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RESEARCH ARTICLE

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Comparative Analysis of the Factors Affecting Green Energy Consumption Behavior

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Abstract

This study investigates the factors affecting individuals' intention to use green energy by comparing two countries: Türkiye and the UK. A total of 728 participants (364 from each country) responded to a structured survey based on the extended UTAUT model. Independent variables include environmental concern, awareness of green energy, perceived benefits, application request, importance of education, country interest, and environmental awareness and investments. In both countries, environmental concern and awareness were found to be strong predictors of intention. However, environmental concern was the most influential factor in Türkiye, while awareness of green energy had the strongest effect in the UK. The study also revealed that demographic variables such as gender, age, and education level significantly affect green energy intentions. Cultural and contextual differences played a role in shaping these outcomes. The findings highlight the need for culturally tailored policy strategies to support the global transition to green energy. While universal drivers exist, local context must be considered for effective energy behavior change.

Keywords: *Green energy, environmental concern, cross-cultural comparison, green energy behavior*

Öz

Bu çalışma, bireylerin yeşil enerji kullanım niyetlerini etkileyen faktörleri iki ülke olan Türkiye ve Birleşik Krallık'ı karşılaştırarak incelemektedir. Her ülkeden 364 katılımcı olmak üzere toplam 728 katılımcı, genişletilmiş UTAUT modeline dayalı yapılandırılmış bir ankete yanıt vermiştir. Bağımsız değişkenler arasında çevresel kaygı, yeşil enerji farkındalığı, algılanan faydalar, uygulama isteği, eğitimin önemi, ülke çıkarı ve çevresel farkındalık ve yatırımlar yer almaktadır. Her iki ülkede de çevresel kaygı ve farkındalığın yeşil enerji kullanma niyetinin güçlü yordayıcıları olduğu bulunmuştur. Ancak, çevresel kaygı Türkiye'de en etkili faktör iken, yeşil enerji farkındalığı Birleşik Krallık'ta en güçlü etkiye sahiptir. Çalışma ayrıca cinsiyet, yaş ve eğitim düzeyi gibi demografik değişkenlerin, yeşil enerji kullanma niyetlerini önemli ölçüde etkilediğini ortaya koymuştur. Kültürel ve bağlamsal farklılıklar bu sonuçların şekillenmesinde rol oynamıştır. Bulgular, küresel olarak yeşil enerjiye geçişi desteklemek için kültürel olarak uyarlanmış politika stratejilerine olan ihtiyacı vurgulamaktadır. Evrensel itici güçler mevcut olmakla birlikte, etkili enerji davranış değişikliği için yerel bağlamın dikkate alınması gerekir.

Anahtar Kelimeler: *Yeşil enerji, çevresel kaygı, kültürlerarası karşılaştırma, yenilenebilir enerji davranışı*

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Introduction

Climate change and environmental destruction have made the global transition to green energy a critical priority. It became a crucial concept because fossil fuels still account for most carbon emissions worldwide (Wall et al., 2021). The enhanced shift towards green energy is not only vital for slowing global warming. Indeed, it helps in improving public health and country's energy security (Owusu et al., 2016). Consequently, understanding the factors behind individuals' adoption of green energy has become increasingly important for both researchers and policymakers.

Recent studies highlighted that socio-psychological and cultural factors significantly shape green energy consumption behavior (Zhao et al., 2025; Arı & Yılmaz, 2021). Indeed, while technological and cost caused economic considerations related to adapting green energy still remains its importance as an influential factor, it is also indicated by several studies that environmental concern, awareness of green energy and perceived benefits are also often guiding the intention to use green energy (Wall et al., 2021; Lu & Liu, 2024). Individuals with greater concern about climate change or higher knowledge of green energy's advantages are generally more inclined to adopt green energy solutions (Arı & Yılmaz, 2021; Wall et al., 2021). However, the extent to which these drivers operate universally, as opposed to being shaped by local cultural context, remains an important question. Cross-cultural research suggests that the determinants of pro-environmental behavior can vary widely between countries and cultures (Goggins et al., 2022; Omar & Hasanujzaman, 2023).

Indeed, comparative studies offer valuable insights by revealing which factors are common and which are culture-specific in sustainability and energy behaviors (Berglund et al., 2020; Chaikumbung, 2025). For instance, cultural values and norms can influence energy decisions. A recent global analysis found that certain cultural traits like high uncertainty avoidance may inhibit green energy adoption, whereas others like strong collective societal support may facilitate it (Omar & Hasanujzaman, 2023). Likewise, one country's effective motivational message or policy incentive might not translate successfully into another cultural setting (Bilgin & Soner Kara, 2024). This underscores the importance of cross-country comparisons. Türkiye and the UK present a helpful case for such comparison because of their distinct socio-economic contexts and contradictory public attitudes toward green energy. Public awareness and concern about climate change for example, are generally higher in the UK and Western Europe than in Türkiye (Bilgin & Soner Kara, 2024). While the UK has a long-established discourse on sustainability and strong public support for green energy, developing economies like Türkiye have historically faced more economic and informational barriers to green energy adoption (Arı & Yılmaz, 2021; Bilgin & Soner Kara, 2024).

