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Rethinking Sustainability Consciousness: A Holistic Approach to Understanding Its Determinants in the Food Industry

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ABSTRACT

Consumers increasingly seek sustainable food options, yet behavior lags stated concern. However, a gap existed on how value–belief–norm and ecological worldviews shaped sustainability consciousness, especially across cultures. Addressing this gap, we integrated Value–Belief–Norm theory with New Ecological Paradigm dimensions to analyze student surveys from the United Kingdom and Türkiye using PLS-SEM and permutation-based multi-group analysis. Headline effects (standardized β): altruistic → consciousness (UK 0.275; Türkiye 0.247), anti-exceptionalism (UK 0.244; Türkiye 0.202); biospheric significant only in the UK (0.291); anti-anthropocentrism significant only in Türkiye (0.253). Egoistic and hedonic values are non-significant. Explained variance in sustainability consciousness: R^2UK = 0.537; R^2TR = 0.410. MGA indicates no significant cross-group differences in path strengths. Findings highlight culturally contingent pathways and inform education and communication tailored to locally salient values and beliefs in the food industry. The paper advances a holistic framework for understanding sustainability behavior across cultures, enriching sustainability theory and global discourse.

1 | Introduction

Global demand for sustainable food is rising, driven by growing awareness of health and social issues linked to unsustainable consumption, prompting shifts in dietary habits (van Bussel et al. 2022; Nguyen et al. 2025; Ruppenthal and Rückert-John 2025). A PwC survey across 31 countries found 85% of respondents willing to pay a 9.7% premium for sustainably produced goods (PwC 2024). This aligns with projections that the healthy-food sector will nearly double from USD 653 billion in 2023 to USD 1.26 trillion by 2030 (Grand View Research 2024). However, food systems still contribute about 34% of global greenhouse-gas emissions (Crippa et al. 2021), underscoring a major sustainability gap. Despite policies and campaigns promoting "planet-friendly" diets, purchasing data shows a persistent intention—behavior gap, revealing a disconnect between sustainability concerns and actual consumer habits (Nejati et al. 2011; Carrington et al. 2014; Vermeir et al. 2020).

Sustainability consciousness has become a useful concept for explaining the intention–behavior gap, as it combines knowledge, attitudes, and behavior (Gericke et al. 2019). To promote this, UNESCO launched Education for Sustainable Development (ESD) in 2014, advocating its integration into all levels of formal education (UNESCO 2015; Gulzar et al. 2023). Although sustainability consciousness has been explored in various sectors (Olsson et al. 2016; Pachpore et al. 2023; Welbeck and Larbi 2025), it remains under-researched in food consumption,

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especially across cultures, highlighting a key gap (Nguyen et al. 2016). Most existing studies stem from high-income Western contexts, even though environmental values are shaped by cultural, social, and political conditions (Milfont and Schultz 2016; Hiratsuka et al. 2018). Emerging market research shows notable differences in brand perceptions and environmental concern compared to mature economies (Nguyen Van et al. 2023; Veas-González et al. 2024). Against this backdrop, our focus on the UK and Türkiye provides comparative insights crucial for culturally sensitive policy and advances both theory and practice in sustainable food research.

To explore sustainability consciousness in depth, our study combines two complementary frameworks. Value–Belief–Norm (VBN) theory connects personal values (e.g., altruistic, egoistic, and hedonic) to pro-environmental norms and actions (Stern 2000), while the New Ecological Paradigm (NEP) reflects ecological worldviews such as limits to growth and human–nature relations (Dunlap et al. 2000). Though these frameworks have been widely applied in modeling sustainability behavior (Martin and Czellar 2017; Lagomarsino et al. 2020; Marcineková et al. 2024; Lengieza et al. 2023; Pachpore et al. 2023), emerging studies have started to link ecological worldviews to value-belief-norm (Stern et al. 1999; Yang et al. 2024; Gao et al. 2024; Al Mamun et al. 2025). For instance, Stern et al. (1999) emphasized that the integration of value-belief-norm with ecological worldviews offers robust insights into how individual values promote environmental movement. However, these frameworks are rarely integrated to model multi-dimensional constructs like sustainability consciousness, especially in the food sector (Nguyen et al. 2016). This resulted in a critical gap because sustainability consciousness is a multi-dimensional construct that can be shaped by both value orientations and ecological worldviews. More importantly, previous studies report contradictory findings on how values and beliefs influence sustainability behaviors (Ünal et al. 2019; Mamun et al. 2023). Nevertheless, the modeling of VBN and NEP as independent and co-equal determinants could aid the clarification of such inconsistencies, where both personal value orientations and broader ecological worldviews are captured simultaneously. From a practical perspective, the integration of both VBN and NEP addresses a clear theoretical gap. Existing models often treat VBN frameworks as the basis for transmitting ecological worldviews to green consumption (Gao et al. 2024; Al Mamun et al. 2025), while Yang et al. (2024) found that value-belief-norm significantly enhances worldviews, but how personal values and worldviews jointly influence multi-dimensional constructs such as sustainability consciousness in the food sector is underexplored. Consequently, integrating both VBN and NEP in our study offers a major theoretical advancement that moves beyond the narrow lens of modeling sustainability consciousness to a more dynamic and comprehensive model framework that illustrates the complex relationship between values, beliefs, and sustainability consciousness.

Distinctively, diverging from empirical studies, the current study focuses on the UK and Türkiye, leveraging contextual differences between both countries. While the UK has a more mature institutional framework that supports sustainability action (Tuckerman et al. 2023; Forster et al. 2025), Türkiye has been criticized for lacking clear frameworks for promoting sustainability (Yeldan 2023). Moreover, the commitment of the UK to net-zero greenhouse gas emissions by 2025, with detailed strategies and carbon budgeting, highlighted a policy will to address environmental challenges (HM Government 2023; Burnett and Stewart 2025), compared to Türkiye, which has just declared its commitment to the 2053 net-zero target (Coşkun 2024). These differences demonstrate that the UK has robust institutional and social support for sustainability, which is further enriched by public discourse than Türkiye. Significantly, these disparities can shape how the values and beliefs of citizens translate into sustainability actions. Undeniably, studies reveal that in developing countries, people often demonstrate major concern for the environment (Ozdemir 2023); however, this might not translate into sustainable action, compared to developed countries such as the UK, with robust environmental and socio-political policies shaping citizens' sustainable behaviors. In this study, we explore this difference by investigating how beliefs and values influence sustainability consciousness under different institutional and socio-political contexts. Exploring the opinions of university students in each country reinforces our contribution. Young adults are in a formative stage, and universities increasingly act as sustainability learning hubs (Borg et al. 2014). This is supported by the policy of UNESCO, which highlights the incorporation of ESD into the curriculum of higher education as a way of supporting pro-sustainability behavior and equipping individuals to address environmental challenges. Higher education not only transmits knowledge but also fosters values, collaboration, problem-solving, and critical thinking.

