challenges—including water scarcity and severe air pollution—are particularly acute. Evidence suggests that although environmental awareness is increasing, it does not necessarily translate into purchasing behavior, indicating a persistent gap between knowledge and action. Accordingly, this study seeks to provide a comprehensive explanation of the psychological and structural mechanisms shaping individuals' willingness to purchase green insurance in Iran. Specifically, it examines how environmental awareness, environmental concern, environmental attitude, and trust in insurers interact to influence consumer decision-making in a developing market context.

METHODS: To identify the determinants of green insurance adoption, this study employs a theoretical framework integrating the Theory of Planned Behavior (TPB), the Knowledge–Attitude–Behavior (KAB) model, and the Environmental Values framework. This integrated model enables the examination of both direct and indirect relationships between cognitive, affective, and attitudinal constructs and individuals' behavioral intentions. Data were collected through a structured questionnaire administered to citizens residing in major Iranian metropolitan areas. The final sample comprised 397 valid responses, providing adequate statistical power for the analysis. A key methodological feature of the study is the operationalization of the principal constructs. Environmental concern was modeled as a second-order construct grounded in the Value–Belief–Norm theory and composed of three dimensions: egoistic concern, social-altruistic concern, and biospheric concern. Environmental attitude was measured to capture individuals' worldviews regarding the relationship between humans and nature. Trust in insurance companies was assessed using a multidimensional scale evaluating perceptions of honesty, competence, and benevolence. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), which is particularly suitable for analyzing complex models with latent constructs and predicting behavioral intentions.

FINDINGS: The results of the structural equation modeling support the main hypotheses of the study. Environmental awareness functions as a cognitive driver and exerts a significant positive effect on individuals' willingness to purchase green insurance. The findings indicate that awareness primarily operates as a foundational factor that reinforces other psychological determinants. Environmental concern—comprising egoistic, social-altruistic, and biospheric dimensions—also demonstrates a significant positive effect and acts as a powerful emotional driver. The greater the threats individuals perceive to themselves, society, or the biosphere, the stronger their willingness to purchase green insurance. Environmental attitude likewise exhibits a positive influence, indicating that a pro-environmental worldview is a meaningful predictor of green financial behavior. Importantly, trust in insurance companies emerges as a critical determinant with a significant positive effect on willingness to purchase intention. Given the intangible nature of insurance services and the novelty of green insurance products, trust serves as a key mechanism for reducing perceived risk and uncertainty. Analysis of the control variables reveals that income level, education, and prior insurance experience positively and significantly influence purchase intention. In contrast, demographic variables such as age and gender do not exhibit a statistically significant effect on the decision-making process.

CONCLUSION: The findings indicate that expanding the green insurance market in Iran requires a multifaceted strategic approach that extends beyond awareness campaigns alone. While increasing environmental knowledge remains essential, the results highlight the importance of fostering deeper emotional engagement and, most importantly, strengthening public trust in insurance institutions. To reduce consumer skepticism, insurance providers must demonstrate a genuine commitment to sustainability through transparent policies and practices. Furthermore, since higher levels of income and education are associated with stronger purchase intentions, early marketing strategies may benefit from targeting these socio-economic segments. Ultimately, developing a robust green insurance market requires more than raising environmental awareness; it demands a comprehensive strategy that combines educational initiatives, value-based engagement, and the strengthening of institutional trust. Such an approach is essential for bridging the gap between environmental concern and actual purchasing behavior.

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INTRODUCTION

In recent decades, environmental crises such as climate change, global warming, and the degradation of natural resources have become major global concerns. Accelerated industrial growth, urbanization, and consumerism have intensified emissions and threatened biodiversity, undermining both human health and ecosystem stability. As a result, encouraging environmentally responsible behaviors—particularly within financial and insurance systems—has become increasingly critical (Cai et al., 2025).

As a fundamental pillar of the modern economy, the insurance industry can extend its role beyond traditional risk coverage to contribute actively to environmental protection by designing and offering innovative products such as green insurance (Cao et al., 2025). Green insurance encompasses insurance products that embed sustainability criteria and environmental considerations throughout their design processes, contractual arrangements, and investment policies. These products can mitigate environmentally harmful activities while simultaneously promoting investment in environmentally friendly initiatives (Ma & Wang, 2025).

Despite the considerable potential of green insurance to alleviate environmental pressures, consumer adoption remains limited in many countries, including Iran. Prior research emphasizes that the uptake of green innovations is substantially influenced by consumers' psychological and attitudinal factors (Tranter & Booth, 2019). Among these, environmental awareness—a core cognitive construct—plays a central role in shaping individuals' willingness to engage in pro-environmental behaviors. Environmental awareness encompasses individuals' knowledge and perceptions of environmental challenges, their underlying causes and consequences, and strategies for environmental protection. However, evidence indicates that awareness alone rarely translates into concrete action; rather, its effects are often mediated through environmental attitudes and behavioral intentions (Ip, 2024).

Environmental attitude, commonly measured using the New Ecological Paradigm (NEP) scale, reflects individuals' general worldviews concerning the human–nature relationship, resource limits, and the need for environmental protection (Lavuri, 2022). A positive environmental attitude is strongly associated with pro-environmental behavior. International studies further demonstrate that environmental attitude not only influences but also mediates and strengthens the effects of environmental knowledge and concern on consumers' willingness to purchase green products (Sharma et al., 2022).

Examining these relationships in Iran is particularly important for two reasons. First, the country faces severe environmental challenges—including water scarcity, air pollution, and soil degradation—that require innovative economic and financial responses. Second, Iran's green insurance market remains in its early stages of development, and understanding the factors that shape consumer adoption can provide valuable insights for policymaking and private-sector engagement. Moreover, cultural, social, and economic differences between Iran and countries commonly examined in the global literature underscore the need for localized, context-specific analysis. Accordingly, this study, focusing on the Iranian context and employing Structural Equation Modeling (SEM), seeks to examine whether, and in what manner, environmental awareness, environmental concern, environmental attitude, and trust in insurance companies influence consumers' willingness to purchase green insurance.

Theoretical Foundations

Environmental Awareness

Environmental awareness represents a key cognitive determinant in understanding pro-environmental behavior. It is a multidimensional construct encompassing individuals' knowledge of environmental issues, their causes and consequences, and the strategies required to address them (Rehman et al., 2025). This construct reflects the capacity to recognize and interpret the interconnections between natural processes and human activities, enabling consumers to evaluate the environmental implications of their decisions. Within the green marketing literature, environmental awareness is widely regarded as a prerequisite for developing sustainable attitudes and fostering willingness to adopt environmentally responsible behaviors (Liu et al., 2020).

Consistent with environmental psychology frameworks, prior research classifies environmental knowledge into two principal forms: (1) objective knowledge, referring to individuals' factual and measurable understanding of environmental concepts and issues; and (2) subjective or perceived knowledge, referring to individuals' self-assessed level of environmental understanding (Chi et al., 2022). Empirical evidence suggests that both forms are associated with green behaviors; however, the direct effect of awareness on behavior is often limited and typically operates through mediating variables such as attitudes and personal norms (Liu et al., 2020).

Evidence from the Iranian context similarly indicates a persistent gap between awareness and action. Although concern regarding environmental crises—including water scarcity, air pollution, and climate change—is increasingly recognized, such awareness has not translated into widespread adoption of green products or sustainable services. Majdi Yazdi et al. (2021) attribute this gap partly to psychological factors, including weak positive attitudes toward environmental

initiatives, in addition to structural constraints.

Environmental awareness is further linked to individuals' ability to recognize the economic and social implications of green behaviors. The literature conceptualizes this construct as encompassing knowledge of environmental problems, understanding of potential solutions and mitigation measures, and awareness of the consequences of individual actions (Yang et al., 2025). In the present study, environmental awareness refers specifically to respondents' knowledge of climate-related issues in Iran, including the impacts of climate change, air and water pollution, and potential mitigation strategies.

The theoretical relationship between environmental awareness and willingness to purchase green insurance is grounded in green consumer behavior models, particularly the Knowledge–Attitude–Behavior (KAB) framework. This model posits that knowledge shapes attitudes, which subsequently influence behavioral intentions and actions. Nonetheless, recent studies indicate that this pathway may be moderated or reinforced by additional constructs, including personal norms, brand trust, and social motivations. In the context of green insurance—where services are intangible and quality cannot be evaluated prior to purchase—awareness of environmental benefits and expected positive impacts plays a critical role in reducing perceived risk (Burgos-Espinoza et al., 2025).

Practically enhancing environmental awareness through public education initiatives, targeted communication strategies, and transparent disclosure of insurers' green practices may facilitate greater consumer acceptance (Klabi, 2025). In Iran, policymakers and insurance industry stakeholders can narrow the awareness–action gap by implementing coordinated public campaigns and collaborating with environmental non-governmental organizations. For example, Ghavidel et al. (2020) found that consumers who perceived green insurance as directly contributing to environmental protection demonstrated a greater willingness to pay higher premiums.