Therefore, understanding the socio-psychological drivers behind green energy consumption in different cultural contexts is both academically and practically significant. This study addresses that need by comparing the factors influencing individuals' intentions to use green energy in Türkiye and the UK. By examining variables such as environmental concern, green energy awareness, perceived benefits, and other key constructs through a unified analytical framework, the research aims to separate which determinants are universal and which are culture-contingent. Comparative insights from these two countries can inform more effective, culturally tailored strategies to accelerate the global transition to green energy.

Theoretical Background

Concept of green energy and green consumption behavior

Green energy is simply defined as energy generated from inexhaustible sources that cause minimal environmental damage (Bilgin & Soner Kara, 2024). This type of energy refers to energy generated from renewable sources such as solar, wind, hydroelectric, and geothermal (Chmielarz et al., 2023). Some of the most well-known applications of this energy type include generating electricity from sunlight using solar panels, converting wind power into electricity using turbines, and generating hydroelectric energy from the power of flowing water (Bilgin & Soner Kara, 2024). A common

characteristic of green energy sources is that, unlike fossil fuels, they are continuously renewable in nature and do not deplete in the long term (Owusu et al., 2016). Therefore, green energy is considered a sustainable, renewable and clean energy solution (Cleveland & Morris, 2006).

Green consumption behavior on the other hand is a concept that refers to consumers making environmentally conscious choices to reduce the environmental impact of their consumption activities (Farooq et al., 2023). "Green" or "sustainable" consumer behavior encompasses voluntary actions aimed at minimizing environmental damage during the purchase, use, and post-consumption of products (Liao, 2023). Habits such as choosing low-energy or green energy devices, choosing public transportation or cycling, purchasing products made from recycled materials, reducing plastic consumption, or recycling waste are some examples of green consumption behaviors (Li, 2020). Through these behaviors, consumers aim to reduce their ecological footprint in their daily lives and contribute to the conservation of natural resources (Gumbo, 2016).

In literature, consciousness and attitudes are prominent in the formation of green consumption behavior (Li, 2020). Individuals' level of awareness of environmental issues and the importance they place on ecological issues influence their purchasing and consumption decisions (Meet et al., 2024). Raukoff and Wu (2013) emphasized consumers' efforts to minimize environmental damage during consumption as the fundamental definition of green consumption behavior. Similarly, Chen et al. (2013) argue that green consumption behavior is driven by awareness of environmental problems and a sense of responsibility, leading to a shift toward sustainable and responsible consumption patterns. Within this framework, the Theory of Planned Behavior (TPB) is frequently used to explain green consumption behavior. It is argued that individuals' attitudes toward the environment, social norms such as societal expectations, and perceived behavioral control factors such as the ability to self-actualize behavior shape green consumption intentions and behaviors (Çam et al., 2025).

Another model, The Unified Theory of Acceptance and Use of Technology, commonly known as UTAUT (Unified Theory of Acceptance and Use of Technology), is a comprehensive model that explains individuals' intentions to accept and use new technology (Venkatesh et al., 2003). The UTAUT model proposes that key determinants shape individuals' behavioral intentions and ultimately technology use behavior (Venkatesh et al., 2003). Among those determinants, the first one is performance expectancy. This includes the benefits to be gained from using the new technology. The second one is effort expectancy. This involves how easy or difficult technology is perceived to be. The third one is social influence. This refers to whether the individual's significant reference groups approve of the technology. And final determinant is facilitating conditions and refers to the availability of infrastructure and resources that support technology use (Agozie et al., 2023). Originally developed in the field of information technologies, this model has subsequently been adapted to explain the adoption of many innovative products and services across various disciplines.

In the green energy field, the UTAUT model has been applied specifically to examine individuals' acceptance behavior toward green energy technologies. Saleh et al. (2014) developed a framework based on the UTAUT model to investigate households' intention to use solar water heaters in Libya. This study aimed to analyze the factors that influence citizens' adoption of solar water heaters, a new green energy technology and provide policy recommendations to the government. The results revealed that elements from the original UTAUT dimensions, such as performance expectation and social impact as well as factors specific to green energy, such as environmental concern and financial motivation, have significant effects on intention to use solar energy technology. These findings suggest that the UTAUT model, with its flexible structure, can be adapted and evaluated in green energy context.