From the foregoing, our paper offers three contributions: (i) the proposed integrated model contributes to theory by demonstrating how both personal values and ecological worldviews shape sustainability consciousness. Through this, we address the inconsistencies found in previous studies (Ünal et al. 2019; Mamun et al. 2023) by clarifying that both VBN and NEP operate independently, rather than mainly through a mediating relationship (Al Mamun et al. 2025). Our paper thus extends theory by integrating VBN with NEP, while modeling their influence on sustainability consciousness. This offers robust and new contextual insights advancing both theoretical understanding and practical implications by revealing the nuanced pathways through which value-belief-norm with ecological worldviews influence sustainability consciousness (Stern et al. 1999; Gao et al. 2024; Al Mamun et al. 2025). (ii) From an empirical perspective, our paper made a cross-cultural contribution by comparing the UK and Türkiye sustainability contexts. Through this, we empirically show how institutional and socio-political conditions shape individual beliefs and values, and how they ultimately shape sustainability consciousness. Through this, we offer actionable insights for policymakers, the food industry, and educators on how to develop interventions grounded in the personal values and ecological worldviews that are predominant in each setting. By exploring sustainability from a cross-cultural context, this research emphasizes the significance of contextualizing value-belief-norm and ecological worldviews within distinct sociocultural and economic settings, thereby responding to the increasing call for more cross-national studies in the field of sustainability (Ceglia et al. 2015; Randall et al. 2024). (iii) Focusing on the food sector, a critical but under-explored context in sustainability consciousness literature, allows us to advance knowledge in this field. By linking individual beliefs and

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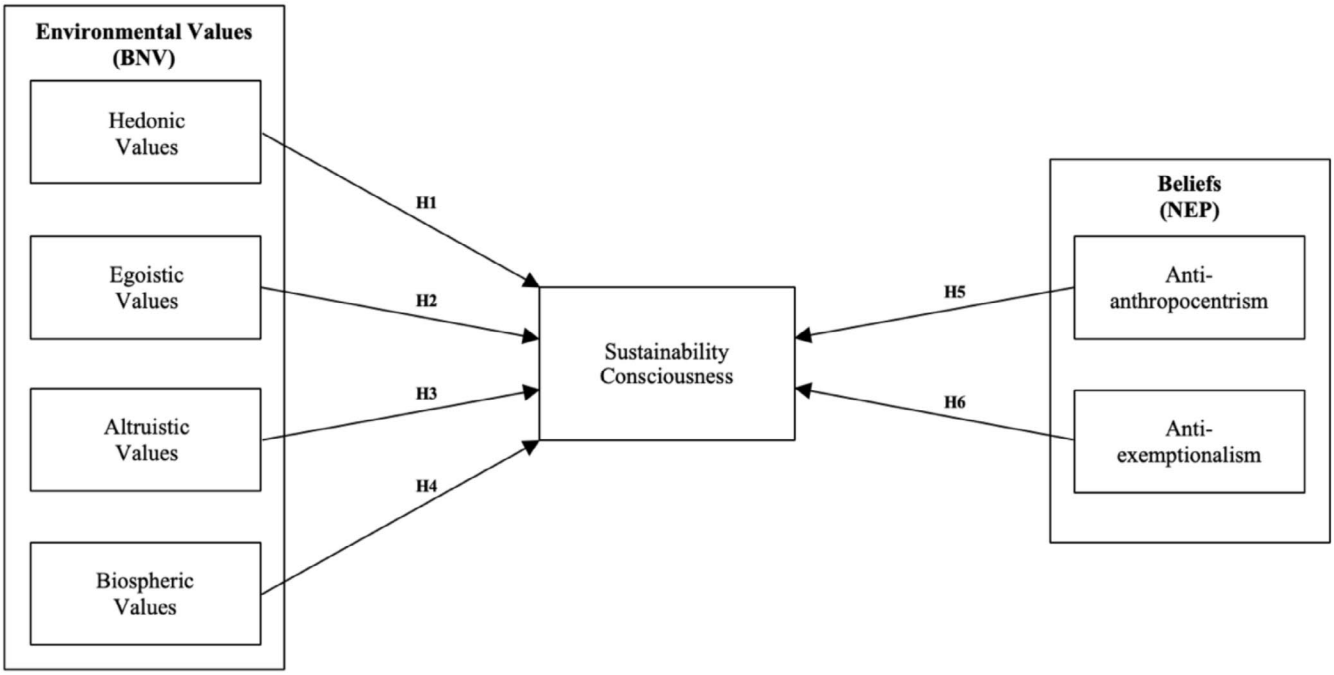


FIGURE 1 | Proposed research model.

ecological worldviews, we explain how sustainability behavior in food consumption, especially across cultures, contributes significantly to the practical relevance of our findings to the food industry. This provides actionable insights on how players in the food sector can promote sustainable consumption across different cultures based on the predominant personal values and ecological worldviews.

2 | Literature Review and Hypothesis Development

2.1 | Sustainability Consciousness

As noted in the literature, consumers are increasingly aware of sustainability issues and integrating pro-sustainability choices into their preferences. While scholars define sustainability consciousness in varied ways, most agree it encompasses three core elements: environmental awareness, social responsibility, and pro-sustainability behavior. Gericke et al. (2019) define it as an individual's awareness and experience of the environment. It includes environmental, social, and economic dimensions, as well as individual knowledge, attitudes, and perceptions (Olsson et al. 2016). Baena-Morales et al. (2021) further highlight its psychological aspects—how behaviors and emotions relate to sustainability. This emotional dimension can shift attitudes toward sustainability (Olsson et al. 2016; Gulzar et al. 2023), aligning with UNESCO's framework for sustainability education and awareness (UNESCO 2006, 2015). Thus, sustainability consciousness motivates individuals to engage with sustainability challenges by fostering positive behavior, understanding, and long-term concern for environmental, social, and economic well-being (Gulzar et al. 2023; Saleem et al. 2022).

Sustainability consciousness is shaped by cognitive, normative, and value-based factors (Gericke et al. 2019). The cognitive aspect refers to knowledge, awareness, and beliefs about sustainability, forming the basis for sustainable behavior (Martínez-Falcó et al. 2024). Awareness is thus a critical first step. Normative components, including attitudes, stem from personal values and beliefs about sustainability's importance (Gericke et al. 2019; Čapienė et al. 2022), which shape perceptions and ultimately drive intentions and behavior (Lee et al. 2023; Wiśniewska 2025). Studies show that positive attitudes strongly influence consumers' intent to choose green products (Trivedi et al. 2018). The behavioral component involves actual decisions and actions taken to promote environmental and social well-being (Vantamay 2018). Such behavior is also influenced by cultural, developmental, and demographic factors (Boermans et al. 2024), and knowledge levels significantly affect sustainable actions (Casaló et al. 2019).

Each dimension of sustainability consciousness is further divided into three domains: environmental (ENV), social (SOC), and economic (ECO) (Gericke et al. 2019). This framework offers a comprehensive view of how sustainability consciousness is structured (see Figure 1). While many studies focus on individual aspects, few adopt a holistic model that integrates Knowingness (cognitive), Attitudes (normative), and Behavior (value-based) dimensions within a unified theoretical lens grounded in the New Ecological Paradigm (NEP) and Environmental Values. The following subsections present these theoretical foundations and outline the research hypotheses.