In summary, this study conceptualizes environmental awareness not merely as an independent variable but as a foundational driver in the formation of positive environmental attitudes and the willingness to purchase green insurance. The literature consistently suggests that without adequate knowledge of environmental problems and potential solutions, consumers are unlikely to actively engage in green purchasing decisions. Accordingly, strengthening environmental awareness within Iran's insurance market constitutes a strategic component of sustainable development and the promotion of a green insurance culture.

Environmental Concern

Environmental concern, a multidimensional construct within the fields of environmental psychology and green consumer behavior, reflects the degree of sensitivity, significance, and priority an individual assigns to environmental issues. It encompasses the values, beliefs, and orientations regarding the relationship between humanity and the natural world, often categorized along a continuum ranging from egoistic to biospheric orientations (Gauldin et al., 2025). From a behavioral perspective, environmental concern serves as a robust predictor of the willingness to engage in sustainable actions, enhancing intrinsic motivation to support environmentally friendly policies and initiatives. The theoretical importance of this construct lies in its role as a motivational bridge between environmental knowledge and the manifestation of green behavior; effectively, awareness in the absence of emotional concern rarely translates into concrete action (Liu et al., 2020).

Empirical research within the Iranian context confirms that rising levels of environmental concern among citizens are positively and significantly correlated with the inclination to purchase green products and services. In the present study, environmental concern is conceptualized not only as a predictor of the willingness to purchase green insurance but also as a primary driver of positive environmental attitudes. Methodologically, it is operationalized as a second-order construct encompassing three distinct dimensions: egoistic concern, social-altruistic concern, and biospheric concern (Omidvar et al., 2023).

1. Egoistic Concern

Egoistic concern refers to a form of environmental care rooted in self-interest and personal welfare. Within this orientation, the consequences of environmental degradation are valued primarily to the extent that they affect an individual's health, quality of life, or personal assets. Individuals characterized by egoistic concern tend to evaluate environmental issues based on their direct impact on their own lives; for instance, air pollution is viewed as a significant threat if it leads to respiratory illness, while climate change becomes a priority if it threatens job security or disrupts one's lifestyle (Cai et al., 2025).

Research, including that of Liu et al. (2020), indicates that egoistic concern can serve as a catalyst for engagement in pro-environmental behaviors, although the scope and persistence of such behaviors are generally more limited compared to other orientations. Within the Iranian context, empirical findings suggest that many consumers demonstrate a willingness to support environmental initiatives—such as the purchase of green insurance—only when they perceive direct, tangible benefits. From a green marketing perspective, emphasizing the personal and

benefit-oriented dimensions of green insurance, such as safeguarding health and financial security against climate-related losses, can effectively attract this consumer segment (Mohammadsalehi et al., 2023).

2. Social–Altruistic Concern

Social concern is grounded in altruistic values and a commitment to the welfare of others, particularly present and future generations. Within this orientation, individuals evaluate the societal consequences of environmental degradation not only for themselves but also for others, especially vulnerable populations, children, and their local communities. This form of concern is closely associated with social responsibility and with behaviors intended to generate collective benefits. Empirical evidence suggests that, compared with egoistic concern, social–altruistic concern tends to foster more enduring and substantial pro-environmental behaviors (Rehman et al., 2025).

Alirezaei et al. (2022) demonstrated that altruistic values exhibit a significant positive relationship with both environmental attitudes and the willingness to purchase green products. In the context of green insurance, this orientation may manifest in preferences for insurance products designed to protect society as a whole from environmental risks. For example, green agricultural insurance not only secures farmers' financial stability but also contributes to the conservation of essential natural resources such as water and soil, thereby benefiting the broader community. Accordingly, communication strategies that emphasize collective responsibility and societal benefits—such as social advertising campaigns—may enhance consumer acceptance of green insurance among individuals with strong social–altruistic concern.

3. Biospheric Concern

Biospheric concern represents the deepest and most comprehensive level of environmental concern. At this level, individuals attribute intrinsic value to all living beings and ecosystems. Unlike egoistic or social–altruistic concerns, which remain largely human-centered, biospheric concern encompasses sensitivity toward harm inflicted on plants, animals, biodiversity, and the Earth's natural cycles, often reflecting an ecocentric worldview (Burgos-Espinoza et al., 2025).

Empirical studies indicate that individuals with stronger biospheric concern tend to adopt more persistent and wide-ranging pro-environmental behaviors and are more likely to engage in actions that do not yield immediate personal or human-centered benefits. In the Iranian context, although this form of concern appears less prevalent than the other two dimensions, grassroots movements advocating wildlife conservation or opposing environmentally destructive projects provide tangible expressions of these values. Within the insurance market, such consumers may demonstrate stronger preferences for green insurance products whose revenues are partially allocated to initiatives supporting natural resource restoration, afforestation, or habitat preservation (Shafaei Moghadam & Niazi, 2020). From a behavioral modeling perspective, higher levels of biospheric concern are positively associated with stronger environmental attitudes and, consequently, greater willingness to purchase green insurance (Majdi Yazdi et al., 2021). Accordingly, biospheric concern constitutes a strategically important dimension in the development of effective green marketing communication.

Environmental Attitude

Environmental attitude is widely regarded as one of the most influential psychological constructs in the domain of green consumer behavior. It reflects a set of beliefs, emotions, and predispositions that individuals hold toward environmental protection and the sustainability of natural resources. This attitude is commonly conceptualized as comprising three components: a cognitive component, referring to individuals' perceptions of the importance of environmental issues; an affective component, representing emotional responses such as interest, moral responsibility, concern, or anxiety regarding environmental degradation; and a behavioral component, denoting an individual's readiness and willingness to engage in pro-environmental actions (Chi et al., 2022).

Environmental attitude plays a crucial role as an intermediate mechanism linking environmental awareness and environmental concern with actual pro-environmental behavior, particularly in decisions related to the selection of environmentally friendly products or services, including green insurance (Gauldin et al., 2025).

International research, including the study by Lavuri (2022), demonstrates that individuals with stronger environmental attitudes exhibit a significantly higher propensity to engage in sustainable behaviors than those with weaker levels of environmental concern. Similarly, Burgos-Espinoza et al. (2025) emphasize that strengthening environmental attitudes through both formal and informal educational initiatives can lead to meaningful behavioral change. Within the insurance sector—characterized by intangible service provision and long-term contractual commitments—a positive environmental attitude plays a decisive role in the acceptance of green insurance products.

From a values-based perspective, environmental attitudes are shaped by individuals' underlying value systems. Ecocentric values prioritize the protection of nature as an intrinsic objective, whereas

anthropocentric values frame environmental protection primarily in terms of benefits for human well-being (Sharma et al., 2022). In Iran, survey evidence suggests that environmental attitudes—particularly among younger generations—are gradually strengthening. Nevertheless, a notable gap persists between holding positive environmental attitudes and translating them into actual behavior. This discrepancy is often attributed to economic constraints and limited trust in institutions offering green products (Danesh Satari, 2022).

This attitude–behavior gap represents one of the primary challenges facing green marketing strategies in the insurance industry. Addressing this challenge requires providing tangible evidence of the benefits associated with green insurance, utilizing credible environmental certifications and eco-labels, and communicating real-world success cases that demonstrate the effectiveness of such initiatives (Gauldin et al., 2025). From a structural modeling perspective, environmental attitude may function not only as a direct determinant of willingness to purchase green insurance but also as a mediating construct that strengthens the influence of environmental concern on behavioral intentions (Ma & Wang, 2025). In practical terms, individuals with moderate levels of environmental concern may still demonstrate a higher willingness to purchase green insurance if they maintain a positive and stable attitude toward environmental protection.

Evidence from studies conducted in Iran supports this relationship. Alirezaei et al. (2022) found that a positive attitude toward environmental policies and initiatives is strongly associated with support for green innovations and can influence economic decision-making. This finding aligns with the principles of relationship marketing, which emphasize the development of emotional and value-based connections between organizations and their customers. In the insurance sector, such connections become sustainable when insurers highlight not only the financial advantages of green policies but also demonstrate genuine commitment through practices consistent with environmental values.

In summary, environmental attitude constitutes a critical determinant in reinforcing green purchasing behavior and fostering consumer preference for environmentally responsible insurance products. Strengthening such attitudes requires coordinated efforts involving formal and informal environmental education, participation in collaborative environmental initiatives, and continuous interaction between consumers and insurers through corporate environmental responsibility programs.