However, the application of the UTAUT model to green energy research has generally been achieved by incorporating additional environmental or attitudinal variables into the model. In some studies, the performance expectancy dimension of

UTAUT has been concretized as "perceived environmental benefit" or "long-term financial savings" in green energy, while the social impact dimension has been measured as "family/friend support" or "societal norms" (Arı & Yılmaz, 2021). Facilitating conditions have been represented by variables such as "presence of government incentives and technical infrastructure". Furthermore, UTAUT2, an extended version of UTAUT, has added new dimensions to the individual consumer context, such as hedonic motivation, price value, and habit (Neves et al., 2025). These additional dimensions are also important in the adoption of green energy technologies. The price value dimension captures the perception of the cost-benefit balance of green energy systems and is assumed to be a critical variable for many consumers. Habit, on the other hand, refers to the resistance to traditional energy use. In this respect, this element of UTAUT2 helps to explain one of the psychological barriers to the switch to green energy (Neves et al., 2025).

Factors affecting green energy consumption behavior

In literature, factors affecting green energy consumption behavior have been examined across a wide range of factors, from individuals' psychological characteristics to their socio-demographic characteristics and the social context they live in (Zhao et al., 2025). The most prominent of these factors is the level of concern and sensitivity to environmental problems, which is reported to strongly influence an individual's willingness to use green energy (Meet et al., 2024). This is referred to as environmental anxiety in the literature. Individuals with high environmental concern are sensitive to issues such as climate change, pollution, and ecosystem destruction, and these concerns lead them to clean energy solutions (Lu & Liu, 2024). Indeed, Arı and Yılmaz (2021) found in their study that environmental concern has a positive effect on attitudes and intentions toward green energy use. Similarly, a study conducted in Thailand showed that consumers with high environmental concern are significantly more likely to turn to green energy (Wall et al., 2021).

Another factor like environmental concern is the level of awareness and knowledge about green energy. Individuals' knowledge of green energy sources and their environmental and economic benefits can shape their consumption behavior (Lu & Liu, 2024). Individuals with a high awareness of green energy are more likely to grasp the advantages of solar or wind energy, its potential as an alternative to fossil fuels, and the long-term savings it offers. This, in turn, increases their motivation to switch to green energy. Arı and Yılmaz (2021) determined that an increase in green energy awareness significantly increases the intention to use green energy. A similar study conducted on consumers in Thailand found that green energy awareness positively impacted consumers' intention to adopt green energy (Wall et al., 2021).

The perceived benefits of green energy, such as savings in electricity costs, reliability of energy supply, technology efficiency, or environmental benefits, are highlighted in literature as another factor influencing green energy use behavior. Accordingly, if a consumer believes that installing solar panels will reduce electricity bills in the long run or that using wind energy will protect the environment, their likelihood of adopting these technologies increases. Arı and Yılmaz (2021) reported that environmental concern indirectly increases intention to use green energy, and this effect is mediated by an individual's perception of the benefits of green energy. Similarly, Wall et al. (2021) showed that beliefs about the benefits of green energy, such as its cleanliness and long-term affordability, significantly and positively contribute to consumers' intention to adopt this energy.

In literature, consumers' perception of themselves as competent and effective in using green energy has been cited as a psychological factor significantly influencing green energy use. Based on this, individuals with a high sense of self-efficacy are more willing to use or invest in green energy systems because they believe they can achieve this. The concept of self-efficacy, examined by Wall et al. (2021) in addition to the TPB model, has been identified as a positive and significant determinant of consumers' decisions to transition to green energy.

The decision to switch to green energy is directly influenced by an individual's economic circumstances. Therefore, consumers with higher incomes are generally able to afford the initial investment cost of green energy systems and are more open to evaluating the long-term savings potential (Frederiks et al., 2015). Research shows that households with higher incomes and economic opportunities are more likely to invest in technologies like solar energy (Omar & Hasanujzaman, 2023). A study in Thailand found that middle-aged and more highly educated individuals are more likely to use green energy, and that the diversity and amount of income sources also influence their willingness to pay for green energy (Wall et al., 2021). Similarly, studies in India found that higher-income and more educated households have significantly higher rates of installing green energy systems (Gaikwad & Shinde, 2022; Dey et al., 2022).

Another factor affecting green energy use is education level. It has been noted that education level is a critical factor influencing green energy behavior in terms of both environmental awareness and technology perception (Wang et al., 2020). Accordingly, more educated individuals tend to be more aware of climate change and energy issues.