2.2 | The Role of the Food Sector in Sustainability

Recent literature highlights four key sustainability pressures facing the food sector: global warming, resource depletion, food insecurity, and health issues (Vermeir et al. 2020; Principato et al. 2025). These challenges have increased pressure on firms to lead sustainability efforts, as stakeholders—especially

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consumers—are holding them accountable for negative externalities (Yu et al. 2016; Wiśniewska 2025). Although many consumers remain only partially informed, awareness is growing through social media and public campaigns. Consumer behavior plays a critical role in influencing sustainability outcomes, driven by preferences, environmental concerns, health, and financial constraints (van Bussel et al. 2022; Nguyen et al. 2025; Ruppenthal and Rückert-John 2025). Consumers can support sustainability mainly by (1) buying sustainably produced goods (Principato et al. 2025) and (2) reducing household food waste. However, it remains unclear whether awareness and knowledge reliably translate into sustainable food choices and waste-reducing behaviors.

Consumers' sustainability consciousness—comprising knowledge, attitudes, and behavior—can significantly influence food choices and, by extension, the sustainability performance of the food sector. Awareness of the environmental impact of food can encourage consumers to opt for more sustainable options (Mackay and Schmitt 2019). Familiarity with plant-based alternatives also promotes sustainable habits (Voinea et al. 2019; Nguyen et al. 2025). Cognitive awareness often triggers attitudinal shifts, leading consumers to align food choices with sustainability values (van Bussel et al. 2022). This transformation increases the likelihood of pro-sustainability behaviors, such as choosing eco-labeled products, reducing waste, and trying alternative foods (Vermeir et al. 2020). These attitudinal changes further drive behavioral engagement in sustainability (Puntiroli et al. 2022). In turn, consumer consciousness pressures firms to adopt sustainable practices across sourcing, production, and packaging, enhancing sector-wide environmental performance (Crippa et al. 2021; van Bussel et al. 2022). However, despite a positive link between sustainability consciousness and behavior (Ribeiro et al. 2023), a gap often persists between positive attitudes and actual purchases of sustainable food (Vermeir et al. 2020).

Accordingly, the current study adopts a holistic approach to investigating the sustainability consciousness of consumers in the food sector and examines its key determinants through the theoretical perspective of the New Ecological Paradigm (NEP) and Environmental Values.

2.3 | Hypotheses Development

In our study, we hypothesized and tested the impact of New Ecological Paradigm (NEP) and environmental values on the sustainability consciousness of consumers in the food sector. Both New Ecological Paradigm (NEP) and environmental values have been extensively used to examine pro-environmental behavior (Shin et al. 2022; Lee et al. 2023; Pachpore et al. 2023).

2.3.1 | Environmental Values and Sustainability Consciousness

Studies suggest that individual decision-making and environmental behavior are influenced by values (Verma et al. 2019). The VBN theory (Stern et al. 1993) explains that personal values shape sustainability beliefs, which then influence environmental norms and behaviors. Among these, biospheric, altruistic, egoistic, and hedonic values have been studied and found to affect sustainable behavior (Stern et al. 1993). These values influence perceptions of environmental issues (Trabandt et al. 2024), the importance assigned to sustainability (Verma et al. 2019), and willingness to engage in pro-environmental actions (Bouman et al. 2020). Nevertheless, there are mixed findings across cultural settings, indicating that values might not show universal influence. For instance, altruistic and biospheric values might be stronger in Western contexts (Martin and Czellar 2017; Ribeiro et al. 2023), while egoistic and hedonic values may appear prominent in emerging countries, where material and personal wellbeing are major priorities over environmental values (Lavuri et al. 2023; Zhang et al. 2024). Consequently, there is a need for research that considers cross-national comparison within cultural and institutional settings.

2.3.1.1 | Hedonic Values. Hedonic values emphasize personal pleasure, comfort, and enjoyment (Anderson et al. 2025). Pro-sustainability scholars often link hedonism to unsustainable practices due to its association with materialism and consumption (Bouman et al. 2020; Shin et al. 2022). Lima and Mariano (2022) also argue that hedonic values tend to align with traditional, unsustainable consumption. However, an alternative view suggests hedonic and sustainability goals can coexist (Steg et al. 2014; Bouman and Steg 2019), indicating mixed evidence on the linkage between hedonic values and sustainability behavior. Nevertheless, the role of hedonism may vary across different cultural contexts. For instance, in the UK, where sustainability is increasingly connected with the enhancement of lifestyle, such as eco-tourism and green-based consumption, hedonic value may reinforce sustainability consciousness (Burkert et al. 2023). However, in emerging countries like Türkiye, with less environmental policy and high economic constraints, hedonic values may be less likely to predict sustainability choices, because people may be committed to immediate economic gains over long-term environmental benefits (Zhang et al. 2024). This cross-cultural difference, nonetheless, requires empirical investigation. Thus, we hypothesize that:

H1. *Hedonic values will be stronger in influencing sustainability consciousness in the UK compared to Türkiye.*

2.3.1.2 | Egoistic Values. Egoistic value orientation suggests individuals prioritize personal gain and well-being in environmental decisions (Steg et al. 2014). Those with strong egoistic values engage in pro-environmental behavior only when they perceive direct threats to their welfare (Lagomarsino et al. 2020), consistent with Stern et al.'s (1993) VBN theory. They may avoid sustainable practices perceived as costly or lacking direct benefits (Steg et al. 2014; Bouman and Steg 2019). However, egoistic values can be leveraged to encourage pro-environmental behavior when linked to self-interest such as personal health or cost savings (Hong et al. 2024). Such relationships may, however, overlap in cross-national settings where dissimilarities exist; sustainability behavior can be shaped by personal motivation, societal norms, and government policy. In the context of the UK, where sustainability is widely framed as institutional commitments to solve environmental challenges, hedonic value

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may have less impact on sustainability consciousness (Tuckerman et al. 2023). Contrarily, in Türkiye, where there is a weak sustainability policy coupled with economic pressures (Yeldan 2023), egoistic values may motivate individuals to sustainable consciousness, especially when linked to personal gains such as health benefits (Hong et al. 2024). Thus, we hypothesize:

H2. *Egoistic values will significantly influence sustainability consciousness for Türkiye but less significant for the UK.*

2.3.1.3 | Altruistic Values. Altruism theory in environmental research began with Heberlein (1972), defining altruism as concern for others' welfare, including communities and future generations. Researchers increasingly explore altruism's role in sustainability behavior (Lavuri et al. 2023). Pro-environment scholars emphasize promoting altruistic values to raise environmental awareness and address sustainability issues (Ribeiro et al. 2023; Welbeck and Larbi 2025). Studies show altruistic values significantly shape individuals' environmental principles (Lengieza et al. 2023; Ribeiro et al. 2023). However, the pathways through altruistic values sustainability consciousness may vary across cultural contexts such as the UK and Türkiye. In the UK, altruistic values may strongly predict sustainability consciousness, because sustainability is deeply incorporated in academic curriculum and national policy such as eco-labeling and public campaigns for climate justice (Burnett and Stewart 2025). Nonetheless, in the case of Türkiye where sustainability policies might be weak (Coşkun 2024), altruistic values may still be influential in impacting sustainability consciousness, but the relationship might be shaped by traditional or religious norms that promote collective duties in caring for the environment (Soleimani and Kiaee 2021; Yang et al. 2024). Such shared cultural principles may promote pro-sustainability behaviors by emphasizing environmental stewardship as a responsibility rather than just a personal preference (Kokash et al. 2025). Thus, we propose that:

H3. *Altruistic values will significantly influence sustainability consciousness for both the UK and Türkiye.*

2.3.1.4 | Biospheric Values. Biospheric values reflect core beliefs centered on concern for environmental well-being. According to Stern et al.'s (1993) VBN theory, biospheric values significantly predict environmental concern and sustainable behavior. Pro-environment scholars argue these values shape individuals' perceptions, viewing the protection of the environment as non-negotiable irrespective of personal gain (Puntiroli et al. 2022; Govaerts and Ottar Olsen 2023). Hence, empirical evidence indicates that biospheric values strongly predict pro-sustainability behavior (Steg et al. 2011; Lengieza et al. 2023). However, from a cross-cultural context, the framing of sustainability action through biospheric values can converge in shaping sustainability consciousness, but under different circumstances (Milfont and Schultz 2016). For instance, in the UK, the effect of biospheric values on sustainability consciousness may be stronger, but weaker in the context of Türkiye. This is because, in the UK, robust environmental policies, public awareness, and education about eco crisis are predominant and stronger, which can shape personal values (Forster et al. 2025), in comparison to Türkiye where institutional policies and public awareness are weaker (Hamrouni et al. 2025). Therefore, we propose that:

H4. *Biospheric values will be stronger in influencing sustainability consciousness in the UK but will be weaker or less significant in Türkiye.*

2.3.2 | The New Ecological Paradigm (NEP) and Sustainability Consciousness

The New Ecological Paradigm (NEP) is a well-established theoretical framework widely used to assess individuals' ecological worldviews (Dunlap et al. 2000; Stern 2000). Xiao and Buhrmann (2017) advanced a multidimensional perspective of the NEP, highlighting its ideological consistency and latent dimensionality. Thus, the NEP scale aims to capture a broad spectrum of ecological viewpoints, demonstrating global human concern for environmental challenges. Originally, the NEP framework comprised three core elements: limits to growth, balance of nature, and the rightful dominance of humans over nature (Marcineková et al. 2024). Dunlap et al. (2000) later revised the NEP scale to reflect evolving environmental issues, increased awareness, and the complex relationship between humans and nature. The revised scale incorporates five key environmental beliefs: Limits to Growth, Anti-anthropocentrism, Balance of Nature, Anti-exemptionalism, and Eco-crisis. Despite ongoing debates over the NEP scale's validity (Amburgey and Thoman 2011), it remains the most widely adopted framework for measuring people's attitudes toward environmental concerns (Hawcroft and Milfont 2010; Anders et al. 2023).

Nevertheless, the study adopts both Anti-anthropocentrism and Anti-exemptionalism to assess consumer sustainability worldviews and their influence on sustainability consciousness in the food sector. This is justified by the direct link of the two dimensions to principles underpinning ethics and beliefs about nature, while other constructs such as Balance of Nature and Limits to Growth overlap these ideologies. Moreover, Anti-anthropocentrism and Anti-exemptionalism are distinctively relevant to sustainability concerns in food consumption, especially from a cross-cultural perspective (Anders et al. 2023; Gough 2023). This allows us to focus on the quality of outcome rather than capturing the entire NEP constructs which might cause biased findings. This is reinforced by López-Bonilla and López-Bonilla (2016) who situated Anti-anthropocentrism and Anti-exemptionalism within the NEP within the broader context underscoring their uniqueness for assessing individual environmental perspectives across culture.

2.3.2.1 | Anti-Anthropocentrism. Anti-anthropocent rism focuses on opposing the view that humans are the most valuable beings on Earth (Goh 2020). Rooted in environmental ethics, anthropocentrism traditionally regards all other forms of life as means to human ends (Marcineková et al. 2024). In contrast, anti-anthropocentrism challenges this human supremacy by emphasizing the intrinsic value of all living beings (Batavia and Nelson 2017). Research shows that individuals guided by anti-anthropocentric values tend to demonstrate greater concern for sustainability and are more likely to engage in ethical consumption (Washington et al. 2021;

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Anders et al. 2023). Nevertheless, the notion and strength of anti-anthropocentrism in predicting sustainability may differ across cultures (Dorward et al. 2024). In Western societies such as the UK, the anti-anthropocentrism view about conserving and respecting nature is strengthened through environmental protection law (Adloff 2025); however, such ideology is deeply rooted in theocentrism in the case of Türkiye (Mohamed 2023). We argue that this relationship will be stronger in Türkiye compared to the UK due to the strong belief and acceptance of Islamic teaching and a collectivist society that has strongly shaped the willingness to engage in pro-sustainability behavior (Mohamed 2023). However, in Western societies such as the UK, support for anti-anthropocentrism might be weaker despite institutional policy because people might prioritize human-centered consumption (Kilbourne et al. 2002; Darnthamrongkul and Mozingo 2020). Based on these insights, we hypothesize that:

H5. *Anti-anthropocentrism will significantly influence sustainability consciousness more strongly in Türkiye compared to the UK.*

2.3.2.2 | Anti-Exemptionalism. Anti-exemptionalism is an environmental perspective asserting that humans are an integral part of nature's constraints (Dunlap et al. 2000). This core component of the New Ecological Paradigm challenges the idea that humans are exempt from natural laws and environmental limits (Atav et al. 2015; Dorward et al. 2024). Pro-environmental scholars supporting anti-exemptionalism reject the belief that humans can dominate nature, arguing instead that human societies are deeply embedded within the environment and subject to the same ecological limitations as other organisms (Dotson 2024). Hence, research shows that this relational worldview, grounded in connectedness with nature, significantly influences sustainability consciousness (Tam 2013). However, we argue that such a relationship might be stronger in a cultural context such as the UK where government policy and public debate are grounded in ecological crises and climate change, but weaker in a setting where sustainability is less institutionalized (Burnett and Stewart 2025). Conversely, the effect of anti-exemptionalism on sustainability consciousness might show a significant and strong linkage among young adults in emerging countries due to their exposure to climate action discussion globally (Manchanda et al. 2023; Demiris et al. 2025). This can be reinforced by religion acceptance in the case Türkiye of where sustainability actions are framed around Islamic teaching of caring for the environment as obeying divine law (Mohamed 2023), thereby heightening environmental concern (Ayten et al. 2024). Based on this, we hypothesize that:

H6. *Anti-exemptionalism will have a strong influence on sustainability consciousness in both the UK and Türkiye.*

All hypotheses are shown in the Figure 1.

3 | Methodology

3.1 | Research Design

This study employs a quantitative, survey-based research design to examine the relationships between personal values, ecological beliefs, and sustainability consciousness among university students in two distinct cultural contexts: the United Kingdom and Türkiye. The conceptual model is grounded in VBN theory and the NEP framework and builds upon existing empirical literature in environmental psychology and sustainability education (Stern 2000; Hiratsuka et al. 2018; Gericke et al. 2019).