Trust in Insurance Companies

Trust, as one of the most critical behavioral constructs in services marketing, occupies a pivotal role in customer decision-making processes, particularly within the insurance industry, where offerings are intangible and rely heavily on promises of future performance (Tranter & Booth, 2019). Theoretically, trust is defined as the customer's belief in the honesty, competence, and reliability of the counterpart to fulfill commitments, even in the absence of direct oversight or control. In the insurance sector, this belief is shaped by customers' assessments of the company's capacity to meet financial obligations, the quality of its services, the alignment of corporate values with principles of social responsibility, and the transparency of its communications (Cao et al., 2025).

International research demonstrates that in the context of green products, trust extends beyond traditional dimensions such as reliability and competence to encompass additional elements, including the credibility of environmental claims and ethical integrity (Sharma et al., 2022). This suggests that customers considering green insurance not only evaluate a company's ability to pay claims and honor commitments but also critically assess the accuracy and legitimacy of its stated environmental benefits. In Iran, empirical evidence indicates that limited transparency and insufficient documented communication regarding the actual environmental performance of green insurance products constitute a critical impediment to trust-building in this emerging market (Toubaei et al., 2021).

Within the relationship marketing perspective, trust is regarded as the cornerstone for establishing and maintaining long-term interactions between customers and organizations. This construct gains heightened significance when the business environment is characterized by high levels of uncertainty and perceived risk, a condition that is particularly evident in the green insurance market. For innovative and relatively unfamiliar products such as green insurance, the absence of prior practical experience means that customer decisions depend heavily on perceived corporate trustworthiness (Movaghar et al., 2023).

Burgos-Espinoza et al. (2025) highlight that a positive environmental attitude leads to actual green purchasing behavior only when it is reinforced by trust in the product provider. In the absence of trust, even strong attitudes and high environmental awareness may fail to translate into purchasing behavior due to doubts regarding the company's honesty or operational competence. In the insurance industry, this dynamic manifests as the attitude–trust–behavior gap: customers may recognize the importance of green insurance and understand its potential benefits, yet insufficient trust acts as a decisive barrier to purchase.

In the context of the Iranian market, effective

trust-building for green insurance requires a coordinated combination of communicative and operational measures. Communicative measures include providing transparent, documented, and verifiable information regarding the environmental impacts of insurance products, publishing annual sustainability or performance reports, and allocating resources to credible environmental initiatives (Haghighi Kafash et al., 2012). Operational measures involve accurately and promptly fulfilling insurance commitments, making genuine investments in natural resource restoration initiatives, and aligning corporate policies with internationally recognized standards of social responsibility (Maroofi et al., 2021).

Within the conceptual model of the present study, trust in insurance companies serves a dual function. First, it has a direct effect by enhancing customers' willingness to purchase green insurance. Second, it exerts a moderating effect by strengthening the positive influence of environmental attitude on purchase intention. This suggests that even among customers with favorable environmental attitudes, the intensity and likelihood of green purchasing behavior depend substantially on their level of trust in the insurance provider.

Ultimately, in the green insurance market, trust extends beyond a purely psychological construct and represents a sustainable competitive advantage capable of shaping a company's position in customers' perceptions and preferences. Establishing and maintaining such trust requires a comprehensive approach that goes beyond promotional claims and is supported by concrete and verifiable actions. Without this foundation, doubts regarding a company's environmental integrity may quickly undermine customer confidence and weaken long-term relationships.

Willingness to Purchase Green Insurance

Willingness to purchase green insurance, recognized as a core indicator of green consumer behavior, refers to an individual's deliberate intention to select insurance policies designed to be environmentally friendly or to mitigate negative environmental impacts. Unlike actual purchasing behavior, which is manifested in action, willingness operates at the level of inclination and intention, shaped by an interconnected set of cognitive, affective, and normative factors. In the insurance industry—where services are inherently intangible and commitments are typically realized in the future—purchase willingness depends heavily on customers' subjective perceptions of environmental benefits, the credibility of the provider, and the alignment of the product with personal values and attitudes (Rehman et al., 2025).

International studies, including Liu et al. (2020), have established that the willingness to purchase green products is significantly influenced by environmental attitude and trust in the provider. In the conceptual model proposed by Liu et al. (2020), environmental awareness fosters purchase intention by shaping attitudes and creating a sense of moral responsibility. However, a lack of trust or uncertainty regarding the authenticity of environmental claims can undermine this intention. These findings are particularly decisive in the insurance sector, where green policies not only offer coverage for losses linked to climate-related events but also claim broader environmental contributions, such as investments in natural resource restoration or initiatives to reduce the industry's carbon footprint.

In Iran, research by Molla Ghaleghachi and Bashir Khodaparasti (2022) indicates that willingness to purchase green insurance remains in an early developmental phase and is largely considered an emerging concept. A principal barrier to forming purchase intention is limited public awareness regarding the nature and operational mechanisms of green insurance, specifically the distinctions between green and conventional policies. Furthermore, the nascent state of the market and a lack of documented domestic success stories contribute to consumer hesitation. Under such conditions, motivational and normative factors assume greater prominence; moral obligations, concerns for the future of natural resources, and social pressures may serve as substitutes for direct personal experience in driving purchase willingness.

Within the framework of the Theory of Planned Behavior (TPB), willingness to purchase green insurance is shaped by three primary categories of determinants:

1. Attitudes toward the behavior: Positive environmental attitudes, perceptions of personal and collective benefits, and societal endorsement of green insurance increase willingness.

2. Subjective norms: Growing societal norms favoring green initiatives exert positive pressure on consumer behavior, especially in contexts where responsible consumption is emerging as a social value (Tranter & Booth, 2019).

3. Perceived behavioral control: The perceived ease or difficulty of purchasing green insurance—based on factors such as accessibility, affordability, and market maturity—directly impacts purchase intention.

A notable feature of green insurance is the heterogeneous impact of egoistic, social-altruistic, and biospheric motivations on purchase intention. Egoistically motivated individuals view green insurance primarily as a means of personal protection against environmental damage; altruistically motivated groups regard it as a mechanism for contributing to societal resilience in the face of climate risks; and biospherically motivated individuals value it for its contribution to ecosystems and the welfare of all living organisms

(Omidvar et al., 2023).

From a practical perspective, enhancing willingness to purchase green insurance requires strategic green marketing initiatives, including transparent communication regarding environmental benefits, the presentation of successful case studies, financial incentives or specialized discounts, and the effective use of social media to build a positive image of green insurance. Furthermore, fulfilling environmental commitments and disseminating verifiable performance reports can help internalize the value of green insurance among customers, thereby solidifying purchase intention.

Ultimately, willingness to purchase green insurance serves as a critical bridge between motivational constructs, such as attitude and concern, and actual purchasing behavior. Strengthening this willingness depends not only on individual-level shifts in values and beliefs but also on structural reforms in how green insurance is designed and marketed. By emphasizing this construct within the conceptual model, the present study seeks to identify the mechanisms influencing willingness to purchase green insurance and to propose pathways for increasing consumer participation in Iran's emerging environmentally friendly insurance market.

Research Hypotheses

Drawing upon a review of domestic and international literature and grounded in established theoretical frameworks, including the Theory of Planned Behavior (TPB), the Knowledge–Attitude–Behavior (KAB) model, and Environmental Values Theory, this study formulates hypotheses concerning the relationships among environmental awareness, environmental concern, environmental attitude, and trust in insurance companies in relation to willingness to purchase green insurance in Iran. These hypotheses derive from the integration of prior empirical findings and the need for contextual adaptation within Iran's socio-cultural and economic environment, encompassing both direct and indirect pathways specified in the conceptual model.

Accordingly, the primary hypotheses of the study are presented as follows:

Direct Effects

- **H_1:** Environmental awareness has a positive and significant effect on willingness to purchase green insurance.
- **H_2:** Environmental concern has a positive and significant effect on willingness to purchase green insurance.
- **H_3:** Environmental attitude has a positive and significant effect on willingness to purchase green insurance.
- **H_4:** Trust in insurance companies has a positive and significant effect on willingness to purchase green insurance.

Indirect (Mediating) Effects

Based on the conceptual model and consistent with the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach, the following indirect pathways are examined to assess the mediating roles of environmental attitude and environmental concern in the relationships among the core constructs:

- **H_5:** Environmental attitude mediates the relationship between environmental awareness and willingness to purchase green insurance.
- **H_6:** Environmental attitude mediates the relationship between environmental concern and willingness to purchase green insurance.
- **H_7:** Environmental concern mediates the relationship between environmental awareness and willingness to purchase green insurance.

Control Variables

To account for contextual and individual differences, selected demographic variables are incorporated into the model as control variables:

- **H_8:** Age has a positive and significant effect on willingness to purchase green insurance.
- **H9:** Gender has a positive and significant effect on willingness to purchase green insurance.
- **H_{10}:** Level of education has a positive and significant effect on willingness to purchase green insurance.
- **H_{11}:** Income has a positive and significant effect on willingness to purchase green insurance.
- **H_{12}:** Prior insurance usage experience has a positive and significant effect on willingness to purchase green insurance.