Individuals' behaviors toward green energy also depend on the influence of their social environment. The presence of green energy users among family, friends, or neighbors encourages similar behaviors in others (Yang et al., 2022). Installing rooftop solar panels on several homes in a neighborhood increases neighbors' interest in this technology. This phenomenon has been described in literature as the neighborhood effect or peer effect. Similarly, social norms and values are important (Yang et al., 2022). If environmentally friendly behaviors are praised and expected in a society, individuals feel motivated to comply with these norms.

Similarly, government policies have also been shown to be among the determinants affecting green energy consumption behavior at the macro level (Yang et al., 2022). Incentive mechanisms such as tax reductions, direct subsidies, long-term low-interest loans, or net-metering (a method of paying consumers who supply electricity to the grid) make green energy investments attractive to individuals (Yang et al., 2022). Government incentives for purchasing electric vehicles in some countries have played a significant role in the proliferation of these vehicles (Bilgin & Soner Kara, 2024).

When the factors listed above are evaluated together, it becomes clear that green energy consumption behavior is a multidimensional phenomenon. An individual's intrinsic motivations such as environmental awareness, perceptions, attitudes and extrinsic conditions of the individuals such as economic opportunities, social environment and government policies play a combined role in determining their orientation toward green energy.

Importance of cross-cultural comparative studies

Cultural values and norms profoundly influence individuals' attitudes and behaviors regarding energy. A comprehensive study conducted by Omar and Hasanujzaman (2023) with data from 99 countries examined the impact of national culture on green energy consumption within the framework of Hofstede's cultural dimensions. The results indicate that some cultural characteristics can encourage green energy use while others can inhibit it. Societies with high uncertainty avoidance tendencies may be more hesitant to invest in green energy. This is because new technologies and market fluctuations are perceived as risky in cultures that cannot tolerate uncertainty. Similarly, it has been reported that in cultures with high power distance, which emphasize authority and hierarchy, there may be resistance to innovations that disrupt the established order in the energy sector. Conversely, societies with high levels of hedonism (indulgence), where individuals value living in the moment and making free choices without considering the future, have been found to be more willing to adopt green energy (Omar & Hasanujzaman, 2023).

Another example highlighting the impact of cultural differences is the axis of individualism vs. collectivism. In societies with high individualism, people may be willing to pursue green energy solutions on their own initiative, while in collectivist cultures, social approval and government guidance may be more decisive (Omar & Hasanujzaman, 2023). In countries with high collectivist

tendencies, such as Japan and South Korea, government policies and social campaigns play a significant role in public energy choices. Individuals also receive social recognition when they adopt behaviors that serve the general interest of society. This means that green energy may gain faster acceptance in these cultures when its collective benefits are emphasized. In individualist societies, the transition to green energy is often shaped by individuals' own values and economic calculations. These findings demonstrate that rather than economic and technical factors, cultural norms and values can have significant impacts on energy behavior (Berglund et al., 2020).

The cultural context plays a significant role in the transition to green energy. Cross-cultural studies offer the opportunity to compare results by using data from different countries. This allows policymakers to develop country-specific strategies. In a country where environmental awareness is already high, behavioral interventions such as public service announcements and educational programs can be prioritized over economic incentives. Conversely, in a country where economic concerns predominate, barriers to green energy use can be reduced primarily through financial support and technological infrastructure investments.

Following the review of relevant literature, the next section introduces the methodological framework employed in this study.

Methodology

This research investigates the factors influencing green energy consumption behavior by comparing two countries, the United Kingdom (UK) and Türkiye. Quantitative approach was followed throughout the study and the UTAUT-based measurement tool designed by Arı and Yılmaz (2021) which examines the relationship between green energy usage, environmental concern, awareness of green energy, the perceived benefits of green energy, and the intention to use green energy, was used in this study (GE Scale 1 - Arı & Yılmaz, 2021). In addition to above factors, effects of country interest, importance of education, application request and environmental awareness and investments on the intention to use green energy were also tested in this study (GE Scale 2 - Güneş et al., 2013). GE Scale 1 (Arı & Yılmaz, 2021) scale consists of 14 items. The scale includes items such as "I am worried about the effects of air pollution on myself and my family." and "Even if the installation cost is high, I will use green energy." Participants are asked to respond on a 5-point Likert scale (1: strongly disagree - 5: strongly agree). GE Scale 2 (Güneş et al., 2013) scale consists of 26 items in total. The scale includes items such as "I pay attention to recycling practices for obtaining green energy from waste" and "I do not think the use of green energy will contribute to the country's economy". Participants are asked to respond on a 5-point Likert scale (1: strongly disagree - 5: strongly agree).