3.2 | Measurement Tools

All constructs in the present study were assessed using previously validated instruments adapted from the literature. Personal value orientations were measured using items adapted from Hiratsuka et al. (2018), encompassing four value types: hedonic values (HEV), egoistic values (EGV), altruistic values (ALV), and biospheric values (BIV). These scales capture individual motivations related to pleasure-seeking, self-enhancement, social concern, and environmental care, respectively.

Environmental beliefs were assessed using the revised New Ecological Paradigm (NEP) scale, adapted from Wibowo et al. (2023), which includes 2 subdimensions: anti-anthropocentrism (ANA) and anti-exemptionalism (ANE). This structure allows for a nuanced understanding of participants' ecological worldviews.

The dependent variable, sustainability consciousness (SCO), was measured using the short version of the Sustainability Consciousness Questionnaire (SCQ-S) developed by Gericke et al. (2019). While the original scale encompasses three dimensions—sustainability-related knowledge, attitudes, and behavior, the current study employs a unidimensional operationalization by aggregating selected items from each subdomain, as suggested by the developers of the SCQ-S. This decision is methodologically motivated by the need for parsimony and model tractability in structural equation modeling. Gericke et al. (2019) demonstrated that the SCQ-S exhibits sufficient internal consistency and construct validity when treated as a unidimensional construct, given the conceptual overlap across its subdimensions and the goal of capturing a holistic indicator of sustainability-related awareness and engagement. The original English questionnaire was translated into Turkish using the back-translation method (Brislin 1970) to ensure linguistic and conceptual equivalence. Beyond back-translation, an expert panel of three bilingual subject-matter experts reviewed item relevance and clarity and suggested minor wording edits. We then conducted a pilot in Türkiye ($n = 25$) to confirm comprehension and item functioning; only small refinements were required. All items were evaluated on a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree").

3.3 | Sampling and Data Collection

This study purposively sampled university students in the UK and Türkiye for three reasons: (i) theoretical relevance, emerging adults are at a formative stage of value socialization and are active actors in campus-linked food environments; (ii) cross-country comparability, a student cohort reduces heterogeneity in age and education, enabling cleaner tests of the VBN–NEP mechanisms; and (iii) practicality for exploratory model testing. While efficient for theory building, the design is not population-representative.

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TABLE 1 | Descriptive profile of participants (UK and Türkiye).

Criteria	Category	UK ($n=143$)	%	Türkiye ($n=165$)	%
Gender	Male	71	49.65	104	63.03
	Female	71	49.65	58	35.15
	Prefer not to say	1	0.70	3	1.82
Education level	Undergraduate degree	73	51.05	159	96.36
	Postgraduate degree	70	48.95	6	3.64
Source of information on sustainability	Academic staff attitudes	19	13.29	16	9.70
	Campus facilities	7	4.90	3	1.82
	Family and friends	20	13.99	82	49.70
	Social media	34	23.78	39	23.64
	University courses and books	63	44.06	25	15.15

Source: Authors' own work.

Data were collected via an online questionnaire administered to university students in the UK and Türkiye. A total of 143 responses were obtained from the UK and 165 from Türkiye. Participants were recruited through institutional mailing lists, course announcements, and university-affiliated social media platforms. Eligibility was confirmed using screening questions to ensure respondents had prior experience purchasing food products. Demographic information, including gender, age, and education level, was also collected.

An a priori power analysis conducted using G*Power (Faul et al. 2009) indicated that a minimum sample size of 114 was required to detect a medium effect size ($f^2=0.15$) with nine predictors, at $\alpha=0.05$ and power = 0.80. The sample sizes from both the UK ($n=143$) and Türkiye ($n=165$) exceeded this threshold, ensuring adequate statistical power for the analyses.

3.4 | Common Method Bias

The unrotated exploratory factor analysis revealed that the first factor accounted for 27.4% of the total variance in the UK sample and 31.2% in the Türkiye sample, both well below the commonly used threshold of 40%, suggesting that common method bias (CMB) is unlikely to pose a major threat (Podsakoff et al. 2003).

3.5 | Data Analysis

Data analysis is conducted using SmartPLS 4.1.1.4 following a two-stage procedure. The first stage focuses on the measurement model, which is evaluated in terms of internal consistency reliability (Cronbach's alpha, composite reliability), convergent validity (average variance extracted, AVE), and discriminant validity (Fornell–Larcker criterion). Items with outer loadings below 0.50 are excluded. In the second stage, the structural model is evaluated using bootstrapping with 5000 resamples. The significance of path coefficients is assessed via *t*-statistics and associated *p*-values. For cross-cultural comparison, permutation-based multigroup analysis (MGA) is performed using 2000 permutations. Differences between UK and Turkish samples are tested using two-tailed *p*-values ($\alpha=0.05$), following established guidelines for PLS-SEM (Hair, Risher, et al. 2019; Sarstedt et al. 2011).

4 | Findings

4.1 | Descriptive Statistics

The study sample consists of undergraduate and postgraduate students from the United Kingdom ($n=143$) and Türkiye ($n=161$). Table 1 presents the descriptive characteristics of both groups.

4.2 | Measurement Model Assessment

4.2.1 | Model Refinements

Before evaluating the final model, several modifications were introduced to enhance the model's psychometric rigor. Several indicators including ANA1, EGV3, SCO3, SCO4, SCO6, SCO10, SCO13, SCO15, SCO16, SCO17, SCO18, SCO19, SCO21, SCO22, SCO24, SCO25, and SCO28 were dropped due to low outer loadings (< 0.50) in both samples. These exclusions were justified based on both empirical criteria (Hair, Hult, et al. 2019) and theoretical coherence.

4.2.2 | Reliability, Validity, and Outer Loadings

Reliability was assessed using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). All retained constructs met the recommended thresholds; CR values were above 0.60 and AVE values exceeded 0.50, indicating adequate internal consistency and convergent validity (Hair, Hult, et al. 2019). The Cronbach's alpha and CR values for ANA and ANE in the UK sample were slightly below the conventional threshold of 0.70; however, these constructs were retained due to their theoretical relevance and satisfactory AVE values. As

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suggested by Nunnally and Bernstein (1994), Cronbach's alpha values as low as 0.60 may be deemed acceptable in exploratory research, particularly when supported by acceptable AVE and CR indicators. These criteria align with established guidelines in the literature. After the preliminary assessment, several modifications were undertaken to enhance the psychometric robustness of the model across both the UK and Türkiye samples. Following these modifications, all remaining indicators demonstrated satisfactory outer loadings, generally exceeding the recommended threshold of 0.50 (Hair, Risher, et al. 2019). In the UK sample, constructs such as ALV, ANE, BIV, EGV, HEV, and most SCO indicators exhibited strong loadings, predominantly above 0.70. Some indicators, such as ANA3 (loading = 0.587) and SCO27 (loading = 0.639), showed moderate but still acceptable loadings. Similarly, in the Türkiye sample, items from ALV, ANA, ANE, BIV, HEV, and many SCO indicators demonstrated satisfactory loadings. For instance, ALV2 (0.861), ANA2 (0.838), and BIV3 (0.911) displayed strong loadings well above 0.70. While a few SCO indicators, such as SCO23 (0.597) and SCO7 (0.599), exhibited slightly lower loadings, they were retained due to their theoretical importance and acceptable contribution to construct validity. It is widely accepted that indicators with loadings above 0.40 can be retained when they contribute meaningfully to the construct and do not adversely impact the AVE or CR values (Hair, Hult, et al. 2019; Hair, Risher, et al. 2019). This balanced approach allowed for the preservation of theoretically essential items while ensuring robust psychometric properties.