Fig. 1 presents the conceptual model of the study, illustrating both the direct and indirect pathways among the constructs under investigation. This model provides a structured framework for testing the research hypotheses and analyzing the relationships among the variables based on the collected data.

LITERATURE REVIEW

Review of Domestic Studies

In recent years, domestic researchers have increasingly focused on the psychological and behavioral constructs influencing the inclination to purchase green products; however, these studies have predominantly concentrated on tangible goods and have rarely addressed intangible services such as green insurance. Molla Ghaleghachi and Bashir Khodaparasti (2022) investigated the effects of altruistic values, environmental awareness, and social media use on green purchasing behavior, with environmental concern as a mediating variable, based on a customer sample. Their findings indicated that environmental

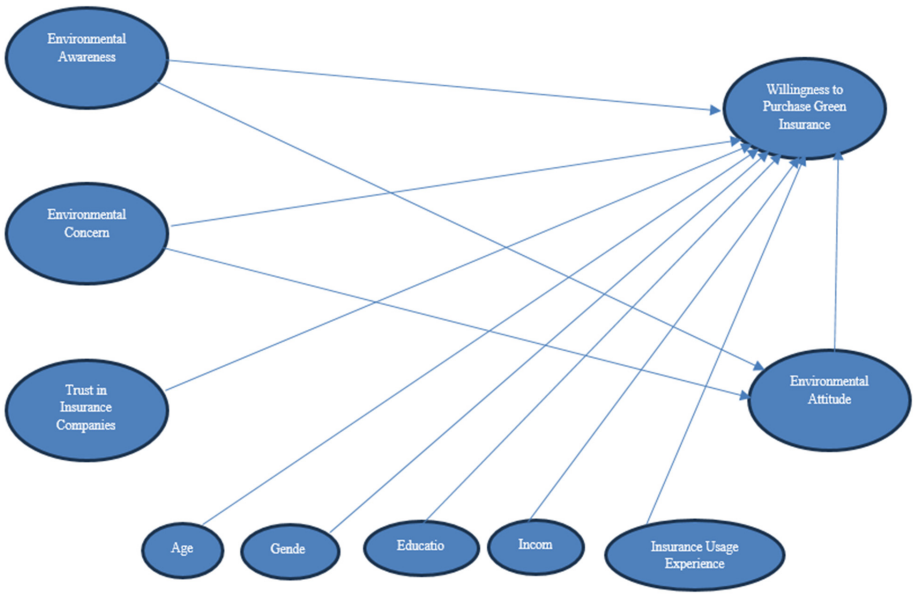


Fig. 1. Conceptual Model of the Study
Source: Research Findings

awareness and altruistic values have a significant positive relationship with environmental concern and, subsequently, with green purchasing behavior. While this study effectively demonstrated the mechanism through which environmental concern exerts influence, its lack of focus on green services, including insurance, and the absence of differentiation among the dimensions of concern (egoistic, social–altruistic, and biospheric) limit the generalizability of its results to service-based models.

Shafaei Moghadam and Niazi (2020) examined the relationship between environmental awareness and environmental attitude regarding green purchasing behavior among citizens of Mashhad. Their findings revealed that increased environmental knowledge not only strengthens green attitudes but also, through fostering a sense of social responsibility, enhances the likelihood of purchasing green products. However, this research did not address the role of consumer trust in the provider—an element that holds a pivotal role in financial and insurance services and can lead to substantial changes in purchase intentions.

Danesh Satari (2022), focusing on the tourism industry, identified green brand trust as a key determinant in the adoption of environmentally friendly services. Their study demonstrated that providing tangible evidence of a company's environmental activities increases trust, which in turn enhances purchase intentions. This finding underscores the need for particular emphasis on trust in insurance companies within the present model. Nonetheless, Soleimani's study concentrated on services with immediate consumption experiences (such as travel and accommodation), whereas green insurance entails long-term contractual commitments, rendering the dimensions of trust in this context more complex and nuanced.

In the field of environmental concern, Alirezaei et al. (2022) highlighted the importance of biospheric concerns as a powerful driver of sustainable behaviors in Iranian society. This study effectively elucidated the deeper connection between ecocentric values and green choices; however, its empirical testing was conducted on small samples within the agricultural sector, which poses challenges for generalizing the findings to the green insurance market.

Mohammadsalehi et al. (2023), adopting a green marketing approach, investigated the relational model between trust, social responsibility, and the inclination toward purchasing green services. Their results indicated that trust in the service provider leads to actual purchase intentions only when the provider's socially responsible actions are both visible and verifiable. This conclusion bears particular significance in the realm of green insurance, as Iranian consumers have traditionally adopted a cautious approach in evaluating the environmental commitments of service companies.

Review of International Studies

An examination of international scholarship reveals that, over the past two decades, growing attention has been devoted to the psychological and cognitive determinants influencing green behaviors, with extensive modeling of the linkages among environmental awareness, concern, attitude, trust, and

willingness to purchase green products and services. However, most of these studies have focused on tangible goods and have rarely addressed intangible green services such as insurance.

Findings from international research indicate that environmental awareness, in most cases, does not exert a significant direct effect on pro-environmental behavior; rather, its influence is mediated through environmental attitudes and behavioral intentions. For example, Liu et al. (2020) in a study conducted in China found that while environmental knowledge does not directly dictate behavior, it exerts considerable influence by enhancing attitudes and fostering green purchase intentions. A notable critique of such studies is their tendency to measure environmental knowledge in a generalized manner, thereby overlooking the distinction between general and specialized knowledge. In contrast, Burgos-Espinoza et al. (2025) demonstrated that specialized knowledge exerts a greater impact among professional groups and that practical experience with environmental issues strengthens the effect of awareness on purchase intentions.

Environmental attitude serves as a vital link between cognition and behavior. This construct is typically assessed using the New Ecological Paradigm (NEP) scale, which addresses dimensions such as limits to growth, anti-anthropocentrism, and the fragility of nature. Such attitudes not only increase the likelihood of engaging in green behaviors but also influence consumer trust in providers of green services. Nonetheless, researchers have observed that the dimensions of this scale may vary across cultures, and applying it without localization can compromise the validity of findings — a point particularly relevant to green insurance, as the Iranian context— where environmental attitudes and values may differ structurally from international frameworks (Cai et al., 2025).

The international literature on trust has largely developed within the domains of green products and branding, with limited attention to financialand insurance services, despite the fact that the long-term nature of insurance amplifies the sensitivity of this variable. Studies show that transparency and documented evidence of a company's environmental performance significantly enhance trust, whereas greenwashing quickly erodes it (Cao et al., 2025).

Willingness to purchaseWithin the Theory of Planned Behavior (TPB), willingness to purchase green services is understood to be influenced by attitude, subjective norms, and perceived behavioral control. While numerous studies have explored these relationships for physical products such as organic food or sustainable fashion, relatively few have examined more complex service sectors. For instance, Rehman et al. (2025) found that in technical service sectors, green behavioral intentions require a combination of environmental values and precise awareness of service characteristics, an insight that is decisive for the green insurance context.

Cross-study comparisons reveal a consensus regarding a cognitive–attitudinal–behavioral pathway linking awareness, attitude, and purchase intention. However, notable divergences remain, including inconsistencies regarding the direct relationship between awareness and behavior, a lack of measurement across specific environmental concern dimensions, and the absence of in-depth examinations of trust in services with long-term contractual obligations. Moreover, research on willingness to purchase green insurance remains extremely limited, as most studies focus on goods characterized by immediate consumption (Lavuri, 2022).

In light of these gaps, transferring international models to the green insurance domain requires systematic localization. Differentiating environmental knowledge into general and specialized categories, measuring environmental concern across its three dimensions (egoistic, social-altruistic, and biospheric), and conducting focused analyses of trust in long-term commitmentswillingness to purchase are essential research priorities. Building upon these findings, the present study proposes a comprehensive model to address the deficiencies in both domestic and international literature regarding green insurance.

To summarize, previous studies collectively indicate a sequential pathway linking environmental awareness, concern, attitude, and behavioral intention, a progression that forms the cognitive, affective, and behavioral foundation of this study's conceptual model. By integrating these constructs and accounting for the trust dimension specific to insurance services, the present framework offers a clearer and more theoretically coherent understanding of the willingness to purchase green insurance.

RESEARCH METHODOLOGY

Research Design

This study investigates the impact of environmental awareness on willingness to purchase green insurance in Iran and examines the mediating role of environmental attitude, alongside the moderating role of trust in insurance companies. A quantitative, survey-based research design was employed. Given the partially exploratory and confirmatory nature of the research objectives and the need to simultaneously assess multiple interrelationships among latent constructs, data were analyzed using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach.