Based on this, the research model of this study is formed as follows:

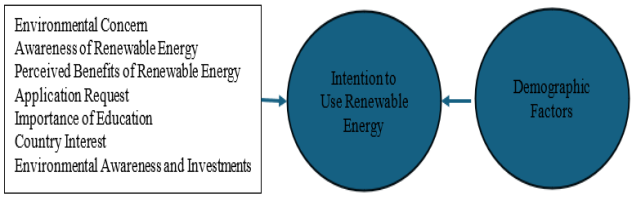

Figure 1. The research model

Based on the above research model (Figure 1) hypothesis are formed as follows:

H_1: Individuals with higher levels of environmental concern are more likely to express stronger intentions to use green energy.

H_2: Increased awareness of green energy is positively associated with the intention to use green energy.

H_3: The greater the perceived benefits of green energy, the higher the intention to adopt green energy technologies.

H_4: A higher willingness to actively seek and apply green energy solutions predicts stronger intentions to use green energy.

H_5: Individuals who place greater importance on education are more likely to report higher intentions to use green energy.

H_6: A stronger belief in national interest and benefit from green energy is positively related to the intention to use green energy.

H_7: Individuals with higher environmental awareness and investment behaviors are more likely to intend to use green energy.

H_8: The intention to use green energy is different depending on demographic factors such as gender, age, education level, and employment status.

The population of this study is all energy consumers live in Türkiye and the UK. In 2024, the population of the UK was 69,23 million. Whereas the population of Türkiye was 85,52 million in the year of 2024. Energy consumers should be aged 18 and over. Based on this, estimated number of energy consumers in the UK was 55 million and 64 million in Türkiye. Based on a 99% confidence level and a 5% margin of error the sample size was determined as 364. Consequently, 364 participants from each country, resulting in a total of 728 respondents, participated in this study. However, due to practical and logistical limitations, it was not possible to reach a probabilistic and nationally representative sample. Therefore, the study relied on convenience sampling to recruit participants who had access to the online survey and voluntarily agreed to participate. The survey link was distributed via e-mail groups, university networks, and social media platforms between March and May 2025. This approach enabled the collection of responses from individuals with diverse demographic backgrounds, but it also introduced limitations in terms of representativeness.

The collected data were analyzed using SPSS 27. Descriptive statistics were first employed to profile the demographic characteristics of the respondents. Normality tests were conducted, followed by reliability and factor analyses to confirm the validity of the measurement scales. Multiple regression analyses were then performed separately for Türkiye and the UK to test the hypothesized relationships. Additionally, t-tests and ANOVA analyses were used to examine whether green energy intentions differed across demographic groups such as gender, age, education, and employment status.

Having outlined the methodological framework of the study, the following section presents the analysis of the collected data in order to address the research objectives.

Analysis

Table 1. Demographic characteristics

		Percentage (%)	
		Türkiye	UK
Gender	Male	48	46
	Female	52	54
Age	18-25	30	25
	26-35	38	35
	36-45	22	28
	46+	10	12
Marital status	Married	64	55
	Single	36	45
Education level	High school degree	18	15
	University degree	67	73
	Master/PhD degree	15	12
Employment status	Full-time employed	60	65
	Part-time employed	24	18
	Unemployed	16	17

The study, which was conducted with equal numbers of participants from Türkiye and the UK (364 people from each country). In both countries, the sample consisted mainly of young adults, university graduates and full-time employees. The gender distribution was balanced and the participant profile was suitable for comparative analysis in terms of socio-economic aspects.

Because the number of observations exceeded 30, the Kolmogorov-Smirnov test was applied for normality testing (Büyüköztürk, 2021). The normality test revealed that the participants' scores on the GE Scale 1 (Arı & Yılmaz, 2021) (p=,217) and GE Scale 2 (Güneş et al., 2013) (p=,192) were normally distributed (p>,05). Accordingly, the data were suitable for parametric testing. Reliability coefficients for the scales and values indicated the suitability of the data structure for factor analysis are presented in Table 2.

Table 2. Reliability of the scales

Scales	Cronbach Alpha (α)	KMO	Bartlett's p	Total Variance Explained (%)
GE Scale 1	,860	,913	,000	58,354
GE Scale 2	,913	,834	,000	59,355

Cronbach's Alpha (α), which indicates the internal consistency of the scales, was above ,80 for all scales. These values indicated that the scales are highly reliable. The KMO (Kaiser-Meyer-Olkin) values, which indicate the adequacy of the sample, were also above 0,80, indicated a very good level

of sample adequacy. The Bartlett test was also found to be significant for all scales (p < ,001), confirmed their suitability for factor analysis. All these results indicated that the scales used are statistically strong, valid, and reliable measurement tools. According to the factor analysis results, the GE 1 scale consisted of four subscales (environmental concern, awareness of green energy, perceived benefits of green energy and intention to use green energy) and the GE 2 scale consists of four subscales (application request, importance of education, country interest and environmental awareness and investments). The mean values and reliability coefficients of the subscales of the scales are shown in Table 3.