The detailed factor loadings, reliability coefficients, and AVE values for both samples are presented in Table 2.

4.2.3 | Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion (Fornell and Larcker 1981), a widely accepted approach in variance-based structural equation modeling. According to this criterion, the square root of the Average Variance Extracted (AVE) for each construct must be greater than its correlations with any other construct in the model. This indicates that each construct captures more variance from its respective indicators than from those of other constructs. As shown in Table 3, all constructs met this requirement. The diagonal elements (square roots of AVEs) are consistently higher than the off-diagonal values (inter-construct correlations), confirming discriminant validity in both the United Kingdom and Türkiye samples.

4.3 | Structural Model Assessment

The evaluation of the structural model was conducted through multiple criteria including model fit, explained variance (R^2), effect sizes (f^2), and path coefficients. These metrics provide insights into the model's predictive relevance and the strength of relationships between latent variables.

4.3.1 | Model Fit

To evaluate model fit, we examined the Standardized Root Mean Square Residual (SRMR) alongside complementary indices. The UK sample yielded SRMR = 0.110, while the Türkiye sample yielded SRMR = 0.088; the latter falls within recommended ranges, whereas the former is somewhat above conventional cut-offs and is interpreted with caution given model complexity and composite-based estimation. Additional fit indices supported overall adequacy: UK d_ULS = 12.069, d_G = 3.347, $\chi^2 = 2381.317$, NFI = 0.529; Türkiye d_ULS = 7.663, d_G = 3.021, $\chi^2 = 2464.467$, NFI = 0.577. Considering these diagnostics together with the established measurement validity and invariance checks, the model specification is deemed acceptable for both groups.

4.3.2 | Explained Variance (R^2)

The R^2 value for the endogenous construct SCO was 0.537 in the UK and 0.410 in Türkiye. These findings suggest moderate to high explanatory power, with the model performing more strongly in the UK sample.

4.3.3 | Effect Sizes (f^2)

Regarding effect sizes, in the UK sample, ANE exerted the strongest effect on SCO ($f^2 = 0.087$), followed by BIV ($f^2 = 0.059$) and ALV ($f^2 = 0.052$), while ANA ($f^2 = 0.007$), HEV ($f^2 = 0.002$), and EGV ($f^2 = 0.000$) exhibited negligible effects. In the Türkiye sample, ANA ($f^2 = 0.050$) and ALV ($f^2 = 0.046$) showed the strongest effects, followed by ANE ($f^2 = 0.033$), while BIV ($f^2 = 0.000$), EGV ($f^2 = 0.006$), and HEV ($f^2 = 0.005$) had very small or negligible impacts.

Table 4 shows the path coefficients, *t*-values, and significance levels for both the UK and Türkiye.

The findings indicate that in the UK sample, H3 (Altruistic Values), H4 (Biospheric Values), and H5 (Anti-exemptionalism) were supported, while H1 (Hedonic Values), H2 (Egoistic Values), and H6 (Anti-anthropocentrism) were not. The significance of Biospheric Values in the UK indicates the effectiveness of government environmental policy, public awareness, and education curriculum in shaping students' personal values. However, the insignificant value of Anti-anthropocentrism may highlight the priority of human-centered consumption over the promotion of sustainability value (Darnthamrongkul and Mozingo 2020), reinforcing the research hypotheses.

In the Türkiye sample, H3 (Altruistic Values), H6 (Anti-anthropocentrism), and H5 (Anti-exemptionalism) were supported, but H1, H2, and H4 were not. Overall, altruistic values and anti-exemptionalist beliefs emerged as key drivers of sustainability consciousness across both groups, while hedonic and egoistic values showed no significant impact. The significance of Anti-anthropocentrism and Anti-exemptionalism in predicting sustainability consciousness highlights the role of Islamic teaching and collectivist society in influencing sustainability behavior (Ayten et al. 2024). Nevertheless, the insignificance of Biospheric Values in the case of Türkiye emphasizes the weak nature of institutional policies and public awareness about environmental challenges (Hamrouni et al. 2025), supporting our hypotheses.

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TABLE 2 | Construct reliability and validity (UK and Türkiye).

	UK				Türkiye			
Construct (items)	**Loading**	**Cronbach's alpha**	**Composite reliability**	**AVE**	**Loading**	**Cronbach's alpha**	**Composite reliability**	**AVE**
Anti-anthropocentrism		0.640	0.773	0.539		0.853	0.911	0.773
ANA2	*0.690*				*0.838*			
ANA3	*0.587*				*0.910*			
ANA4	*0.892*				*0.888*			
Anti-exemptionalism		0.694	0.831	0.621		0.716	0.840	0.642
ANE1	*0.763*				*0.891*			
ANE2	*0.786*				*0.610*			
ANE3	*0.814*				*0.872*			
Hedonic values		0.805	0.884	0.718		0.868	0.918	0.789
HEV1	*0.808*				*0.881*			
HEV2	*0.907*				*0.886*			
HEV3	*0.824*				*0.898*			
Egoistic values		0.809	0.867	0.623		0.804	0.873	0.634
EGV1	*0.694*				*0.867*			
EGV2	*0.879*				*0.802*			
EGV4	*0.715*				*0.844*			
EGV5	*0.852*				*0.656*			
Altruistic values						0.843	0.896	0.684
ALV1	*0.828*	0.893	0.926	0.757	*0.732*			
ALV2	*0.881*				*0.861*			
ALV3	*0.901*				*0.895*			
ALV4	*0.869*				*0.809*			
Biospheric values		0.906	0.934	0.781		0.871	0.911	0.721
BIV1	*0.913*				*0.863*			
BIV2	*0.896*				*0.807*			
BIV3	*0.894*				*0.911*			
BIV4	*0.830*				*0.811*			
Sustainability consciousness		0.909	0.923	0.502		0.912	0.926	0.516
SCO1	*0.730*				*0.761*			
SCO5	*0.753*				*0.691*			
SCO7	*0.741*				*0.815*			
SCO8	*0.700*				*0.611*			
SCO9	*0.633*				*0.691*			
SCO11	*0.754*				*0.597*			
SCO12	*0.658*				*0.618*			

(Continues)

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TABLE 2 | (Continued)

Construct (items)	UK				Türkiye			
	Loading	Cronbach's alpha	Composite reliability	AVE	Loading	Cronbach's alpha	Composite reliability	AVE
SCO14	*0.639*				*0.769*			
SCO20	*0.724*				*0.715*			
SCO23	*0.656*				*0.599*			
SCO26	*0.730*				*0.836*			
SCO27	*0.767*				*0.848*			

Note: All *p*-values are 0.000 so clearly all are significant in 0.05 (or any other significance) level (in italic).
Source: Authors' own work.