The application of the Theory of Planned Behavior (TPB) in this study reflects a simplified behavioral

framework that does not incorporate constructs such as personal norms and ascribed responsibility, as proposed in the more comprehensive Pro-Environmental Behavior Theory (PEBT). Although this theoretical simplification represents a methodological limitation, it enables a more focused examination of cognitive and attitudinal pathways within the Iranian insurance context.

Furthermore, because a non-probability sampling method was used and data collection was concentrated in major urban areas, the generalizability of the findings to the broader Iranian population is constrained. Future studies may adopt probabilistic sampling strategies and apply the more comprehensive PEBT framework to provide deeper insights into pro-environmental insurance behavior.

The selection of this methodological strategy is theoretically and empirically justified, particularly given the socio-cultural specificity of the Iranian context and the proposed model's inclusion of higher-order constructs. PLS-SEM is robust to deviations from normality, accommodates moderate sample sizes, and facilitates the estimation of complex models comprising both reflective and formative measurement structures.

Target Population

The target population of this study consisted of adult Iranian citizens who are eligible to obtain and use insurance services. Given the study's focus on willingness to purchase green insurance, the population was defined according to three primary criteria:

1. Minimum legal age: Respondents were required to be at least 18 years old and legally capable of entering into insurance contracts.

2. Basic literacy: The ability to read and write was considered necessary to ensure adequate comprehension of the questionnaire items and the environmental concepts addressed in the survey.

3. Basic familiarity with insurance: This criterion referred either to prior experience in purchasing insurance or to a general understanding of the functions and purpose of insurance services, which was regarded as a necessary cognitive prerequisite for evaluating green insurance products.

Considering Iran's extensive geographical scope and socio-cultural diversity, the study focused on residents of metropolitan areas. This geographical delimitation is supported by both theoretical and practical considerations. First, residents of large cities generally demonstrate higher levels of environmental awareness and greater access to insurance services. Second, given that the green insurance market in Iran remains at an early stage of development, the initial introduction of such products is likely to occur primarily in major urban centers.

Moreover, because green insurance products may be relatively novel and conceptually complex, urban consumers—who typically exhibit higher levels of education and income—are expected to constitute the primary potential market for such offerings.

Sampling Method

Given the characteristics of the target population and the absence of a comprehensive sampling frame, this study employed a non-probability convenience sampling technique. Although this approach entails limitations in terms of statistical generalizability, it is widely adopted in exploratory and theory-testing research where the primary objective is to examine theoretical relationships and identify behavioral patterns, particularly under financial and time constraints.

Moreover, in studies applying Partial Least Squares Structural Equation Modeling (PLS-SEM)—which focuses on maximizing the explained variance of endogenous constructs—non-probability sampling can yield statistically robust results, provided that the sample size is adequate and the sample demonstrates sufficient heterogeneity across relevant characteristics.

Data Collection Procedure

Data were collected using an electronic questionnaire developed on the Porsline platform and disseminated through social media networks and online groups. This strategy facilitated access to a relatively broad pool of respondents with diverse demographic backgrounds.

To enhance response rates and improve data quality, the questionnaire began with an introductory section outlining the study's purpose, assuring respondents of the confidentiality of their responses, and emphasizing the voluntary nature of participation. Screening questions were included to ensure that respondents met the eligibility criteria (i.e., being at least 18 years of age and possessing basic familiarity with the concept of insurance).

These procedures were implemented to promote alignment between the characteristics of the obtained sample and those of the intended target population.

Sample Size

Determining an appropriate sample size is a critical consideration in studies employing PLS-SEM. According to the widely cited "10-times rule," the minimum sample size should be at least ten times the maximum number of structural paths directed at any endogenous latent construct in the model.

In the conceptual framework of the present study, the primary dependent variable—Willingness to Purchase Green Insurance—receives four incoming structural paths: Environmental Awareness, Environmental Concern, Environmental Attitude, and

Trust in Insurance Companies. Based on this criterion, the minimum required sample size was calculated as 40 observations.

Following the broad dissemination of the questionnaire and the exclusion of incomplete or invalid responses, 397 usable questionnaires were retained for analysis. This sample size substantially exceeds the minimum threshold for PLS-SEM and ensures adequate statistical power for estimating the proposed structural model. It also permits additional subgroup analyses (e.g., by gender, educational level, or insurance usage experience) as well as robustness checks.

The demographic composition of the sample was relatively diverse, encompassing respondents across a wide range of age groups, genders, educational levels, and income categories. This diversity enhances the analytical rigor of the study and supports the relative representativeness of the findings with respect to the defined target population.

Data Collection Instrument

The primary data collection instrument was a structured questionnaire developed based on established and internationally validated measurement scales. The instrument was translated, adapted, and culturally contextualized for the Iranian setting. Its structure was designed to ensure comprehensive coverage of the study constructs while enabling rigorous assessment of measurement reliability and construct validity.

Questionnaire Structure and Measurement Scales

Section 1: Demographic Information

This section included five control variables: gender, age, educational level, monthly income, and insurance usage experience (yes/no). These variables were collected to control for demographic influences and to identify potential differences in responses across participant subgroups.

Section 2: Environmental Awareness

Environmental awareness was measured using seven items adapted from Rehman et al. (2025) and Liu et al. (2020). The items capture multiple dimensions of environmental knowledge, including awareness of:

- environmental issues in Iran
- climate change and global warming
- air and water pollution
- pollution mitigation strategies
- the impacts of climate change on agriculture
- the role of human activities in environmental degradation

All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This measurement scale has been widely applied in prior research and demonstrates established reliability and validity.

Section 3: Environmental Concern

Environmental Concern was operationalized as a second-order construct comprising three distinct dimensions, aligned with the Value–Belief–Norm (VBN) theory:

1. Egoistic Concern: Three items measuring the perceived impact of environmental degradation on the individual's personal health and lifestyle.

2. Social–Altruistic Concern: Three items evaluating concern regarding the impact of environmental issues on the broader human population, future generations (children), and the local community.

3. Biospheric Concern: Three items assessing concern for non-human species, including plants, marine life, and avian species.

Responses for all items were recorded on a five-point Likert-type scale, ranging from 1 ("Not Concerned at All") to 5 ("Extremely Concerned").

Section 4: Environmental Attitude

Environmental Attitude was assessed using a six-item adaptation of the New Ecological Paradigm (NEP) scale Dunlap et al. (2000). This scale evaluates respondents' perspectives on:

- the relationship between humanity and nature;
- the inherent limits of natural resources;
- the fragility of ecological balance; and
- the potential for global environmental crises.

Participants responded via a five-point Likert scale (1 = "Strongly Disagree" to 5 = "Strongly Agree").

Section 5: Trust in Insurance Companies

Trust in insurance companies was measured using the multi-dimensional framework established by Mayer et al. (1995), specifically adopting the six-item scale applied to the insurance context by Cao et al. (2025). This instrument evaluates several critical facets of organizational trust, including:

- Honesty
- Ability
- Benevolence
- Expertise
- Reliability

All items were assessed using a five-point Likert scale, measuring the respondents' degree of agreement with each statement.

Section 6: Willingness to Purchase Green Insurance

The primary dependent variable, Willingness to Purchase Green Insurance, was operationalized using five items adapted from Cai et al. (2025) and Ma and Wang (2025). These items captured several behavioral

intentions, including:

- the likelihood of purchasing environmentally friendly insurance products;
- the willingness to purchase such products in the near future;
- the willingness to pay a price premium for green coverage;
- the inclination to recommend these products to others; and
- the prioritization of green insurance over conventional alternatives.

Responses were recorded on a five-point Likert scale, ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

Validity and Reliability of the Instrument

The content validity of the questionnaire was assessed through feedback from five academic experts and specialists in the fields of green marketing, consumer behavior, and insurance management. Based on their evaluations, several items were revised to enhance cultural alignment with the Iranian context.

Construct validity and reliability were subsequently assessed during the data analysis phase using SmartPLS version 3. Cronbach's alpha values for all constructs exceeded 0.70, and composite reliability (CR) values were above 0.80, indicating satisfactory internal consistency of the measurement instrument.

Data Analysis Method

Data analysis was conducted in two main stages using SmartPLS version 3, a widely recognized and robust software package for Partial Least Squares Structural Equation Modeling (PLS-SEM). This approach is particularly suitable for the analysis of complex models involving multiple latent constructs and hierarchical structural relationships.

The selection of PLS-SEM in this study was based on three main considerations:

1. Exploratory confirmatory nature of the research: The study aimed not only to test hypotheses but also to predict and explain variance in the dependent variable, consistent with the predictive orientation of PLS.

2. Model complexity: The conceptual framework included a second-order construct (Environmental Concern with three dimensions), which can be effectively estimated using PLS-SEM.

3. Data and sample characteristics: This method provides greater flexibility in the presence of violations of normality assumptions and does not require very large sample sizes.