Table 3. Descriptive statistics and reliability analysis of the scales

Scales	Sub-dimensions	Türkiye			UK		
		Mean (*X*)	Std. Dev.	Alpha (α)	Mean (*X*)	Std. Dev.	Alpha (α)
GE Scale 1	Environmental Concern	3,71	,456	,832	3,89	,543	,835
	Awareness of Green energy	3,68	,432	,898	3,85	,356	,834
	Perceived Benefits of Green energy	3,74	,334	,829	3,88	,543	,853
	Intention to Use Green energy	3,76	,345	,883	3,84	,353	,892
GE Scale 2	Application Request	3,62	,453	,902	3,75	,353	,924
	Importance of Education	3,79	,575	,899	3,91	,532	,902
	Country Interest	3,83	,345	,923	3,89	,432	,934
	Environmental Awareness and Investments	3,70	,443	,928	3,86	,654	,932

An examination of the GE Scale 1 and GE Scale 2 subscales, which measure participants' attitudes and perceptions toward green energy, revealed that the average scores of participants from the UK are systematically higher than those from Türkiye. Within the GE Scale 1 dimension, participants from the UK (X= 3,89) exhibited a higher mean score than participants from Türkiye (X= 3,71) on the "Environmental Concern" dimension. Similarly, the mean score for "Green energy Awareness" was 3,85 among the participants from the UK and 3,68 among the participants from Türkiye. For the "Perceived Benefits of Green energy" dimension, the means were 3,88 (among the participants from UK) and 3,74 (among the participants from Türkiye), respectively. Among the participants from the UK (X= 3,84) led the way in terms of "Green energy Use Intention," while the mean score for participants from Türkiye was 3,76.

A similar trend was observed within the GE Scale 2 dimension. In the "Application Request" subscale, the average value among the participants from the UK was 3,75, while among the participants from Türkiye, it was 3.62. In the "Importance of Education" subscale, participants from the UK (X= 3,91) also had a higher average than participants from Türkiye (X= 3,79). In the "Country Interest" subscale, the averages were 3,83 for participants from Türkiye and 3,89 for participants from the UK. Finally, a similar difference was observed in the "Environmental Awareness and Investments" subscale; the average for participants from Türkiye was 3,70, while the average for participants from the UK was 3,86.

These findings indicated that participants from the UK had higher levels of awareness regarding environmental sustainability, green energy, and the environment compared to those from Türkiye. This may be related to variables such as cultural factors, environmental education policies and public awareness campaigns.

Regression analysis

Within the scope of the research, variables predicting the intention of participants from Türkiye and from the UK to use green energy were tested with multiple linear regression analysis. The analysis was carried out separately for participants from both countries and the explanatory power of the model, significance levels and the effects of the predictor variables were examined comparatively.

Table 4. Regression analysis results / Türkiye

	β	*t*	Sig *(p)*
Environmental Concern → Intention to Use Green energy	,378	4,59	**,000****
Awareness of Green energy → Intention to Use Green energy	,266	3,01	**,003****
Perceived Benefits of Green energy → Intention to Use Green energy	,213	2,10	**,036***
Application Request → Intention to Use Green energy	,244	2,82	**,005****
Importance of Education → Intention to Use Green energy	,157	1,04	,297
Country Interest → Intention to Use Green energy	,149	0,96	,186
Environmental Awareness and Investments → Intention to Use Green energy	,231	2,49	**,013***

*Dependent variable: Intention to Use Green energy; *p < ,05, **p < ,01*

According to the regression analysis results for the Turkish sample, the model was found to be significant (F(7, 356) = 36,87, p < ,001) and the independent variables together explained 46.8% of the intention to use green energy (R^2 = ,468).

Environmental concern stood out as the strongest predictor variable among the participants from Türkiye (β = ,378, p < ,001) (Table 4). This finding showed that environmental concern perception was a determinant in participants' green energy preferences. Similarly, green energy awareness (β = ,266, p = ,003 < ,05) and perceived benefits (β = ,213, p = ,036 < ,05) also showed significant and positive effects on intention to use. This situation revealed that participants' knowledge levels on the subject and their perceptions of personal gain are effective on behavioral intention.