TABLE 3 | Fornell-Larcker matrix.

United Kingdom							
	ALV	**ANA**	**ANE**	**BIV**	**EGV**	**HEV**	**SCO**
ALV	0.870						
ANA	0.300	0.734					
ANE	0.406	0.440	0.788				
BIV	0.780	0.392	0.491	0.884			
EGV	0.644	0.270	0.369	0.609	0.789		
HEV	0.665	0.401	0.358	0.645	0.586	0.847	
SCO	0.636	0.382	0.536	0.666	0.469	0.514	0.709
Türkiye							
	ALV	**ANA**	**ANE**	**BIV**	**EGV**	**HEV**	**SCO**
ALV	0.827						
ANA	0.526	0.879					
ANE	0.582	0.634	0.801				
BIV	0.723	0.653	0.626	0.849			
EGV	0.311	0.482	0.354	0.467	0.796		
HEV	0.267	0.313	0.377	0.320	0.490	0.888	
SCO	0.518	0.549	0.539	0.499	0.365	0.312	0.718

Source: Authors' own work.

4.4 | Multi-Group Analysis (MGA)

Permutation-based Multi-Group Analysis (MGA) was conducted to examine whether the path coefficients differed significantly between the UK and Türkiye samples. This method is widely recommended in PLS-SEM for group comparisons due to its robustness in detecting differences without relying on distributional assumptions (Hair, Risher, et al. 2019; Sarstedt et al. 2011). As shown in Table 5, the results revealed that none of the path coefficients showed statistically significant differences between the two groups (all *p*-values > 0.05). The largest difference was observed in the BIV → SCO path ($\Delta = 0.318$; $p = 0.114$), where BIV appeared to have a stronger predictive role in the UK sample ($\beta = 0.291$) than in Türkiye ($\beta = -0.028$). However, this difference was not statistically significant. Similarly, other path differences (e.g., ANA → SCO and HEV → SCO) did not reach statistical significance, indicating that the effects of the constructs on sustainability consciousness (SCO) were largely consistent across groups.

4.5 | Measurement Invariance Assessment (MICOM)

To determine whether meaningful group comparisons could be made between the UK and Türkiye samples, the Measurement Invariance of Composite Models (MICOM) procedure was conducted as proposed by Henseler et al. (2016). The MICOM procedure consists of three sequential steps: Configural invariance was established as both UK and Türkiye models

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TABLE 4 | Path coefficients (United Kingdom and Türkiye).

	UK			Türkiye		
Path	***β***	***t*-value**	***p***	***β***	***t*-value**	***p***
ALV → SCO	0.275	1.741	0.082***	0.247	2.334	0.020**
ANA → SCO	0.067	0.894	0.371	0.253	2.405	0.016**
ANE → SCO	0.244	3.274	0.001*	0.202	2.577	0.010*
BIV → SCO	0.291	2.457	0.014**	−0.028	0.226	0.821
EGV → SCO	−0.016	0.207	0.836	0.078	1.015	0.310
HEV → SCO	0.039	0.446	0.655	0.062	1.100	0.271

Source: Authors' own work.
*$p < 0.01$, **$p < 0.05$, ***$p < 0.10$.

TABLE 5 | Permutation-based multi-group analysis results.

Path	**UK (*β*)**	**Türkiye (*β*)**	**Difference**	***p***
ALV → SCO	0.275	0.247	0.028	0.852
ANA → SCO	0.067	0.253	−0.185	0.121
ANE → SCO	0.244	0.202	0.042	0.736
BIV → SCO	0.291	−0.028	0.318	0.114
EGV → SCO	−0.016	0.078	−0.095	0.450
HEV → SCO	0.039	0.062	−0.023	0.791

Source: Authors' own work.

TABLE 6 | Compositional invariance results.

Construct	**Correlation**	***p***
ALV	1.000	0.982
ANA	0.969	0.001
ANE	0.992	0.159
BIV	0.999	0.553
EGV	0.971	0.021
HEV	0.995	0.135
SCO	0.997	0.336

Source: Authors' own work.

shared identical measurement specifications, constructs, and algorithm settings.

Compositional invariance was assessed through permutation testing. As shown in Table 6, compositional invariance was confirmed for ALV ($p = 0.982$), ANE ($p = 0.159$), BIV ($p = 0.553$), HEV ($p = 0.135$), and SCO ($p = 0.336$), as their p-values exceeded 0.05. However, compositional invariance was not achieved for ANA ($p = 0.001$) and EGV ($p = 0.021$), indicating potential differences in the way these constructs were formed across groups.

Mean differences and variance differences between the UK and Türkiye were assessed. As shown in Table 7, significant mean differences were found in ANA ($p = 0.000$), BIV ($p = 0.011$), and HEV ($p = 0.000$). Additionally, a significant variance difference was observed for HEV ($p = 0.034$). Thus, partial measurement invariance was established, allowing for cautious interpretation of group-specific comparisons (Sarstedt et al. 2011; Hair, Risher, et al. 2019).

5 | Discussion

Findings from this research indicate both divergence and convergence in both personal values and ecological worldview in predicting sustainability consciousness across the UK and Türkiye. It was discovered that both altruistic and anti-exemptionalism values significantly impact the sustainability consciousness of consumers in both the UK and Türkiye, corroborating with the findings of Bouman et al. (2020), Ribeiro et al. (2023), Tam (2013), and Mackay and Schmitt (2019). This highlights that both altruistic and anti-exemptionalism values are robust as cross-cultural determinants of sustainability behavior. In addition, this indicates that moral obligation towards others and acknowledgement of human-nature independence are foundational in shaping the sustainability behaviors, highlighting the relevance of NEP and VBN across different cultural contexts such as the UK and Türkiye. Moreover, empirical studies have shown that altruism and anti-exemptionalism are predominant personal values globally, highlighting the concerns of people towards others and the environment as determinants of pro-sustainability behavior (Lengieza et al. 2023; López-Corona and Magallanes-Guijón 2020; Dotson 2024). The significant effect of altruistic values and anti-exemptionalism on sustainability consciousness in the case of the UK highlighted the potency of institutional policy, public awareness, and the socio-political landscape, thereby triggering pro-sustainability behavior (Burnett and Stewart 2025); however, such behavior is shaped by traditional and religious norms in the case of Türkiye (Soleimani and Kiaee 2021; Yang et al. 2024; Ayten et al. 2024). This implies that interventions that appeal to altruism and connectedness to nature are likely to resonate with the behaviors of individuals, irrespective of cultural setting (Milfont and Schultz 2016), although strengthened by certain factors.

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TABLE 7 | Differences in means and variances.

Construct	Mean diff.	Mean *p*	Variance diff.	Variance *p*
ALV	0.027	0.826	0.088	0.796
ANA	−0.801	0.000	0.349	0.192
ANE	−0.151	0.211	−0.033	0.907
BIV	−0.292	0.011	0.379	0.147
EGV	−0.209	0.073	0.197	0.348
HEV	0.408	0.000	−0.417	0.034
SCO	0.039	0.751	−0.059	0.865

Source: Authors' own work.