Stage 1: Descriptive Analysis and Data Preparation

Prior to the main analyses, the raw data from the 442 returned questionnaires were reviewed and screened. Questionnaires containing missing responses or submitted by respondents who did not meet the eligibility criteria were excluded. Ultimately, 397 valid questionnaires were retained for analysis.

Outliers were identified and examined using the Mahalanobis distance method to ensure that they did not adversely affect model estimation.

Subsequently, descriptive statistics, including the mean, standard deviation, skewness, and kurtosis, were computed for all variables to assess data quality. An initial correlation matrix was also generated to provide a preliminary overview of the relationships among the variables and to identify potential risks of multicollinearity. In addition, variance inflation factors (VIF) were calculated for all independent variables to confirm acceptable levels of collinearity.

Stage 2: Measurement Model Assessment

This stage evaluated the quality of the latent constructs and the relationships between their indicators and the corresponding constructs. The analysis focused on three aspects:

(a) Reliability: Internal consistency reliability was assessed using Cronbach's alpha and composite reliability (CR). Threshold values of $\alpha \geq 0.70$ and $CR \geq 0.80$ were considered acceptable.

(b) Convergent Validity: Convergent validity was evaluated using the Average Variance Extracted (AVE). AVE values greater than 0.50 indicate that a construct explains more than half of the variance in its indicators, suggesting adequate convergent validity.

For the second-order construct Environmental Concern, which was estimated using the two-stage approach, reliability and AVE indices were not directly reported in the SmartPLS output and are therefore indicated by a dash in Table 1. For this construct, reliability and convergent validity were assessed based on its first-order dimensions (Egoistic Concern, Social Altruistic Concern, and Biospheric Concern).

(c) Discriminant Validity: To ensure that each construct is distinct from the other constructs in the model, the Fornell–Larcker criterion was employed. According to this criterion, the square root of the Average Variance Extracted (AVE) for each construct should be greater than its correlations with the other constructs. The results of the discriminant validity assessment are presented in Table 2.

Step 3: Evaluation of the Structural Model

After confirming the quality of the measurement model, the structural model was assessed. At this stage, the causal relationships among the latent constructs were examined and the research hypotheses were tested. The main evaluation criteria are as follows:

(a) Path Coefficients: These coefficients represent

Table 1. Convergent Reliability Indices

Variable	Cronbach's Alpha	rho_A	Composite Reliability (CR)	Average Variance Extracted (AVE)
Age	1.000	1.000	1.000	1.000
Education	1.000	1.000	1.000	1.000
Gender	1.000	1.000	1.000	1.000
Insurance Usage Experience	1.000	1.000	1.000	1.000
Income	1.000	1.000	1.000	1.000
Trust in Insurance Companies	0.941	0.944	0.953	0.772
Environmental Awareness	0.940	0.940	0.951	0.734
Willingness to Purchase Green Insurance	0.911	0.911	0.934	0.738
Environmental Concern	_	1.000	_	_
Environmental Attitude	0.934	0.936	0.948	0.752

Source: Research Findings

Table 2. Discriminant Validity (Fornell–Larcker Criterion)

	Age	Education	Gender	Experience in Using Insurance Services	Income	Trust in Insurance Companies	Environmental Awareness	Willingness to purchase green insurance	Environmental Concern	Environmental Attitude
Age	1.000									
Education	-0.009	1.000								
Gender	0.040	0.068	1.000							
Experience in Using Insurance Services	-0.086	0.324	-0.034	1.000						
Income	-0.066	0.413	0.016	0.788	1.000					
Trust in Insurance Companies	-0.012	0.201	-0.014	0.244	0.267	0.879				
Environmental Awareness	-0.014	0.246	0.018	0.454	0.465	0.091	0.857			
Willingness to purchase green insurance	-0.070	0.451	-0.027	0.783	0.881	0.323	0.536	0.859		
Environmental Concern	0.020	0.164	0.006	0.032	0.193	0.038	0.168	0.238		
Environmental Attitude	-0.057	0.251	0.034	0.406	0.488	0.086	0.509	0.551	0.232	0.867

Source: Research Findings

the strength and direction of the relationships between constructs. The statistical significance of the path coefficients was assessed using the bootstrapping method with 5,000 resamples, based on t-statistics and p-values.

(b) Coefficient of Determination (R^2): This index indicates the proportion of variance in the dependent variable explained by the independent variables. R^2 values of 0.25, 0.50, and 0.75 indicate weak, moderate, and substantial explanatory power, respectively.

(c) Effect Size (f^2): This measure assesses the impact of each independent variable on the dependent variable. f^2 values of 0.02, 0.15, and 0.35 correspond to small, medium, and large effect sizes, respectively.

(d) Predictive Relevance (Q^2): Using the blindfolding procedure, the Q^2 statistic was calculated to evaluate the model's predictive capability. Positive Q^2 values indicate that the model has predictive relevance.

RESULTS

To analyze the results, the research hypotheses were tested. The path coefficients of the conceptual model are presented in Fig. 2.

Hypothesis Testing

In this section, the results of the main hypothesis tests based on the bootstrapping analysis are presented. Table 3 summarizes the results of the hypothesis testing.

Environmental Awareness and the Willingness to Purchase Green Insurance

The results indicate that environmental awareness has a positive and significant effect on the willingness to purchase green insurance. The path coefficient is 0.091, indicating that a one-unit increase in environmental awareness is associated with a 0.091 standard deviation increase in the willingness to purchase green insurance. The sample mean is 0.089, which is close to the original coefficient and indicates the stability of the estimate across resampling iterations. The standard deviation of the coefficient is 0.025, suggesting an acceptable level of estimation precision.

The t-statistic is 3.677, which exceeds the critical

value of 2.58, and the p-value is 0.000, that is, less than 0.001. These findings indicate that the relationship between environmental awareness and the willingness to purchase green insurance is significant at the 99.9% confidence level, thus supporting the first research hypothesis. Although the magnitude of the coefficient is relatively small, its high level of significance suggests that environmental awareness is an important factor in consumers' decision-making regarding the purchase of green insurance.

Environmental Concern and the Willingness to Purchase Green Insurance

The results demonstrate that environmental concern has a positive and significant impact on the willingness to purchase green insurance. The path coefficient is 0.070, indicating that a one-unit increase in environmental concern leads to a 0.070 standard deviation increase in the willingness to purchase green insurance. The sample mean of 0.068 shows high consistency with the original coefficient, confirming the stability of the estimate. The standard deviation is 0.024, reflecting an acceptable level of precision. The t-statistic is 2.954, exceeding the critical value of 2.58, and the p-value is 0.003 ($p < 0.01$). These results confirm that environmental concern significantly influences purchase intention at the 99% confidence level, thereby supporting the second hypothesis. Environmental concern serves as an emotional and motivational driver; individuals who express greater concern regarding environmental consequences are more likely to exhibit a stronger willingness to purchase green insurance products.

Environmental Attitude and the Willingness to Purchase Green Insurance

The results demonstrate that environmental concern has a positive and significant impact on the willingness to purchase green insurance. The path coefficient is 0.070, indicating that a one-unit increase in environmental concern leads to a 0.070 standard deviation increase in the willingness to purchase green insurance. The sample mean of 0.068 shows high consistency with the original coefficient, confirming the stability of the estimate. The standard deviation is 0.024, reflecting an acceptable level of precision. The t-statistic is 2.954, exceeding the critical value of 2.58, and the p-value is 0.003 ($p < 0.01$). These results confirm that environmental concern significantly influences purchase intention at the 99% confidence level, thereby supporting the second hypothesis. Environmental concern serves as an emotional and motivational driver; individuals who express greater concern regarding environmental consequences are more likely to exhibit a stronger willingness to purchase green insurance products.