The application request variable was also a significant predictor (β = ,244, p = ,005 < ,05). The participants' motivation to use technology voluntarily supports their tendency to switch to green energy. The environmental awareness and investments variable also significantly affects the usage intention (β = ,231, p = ,013 < ,05). This situation showed that participants' investment and awareness levels towards environmental responsibility affect their energy preferences. On the other hand, the effect of the importance of education (p = ,297 > ,05) and country interests (p = ,186 > ,05) variables were not found to be statistically significant. This indicated that participants act more with personal and environmental concerns in their green energy preferences and the perception of national interests or education level is less effective in this decision process.

Table 5. Regression analysis results / UK

	β	*t*	Sig *(p)*
Environmental Concern → Intention to Use Green energy	,315	3,91	**,000****
Awareness of Green energy → Intention to Use Green energy	,329	4,14	**,000****
Perceived Benefits of Green energy → Intention to Use Green energy	,186	1,68	,094
Application Request → Intention to Use Green energy	,286	3,49	**,001****
Importance of Education → Intention to Use Green energy	,213	2,11	**,036***
Country Interest → Intention to Use Green energy	,191	1,94	,089
Environmental Awareness and Investments → Intention to Use Green energy	,267	3,06	**,002****

*Dependent variable: Intention to Use Green energy; *p < ,05, **p < ,01*

In the UK sample, the explanatory power of the model was higher (R^2 = ,546) and the analysis was significant (F(7, 356) = 41,23, p < ,001).

In the UK sample, the strongest predictor variable was awareness of green energy (β = ,329, p < ,001) (Table 5). Participants' knowledge and high awareness levels on the subject significantly increase their intention to use. The environmental concern variable also had a significant and positive effect (β = ,315, p < ,001), supporting the fact that the sense of individual responsibility is decisive in decision-making processes.

The variables of application request (β = ,286, p = ,001) and environmental awareness and investments (β = ,267, p = ,002 < ,01) also significantly affect intention to use. These findings indicated that both voluntary technology acceptance and individual contributions based on environmental values are strongly associated with behavioral intention among the participants. The importance of education variable was a statistically significant predictor among the participants from the UK (β = ,213, p = ,036 < ,05). This indicated that the level of education and the perceived value of education are more decisive in energy choices and reflects the tendency for information-based decision making among the participants. On the other hand, the effects of the variables of country interests (p = ,089 > ,05) and perceived benefits (p = ,094 > ,05) were not statistically significant.

Differentiation analysis

This section examines whether there are significant differences in participants' intention to use green energy based on their demographic characteristics (gender, age, marital status, education and employment status). Analyses used independent samples t-tests and one-way analysis of variance (ANOVA).

Table 6. Differentiation in intention to use green energy according to demographic characteristics / Türkiye

Characteristics		N	Mean (*X*)	Std. Deviation (SD)	t	df	p-value (Sig.)
Gender	Male	48	3,61	0,82	2,98	362	**,003****
	Female	52	3,89	0,77			
Marital Status	Married	64	3,74	0,53	0,64	362	,522
	Divorced	36	3,79	0,55			
		N	**Mean (*X*)**	**F**		**df**	**p-value (Sig.)**
Age	18-25	30	3,52	4,12		3	**,007****
	26-35	28	3,77				
	36-45	22	3,91				
	46+	10	3,95				
Education Level	High school degree	18	3,56	3,89		2	**,021***
	University degree	67	3,78				
	Master/PhD degree	15	3,97				
Employment Status	Full-time employed	60	3,83				
	Part-time employed	24	3,79	2,17		2	,116
	Unemployed	16	3,62				

Analyses of the Turkish sample revealed significant differences in the "Intention to Use Green energy" subscale based on some demographic variables. An independent samples t-test by gender revealed that female participants (X= 3,89) had significantly higher intentions to use green energy than male participants (X= 3,61; p = ,003 < ,01).

A significant difference was also observed in terms of education level (p = ,021 < ,05). The mean intention score for high school graduates was X= 3,56, while for university graduates it was X= 3,78 and for master's/doctoral graduates it was X= 3,97.

In contrast, no significant difference was found in the analysis conducted by marital status (p = ,522 > ,05). In other words, being married or single does not have a significant effect on participants' intentions to use green energy. Similarly, no significant difference was observed in the ANOVA results for employment status (p = ,116 > ,05).