Nevertheless, there are major differences in the pathways through which some personal values and ecological worldviews influence sustainability behavior. For example, it is established that while biospheric values exert strong and significant influence on sustainability consciousness in the UK, anti-anthropocentrism is significant in predicting sustainability behavior in the case of Türkiye. This divergence highlights a broader difference in institutional and socio-political contexts between the UK and Türkiye. For instance, the mature sustainability landscape, incorporation of climate action into law, and extensive public discourse on environmental issues predominant in the UK may have enhanced the significance of biospheric values, motivating students to connect their personal consumptions to protecting the environment. This has been supported by empirical studies (Govaerts and Ottar Olsen 2023; Hong et al. 2024). On the contrary, in Türkiye, where sustainability policy and public discourse are still emerging, sustainability behavior appears to be strongly rooted in ethical worldviews that highlight the balance between nature and human existence (Anders et al. 2023). As demonstrated by NEP, pro-environmental consumers reject the assertion that humans can dominate nature; rather, humans and the environment are mutually inclusive (López-Corona and Magallanes-Guijón 2020; Dotson 2024). This mirrors a moral-cultural ideology of sustainability (Zou and Chan 2019; Ogiemwonyi and Jan 2023), corroborating with the context that, where there is less institutional or regulatory guidance, consumers rely on factors such as Islamic teaching and cultural forms supporting the care for nature as obeying divine law, rather than institutional policy (Soleimani and Kiaee 2021; Ayten et al. 2024).

Finally, we found that egoistic and hedonic values are insignificant in predicting sustainability behavior across the UK and Türkiye, suggesting that consumption for personal pleasure and self-enhancement is irrelevant in shaping behavior in the food sector across cultures. Aligning with previous findings (Bouman et al. 2018), this result indicates the limitations of framing sustainability behavior around personal benefits or pleasures. By implication, policies that focus on egoistic or hedonic values may be less effective in promoting sustainability behavior across different cultural settings. Although some studies diverge from these findings by revealing that egoistic and hedonic values significantly influence sustainability behavior (Steg et al. 2014; Lavuri et al. 2023), we argue that consumption for personal enjoyment and benefits is becoming less relevant across cultures (Shah and Asghar 2023), especially with the development of technologies, social exposure, and social media (Karimzadeh and Boström 2023). This indicates that sustainability behavior is progressively fastened in collective support for ecological considerations rather than personal motives across cultures. This highlights an emerging cultural shift toward pro-sustainability behavior that diverges from anti-sustainability orientations.

5.1 | Theoretical and Managerial Implications

This study offers important implications for theory and practice. This study contributes to the advancements of theory and empirical studies in two major ways. First, the integration of VBN and NEP as co-equal determinants of sustainability consciousness, enable us to address a critical gap in sustainability literature, where VBN and NEP are modeled separately. Our findings reveal that values and ecological worldviews influenced sustainability behavior jointly and individually, providing a more comprehensive understanding of sustainability consciousness as a multi-dimensional constructs which has been underexplored (Nguyen et al. 2016). By demonstrating that VBN and NEP operate side by side, we offer a more holistic model which indicate that personal values alone is insufficient in predicting sustainability behavior without the incorporation of ecological mindset. Second, from our cross-national analysis, it is discovered that while some values and ecological worldviews are stable and relevant across cultures, others diverged based on institutional and socio-political conditions and cultural framing of human and nature connections. Hence, our findings add intercultural distinction to sustainability theory, demonstrating that generalizability and contextual dimensions must be recognized. This contribute significantly to the advancement of the NEP and VBN theory, highlighting that combining these frameworks show more relevance across different cultural settings (Stern et al. 1999). Significantly, our paper deepens global discourse on sustainability consumption and development by undertaking a comparative study of two distinct Western and non-Western providing robust insights into how sustainability are framed across different context.

From a policy perspective, our findings call for culturally tailored interventions for policymakers, educators, and the food sector. For instance, in the UK, where biospheric values significantly impact sustainability consciousness, policymakers and

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educators should build sustainability education and campaigns on the well-being of the environment and the scientific evident relating to the environmental implications of food choices. Hence, dietary carbon footprints, biodiversity implications of consumptions, and environmental boundaries could be integrated into curriculum to further strengthen biospheric orientations. In the case of Türkiye, sustainability interventions should be grounded on anti-anthropocentrism, which emphasizes ethical value, ecological humility, and the positive implication of valuing venture. For instance, educational curriculum could focus on cultural and religious norms that echo Earth stewardship, while environmental campaigns could model sustainability food choices as acts of ethical obligation rather than general lifestyle which resonates with the anti-anthropocentrism value. Nevertheless, across the UK and Türkiye, the promotion of altruism and anti-exemptionalism are consequential given their predominant across the both country. Consequently, campaigns that appeal to solidarity, intergenerational justice, and human and nature connectedness should be emphasize across culture. Stakeholders in the food sector will be guided by these comprehensive insights by tailoring sustainability strategies to resonate with eco-labeling, brand positioning, and consumer communication that mirrors predominant value-belief-norm and ecological worldviews orientation across culture.

6 | Conclusion

In conclusion, this study contributes to sustainability research by reinforcing and integrating NEP and VBN into a unified framework and validating it across two cultural contexts, with institutional and socio-political differences. More specifically, this study illustrates the added explanatory influence of combining NEP and VBN, connecting two traditionally separated frameworks to account for a holistic model that reflects both personal values and ecological worldviews. From an empirical perspective, it emphasizes both generalizable and culturally conditional pathways to the modeling of sustainability consciousness, offering novel insights on how sustainability is framed across cultures. In addition, it provides tailored suggestions for different stakeholders, highlighting that effective sustainability interventions must reflect predominant cultural values and ecological beliefs. Based on this, our research advances sustainability theories while also strengthening their applicability to understanding cross-cultural sustainability challenges.

7 | Limitations and Future Research

Although this paper offers several valuable insights, we acknowledged certain limitations. This study's student-only samples constrain generalizability due to relative homogeneity in age, education, and SES proxies. Findings should therefore be interpreted as evidence for mechanism testing rather than population estimation. Future research should recruit broader adult samples (with stronger SES measures) and non-university settings across additional countries to evaluate cross-national applicability. The exclusion of some NEP constructs, such as Eco-Crisis, Balance of Nature, and Limits to Growth due to weak reliability and validity limits the comprehensive analysis of the belief-based framework. The constructs can be investigated and tested for other simple constructs in future research. We also suggest that a more experimental approach should be used to investigate causality and how sustainability consciousness emerges over time. In addition, complete generalizability of findings can be achieved by expanding and including a more diverse sample across different national contexts. The study found that the NEP framework and VBN theory are significant in shaping consumers' sustainability behavior in the food sector. Hence, we propose that more research integrate the NEP framework and VBN theory, and this should be applied to other sectors facing sustainability issues such as the beauty and fashion industry, hospitality sector, and automobile industry.

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