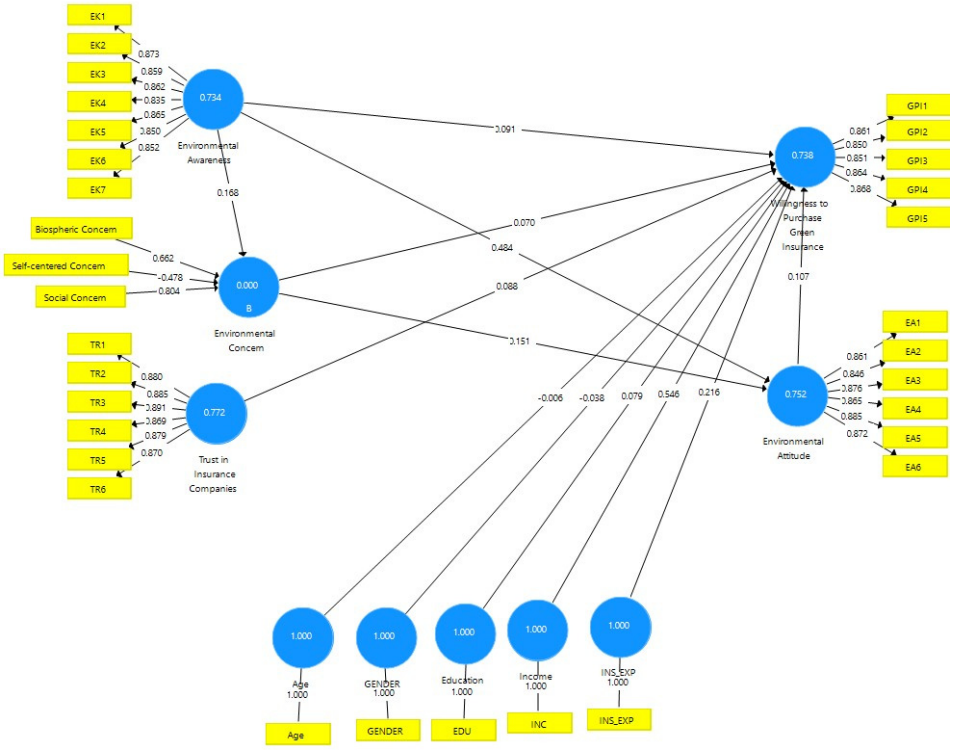


Fig. 2. Results of the Estimated Structural Model
Source: Research Findings

Table 3. Path Coefficients and Hypothesis Testing Results

Hypothesis	Pathway	Path Coefficient (β)	Sample Mean	Standard Deviation	t-statistic	p-value	Result
H_1	Environmental Awareness → Willingness to purchase green insurance	0.091	0.089	0.025	3.677	0.000	The hypothesis was confirmed
H_2	Environmental Concern → Willingness to purchase green insurance	0.070	0.068	0.024	2.954	0.003	The hypothesis was confirmed
H_3	Environmental Attitude → Willingness to purchase green insurance	0.107	0.106	0.030	3.552	0.000	The hypothesis was confirmed
H_4	Trust in Insurance Companies → Willingness to purchase green insurance	0.088	0.086	0.022	4.028	0.000	The hypothesis was confirmed

Source: Research Findings

Trust in Insurance Companies and the Willingness to Purchase Green Insurance

Trust in insurance companies has a positive and highly significant effect on the willingness to purchase green insurance. The path coefficient is 0.088, indicating that a one-unit increase in trust leads to a 0.088 standard deviation increase in purchase intention. The sample mean of 0.086 aligns closely with the original coefficient, demonstrating high stability. The standard deviation of 0.022 is the lowest among all paths, reflecting high estimation precision. The t-statistic is 4.028, which is the highest among all model paths, and the p-value is less than 0.001. These results indicate that trust in insurance companies significantly affects the willingness to purchase green insurance at the 99.9% confidence level, providing strong empirical support for Hypothesis 4. Trust plays a vital role in the insurance industry, which is based on long-term contractual relationships and future promises, acting as a mechanism to reduce uncertainty and perceived risk in the purchase of intangible services such as green insurance.

Mediating Effects

To examine the mediating roles of environmental attitude and environmental concern in the relationships between cognitive variables and the willingness to purchase green insurance, indirect path analyses were conducted using the bootstrapping method with 5,000 resamples in SmartPLS 3. The t-statistics and p-values for each indirect path were calculated to assess the significance of the mediating relationships. Table 4 presents the results of the three mediation hypothesis tests.

Analysis of Indirect Paths

The analysis of indirect effects, conducted using the bootstrapping method with 5,000 resamples, revealed the mediating roles of environmental attitude and environmental concern in the relationships between cognitive variables and the intention to purchase green insurance.

The results indicated that environmental awareness, through environmental attitude, exerts a positive and significant indirect effect on the intention to purchase green insurance. The coefficient of this indirect effect was 0.052, with a sample mean of 0.051, and a t-statistic of 3.347 with a p-value less than 0.001, indicating that this path is supported with a very high level of confidence. This finding suggests that an increase in individuals' knowledge and understanding of environmental issues and consequences fosters a positive and enduring attitude toward the environment, which, as a motivational factor, significantly enhances their interest in and intention to purchase environmentally friendly insurance policies.

Moreover, environmental concern also affected the intention to purchase green insurance through environmental attitude. The coefficient for this path was 0.016, with a sample mean of 0.016, and a t-statistic of 2.289 accompanied by a p-value of 0.022, confirming the statistical significance of this relationship. This result indicates that the more concerned individuals are about the state of the environment, the more positive their attitude toward environmental protection becomes—an attitude that, in turn, motivates them to accept and purchase green insurance products. Given that the direct effect of environmental concern on purchase intention was also confirmed in the model, the mediating role of environmental attitude in this relationship is partial.

Additionally, another indirect relationship was observed in which environmental awareness influenced the intention to purchase green insurance through environmental concern. The coefficient for this path was 0.012, with a sample mean of 0.012, and a t-statistic

Table 4. Path Coefficients and Hypothesis Test Results of the Study's Mediating Variables

Hypothesis	Pathway	Path Coefficient (β)	Sample Mean	Standard Deviation	t-statistic	p-value
H_5	Environmental Awareness → Environmental Attitude → Willingness to purchase green insurance	0.052	0.051	0.015	3.347	**0.001**
H_6	Environmental Concern → Environmental Attitude → Willingness to purchase green insurance	0.016	0.016	0.007	2.289	**0.022**
H_7	Environmental Awareness → Environmental Concern → Willingness to purchase green insurance	0.012	0.012	0.006	2.095	**0.037**

Source: Research Findings

of 2.095 along with a p-value of 0.037, indicating a statistically significant relationship. This finding suggests that increasing awareness of environmental threats and solutions enhances individuals' sense of concern and responsibility toward environmental conditions. This concern, in turn, stimulates green purchasing behavior in the context of insurance. In other words, awareness functions as a cognitive trigger that activates environmental concern, which subsequently strengthens the intention to adopt sustainable insurance products.

Overall, the results of the mediation path analysis confirmed that all three tested indirect relationships were statistically significant, thereby supporting all three mediation hypotheses.

Effects of Control Variables

In this study, five control variables—age, gender, education, income, and insurance usage experience—were incorporated into the model based on the bootstrapping analysis to control for their potential effects on the dependent variable. Table 5 presents the results for these control variables.

Analysis of the Effects of Control Variables

The purpose of analyzing control variables is to ensure that the core relationships in the model are not biased or substantially influenced by the demographic or economic characteristics of respondents. In this model, five variables—age, gender, education, income, and insurance usage experience—were included as external control variables. Using the bootstrapping procedure in SmartPLS, the path coefficients, t-statistics, and significance levels were calculated for each variable.

The results show that age has a negative path coefficient (−0.006), with a t-value of 0.296 and a p-value of 0.767, indicating that the relationship is not statistically significant. This finding suggests that differences in age do not meaningfully influence the intention to purchase green insurance; rather, factors such as attitude and economic status appear to play more prominent roles in the decision-making process. Although the negative sign of the coefficient may indicate a slight decline in purchase intention with increasing age, the effect is too weak to be considered reliable. Therefore, Hypothesis H8 is rejected.

For gender, the path coefficient was −0.038, with a t-value of 1.870 and a p-value of 0.062. Although the coefficient suggests a directional difference, the effect is not statistically significant at the 95% confidence level. In other words, while there is a slight numerical indication of gender-based variation, it is not statistically supported. Consequently, Hypothesis H9 is rejected. Nonetheless, the negative direction of the coefficient may warrant further investigation in future studies with larger samples.

The results for education differ notably. The path coefficient of 0.079, with a t-value of 3.355 and a p-value of 0.001, indicates a positive and statistically significant effect. In practical terms, higher levels of education are associated with stronger intentions to purchase green insurance. This finding is consistent with previous research suggesting that more educated individuals tend to have greater awareness of environmental issues and a stronger appreciation of the importance of supporting sustainable products. Accordingly, Hypothesis H10 is supported.

Regarding income, the analysis yielded a path coefficient of 0.564—one of the largest among the control variables—with a t-value of 11.352 and a p-value of less than 0.001. This relationship is both highly significant and substantial, suggesting that greater financial capacity significantly increases individuals' willingnes to purchase green insurance. Consumers with higher income levels typically have greater financial flexibility and may be more willing to pay a premium for environmentally sustainable product attributes. Therefore, Hypothesis H11 is supported.

Finally, insurance usage experience showed a path coefficient of 0.216, with a t-value of 6.287 and a p-value of less than 0.001, indicating a positive and highly significant effect. This finding suggests that familiarity with insurance services, whether through administrative interactions or personal experience with their benefits, increases individuals' readiness to purchase green insurance. Previous experience may

Table 5. Path Coefficients and Hypothesis Test Results of the Study's Control Variables

Hypothesis	Control Variable	Path Coefficient (β)	Sample Mean	Standard Deviation	t-statistic	p-value
H_8	Age	-0.006	-0.006	0.021	0.296	0.767
H_9	Gender	-0.038	-0.039	0.020	1.870	0.062
H_{10}	Education	0.079	0.081	0.024	3.355	0.001
H_{11}	Income	0.546	0.548	0.048	11.352	0.000
H_{12}	Insurance Usage Experience	0.216	0.214	0.034	6.287	0.000

Source: Research Findings

strengthen trust and reduce uncertainty toward new insurance products. Consequently, Hypothesis H12 is supported.

Overall, the results indicate that education, income, and prior insurance experience exert meaningful effects on consumers' intention to purchase green insurance. These socio-economic factors provide useful insights into consumer behavior, although they should not be considered dominant predictors without further longitudinal evidence. From a managerial perspective, these findings suggest that green insurance marketing strategies may benefit from targeting highly educated, higher-income, and insurance-experienced consumer segments, as these groups appear more receptive to environmentally oriented insurance innovations.

DISCUSSION AND CONCLUSION

The findings of this study, which aimed to identify the factors influencing the intention to purchase green insurance in Iran, present a comprehensive framework of structural relationships among cognitive, emotional, and attitudinal variables. This framework provides valuable insights for both academics and insurance industry policymakers from theoretical and practical perspectives alike. The results of the structural equation modeling (SEM) confirmed that all the main hypotheses were supported with high levels of statistical significance, indicating that the proposed model possesses strong explanatory power in predicting consumers' intention to purchase green insurance. This finding affirms the applicability of the integrated theoretical framework—combining the Theory of Planned Behavior (TPB), the Knowledge–Attitude–Behavior (KAB) model, and Environmental Values Theory—within Iran's unique cultural and economic context.

Environmental awareness, as the first predictive variable, was found to have a positive and significant effect on the intention to purchase green insurance. This result aligns with previous research on green consumer behavior, confirming that knowledge and awareness of environmental issues form the foundation of sustainable behavioral tendencies. However, the relatively small path coefficient suggests that awareness alone is a necessary but insufficient condition and must be reinforced by motivational and attitudinal factors. This finding is consistent with the well-known knowledge–behavior gap paradox in the environmental behavior literature, which posits that awareness does not automatically translate into action. In the Iranian context, where environmental crises such as water scarcity, air pollution, and dust storms are tangible realities, public awareness is increasing; nevertheless, it has not fully translated into green consumer behavior. Therefore, insurance companies and policymakers should move beyond simple information campaigns and foster a deeper understanding of the direct link between green insurance purchases and environmental impact reduction.

Environmental concern, as an emotional and motivational driver, also demonstrated a significant effect on the intention to purchase green insurance. Conceptualized through egoistic, social-altruistic, and biospheric dimensions, environmental concern acts as a bridge between knowledge and action by adding emotional urgency to cognitive awareness and encouraging responsible decision-making. Importantly, environmental concern influences purchase intention both directly and indirectly through environmental attitude, highlighting its dual mechanism of action. This emphasizes the strategic importance of emotional engagement and suggests that marketing campaigns should address both cognitive and affective dimensions of consumer behavior. In Iran, where environmental sensitivity is gradually increasing, particularly among the younger generation, leveraging this concern in product design and marketing communication may enhance consumer acceptance of green insurance.

Environmental attitude, measured based on the New Ecological Paradigm (NEP), played a significant mediating role in the model, confirming that individuals' worldview regarding the relationship between humans and nature is a key determinant of behavioral intentions. Those who perceive nature as intrinsically valuable and acknowledge the limits of natural resources are more inclined to support products and services consistent with such beliefs. The mediating role of attitude indicates that part of the effect of environmental concern on purchase intention operates through the reinforcement of sustainable attitudes. This underscores the importance of long-term environmental education and cultural transformation, as attitude change is a gradual process that requires consistent interaction

and message alignment. In the Iranian context, where anthropocentric views of nature remain prevalent, cultivating ecological perspectives could be achieved through collaboration among educational institutions, media outlets, and NGOs.

One of the most critical findings of this study is the highly significant effect of trust in insurance companies on the intention to purchase green insurance. This variable exhibited the strongest statistical significance among all model paths, confirming that in the insurance industry, which relies heavily on future promises and long-term contracts, trust is an indispensable element. Trust serves as a mechanism to reduce perceived risk and uncertainty; in its absence, even well-informed and environmentally conscious consumers may refrain from purchasing. This finding is particularly important in the Iranian context, where the insurance sector faces challenges in building trust due to consumers' negative experiences with claim processes, service opacity, and bureaucratic inefficiencies. Therefore, for the successful implementation of green insurance, companies must prioritize the reconstruction of public trust through transparency, verified environmental reporting, simplified procedures, and the consistent fulfillment of commitments. Moreover, avoiding greenwashing practices, which can quickly undermine consumer trust, is essential.

The analysis of control variables also yielded noteworthy insights. Income emerged as the strongest determinant among them, confirming that purchasing power is a fundamental prerequisite for accessing green insurance products. This suggests that green insurance, at its early stage of development, is likely to appeal primarily to higher-income segments; therefore, differentiated pricing strategies and diverse insurance packages are necessary to attract a broader customer base. Previous insurance experience also had a significant positive effect, underscoring the importance of customer loyalty and the role of existing clients as a primary market for innovative products. Furthermore, education demonstrated a significant positive relationship with purchase intention, consistent with green consumer behavior theory. Higher educational attainment enhances awareness, analytical ability, and understanding of the long-term implications of consumption choices. In the case of green insurance, an inherently complex and abstract product, such cognitive capability plays an important role in reducing perceived risk and increasing trust in environmental innovations.

From a theoretical perspective, this study extends the literature on green consumer behavior in the financial and insurance sectors, where research remains limited compared with tangible green products. Modeling environmental concern as a second-order construct with three distinct dimensions offers deeper insights into motivational mechanisms. In addition, the simultaneous examination of cognitive, affective, attitudinal, and trust-related variables within an integrated framework provides a more holistic understanding of green purchasing decision-making.

From a practical perspective, the findings provide several implications for insurance companies and policymakers. Educational initiatives should be developed to raise environmental awareness and clearly communicate the link between green insurance and environmental protection. Marketing communications should incorporate emotional appeals by emphasizing environmental concern. Insurance companies should prioritize trust-building through transparency, regular reporting, and the consistent fulfillment of commitments. Firms may initially target high-income and existing customers as the primary market segment and gradually expand outreach to broader groups. In addition, insurers should design diverse product portfolios with flexible pricing structures to meet the needs of different consumer segments.

Like all studies, this research has several limitations that should be considered when interpreting its findings. First, the cross-sectional design limits the ability to draw definitive causal inferences. Second, the use of self-reported data may introduce social desirability bias. Third, the geographical scope of the sample may restrict the generalizability of the results to other regions of Iran. Future studies could adopt longitudinal designs to examine changes in attitudes and actual purchasing behaviors over time. In addition, incorporating variables such as social norms, perceived behavioral control, and reference group influence may further enrich the model. Qualitative studies may also provide deeper insight into the motivations and barriers surrounding green insurance adoption. Furthermore, future research could extend the theoretical scope by incorporating more recent behavioral frameworks, such as Pro-Environmental Behavior Theory (PEBT). Including constructs such as personal moral norms, perceived responsibility, and value internalization may provide a more comprehensive understanding of the motivational and normative mechanisms underlying green insurance adoption.

In conclusion, the findings of this study suggest that the development of the green insurance market in Iran is both feasible and promising; however, its broader success will depend on continued evidence-based validation and the expansion of initiatives across diverse regions and demographic groups. Achieving this goal requires a comprehensive approach that integrates environmental education, cultural transformation, trust-building, and product innovation in order to foster sustainable behavioral change.

AUTHORS' CONTRIBUTION

The authors' contribution to the writing of the paper is equal.

ACKNOWLEDGMENTS AND FUNDING

This article is the result of independent research conducted by the authors and has not been supported by any organization.

CONFLICT OF INTEREST

The author(s) declares that there is no conflict of interest regarding the publication of the registered research. Furthermore, ethical considerations including plagiarism, informed consent, misconduct, fabrication and/or falsification of data, duplicate publication, and also Journal Policy on Artificial Intelligence Use have been fully observed by the authors.

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PUBLISHER'S NOTE

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HOW TO CITE THIS ARTICLE

Zandi, M. A., Mansouri, M., & Zandi, M., E. (2026). The Impact of environmental awareness on willingness to purchase green insurance in Iran. *Iranian Journal of Insurance Research, 15*(S1), 103-122.

DOI: 10.22056/ijir.2026.S1.09

URL: https://ijir.irc.ac.ir/article_160388.html