Table 7. Differentiation in intention to use green energy according to demographic characteristics / UK

Characteristics		N	Mean (*X*)	Std. Deviation (SD)	t	df	p-value (Sig.)
Gender	Male	46	3,74	0,76	2,31	362	**,021***
	Female	54	3,92	0,71			
Marital Status	Married	55	3,85	0,50	0,48	362	,630
	Divorced	45	3,81	0,56			
		N	**Mean (*X*)**	**F**		**df**	**p-value (Sig.)**
Age	18-25	25	3,63	3,54		3	**,015***
	26-35	35	3,77				
	36-45	28	3,86				
	46+	12	3,93				
Education Level	High school degree	15	3,68	4,93		2	**,008****
	University degree	73	3,84				
	Master/PhD degree	12	4,01				
Employment Status	Full-time employed	65	3,88				
	Part-time employed	18	3,79	3,71		2	**,025***
	Unemployed	17	3,62				

The results of a one-way analysis of variance (ANOVA) conducted for the age variable also revealed a significant difference (p = ,007 < ,01). Mean

These findings indicated that gender, age and education level are important demographic determinants affecting intention to use green energy in

the Turkish sample. However, marital status and employment status do not create a significant difference in this regard.

Analyses of the UK sample revealed significant differences in the "Intention to Use Green energy" subscale based on some demographic variables. An independent samples t-test by gender revealed that female participants (X= 3,92) had significantly higher intentions to use green energy than male participants (X= 3,74; p = ,021 < ,05).

A one-way analysis of variance (ANOVA) for age also revealed a significant difference (p = ,015 < ,05). Mean intention scores across age groups were found to be X= 3,63 for the 18-25 age group, X= 3,77 for the 26-35 age group, X= 3,86 for the 36-45 age group and X= 3,93 for the 46+ age group. According to results, the intention to use of individuals in the 18-25 age group was lower than those over 36.

A significant difference was also found in terms of education level (p = ,008 < ,01). The mean score for high school graduates was X= 3,68, while for university graduates it was X= 3,84, and for master's and doctoral graduates it was X= 4,01. It is seen that individuals who have received a master's/doctorate level of education have a higher intention to use green energy compared to other groups.

A significant difference was also found in terms of employment status; (p = ,025 < ,05). The mean score for individuals working full-time was X= 3,88, for those working part-time X= 3,79, and for those unemployed X= 3,62. According to the results, unemployed participants have lower intentions of using green energy. However, no significant difference was found by marital status (p = ,630 > ,05).

Overall, in the UK sample, gender, age, education, and employment status variables had significant effects on intentions to use green energy. These findings supported the determining role of demographic factors on environmental attitudes.

Hypothesis testing

H_1: Individuals with higher levels of environmental concern are more likely to express stronger intentions to use green energy – *Accepted in both countries*

H_2: Increased awareness of green energy is positively associated with the intention to use green energy – *Accepted in both countries*

H_3: The greater the perceived benefits of green energy, the higher the intention to adopt green energy technologies – *Accepted only in Türkiye*

H_4: A higher willingness to actively seek and apply green energy solutions predicts stronger intentions to use green energy – *Accepted in both countries*

H_5: Individuals who place greater importance on education are more likely to report higher intentions to use green energy – *Accepted only in the UK*

H_6: A stronger belief in national interest and benefit from green energy is positively related to the intention to use green energy – *Rejected in both countries*

H_7: Individuals with higher environmental awareness and investment behaviors are more likely to intend to use green energy – *Accepted in both countries*

H_8: The intention to use green energy is different depending on demographic factors such as gender, age, education level and employment status – *Partially accepted in both countries*

Based on the results obtained from the analysis, the following section provides a discussion of the findings and draws conclusions in light of the research objectives.

Discussion and Conclusion

This research investigated the factors influencing green energy consumption behavior by comparing participants from two countries, the UK and Türkiye. The comparative analysis of participants from Türkiye and the UK revealed that both intrinsic environmental motivations and awareness factors played pivotal roles in driving green energy consumption behavior. However, it is found in this study that their relative importance differs by culture. In both country samples, environmental concern and green energy awareness emerged as significant positive predictors of the intention to adopt green energy technologies. This suggested

that regardless of context, individuals who are more worried about environmental issues and more knowledgeable about green energy tend to be more inclined toward using renewable sources. However, the strongest predictor in each country's regression model diverged significantly. Environmental concern was the most potent motivator among the participants from Türkiye, whereas knowledge and understanding of green energy was the leading factor among the participants from the UK. In other words, Turkish participants appeared more driven by a sense of environmental threat and urgency, while their British counterparts were more influenced by cognitive awareness and information. This finding aligns with the cultural context of each country. Türkiye's respondents may act out of concern for environmental degradation they perceive, whereas British respondents, operating in a society with higher baseline environmental knowledge, respond more to how informed they are about green energy's benefits (Bilgin & Soner Kara, 2024). Notably, the results showed that both factors are important among the participants from each country, which indicated that any successful policy mix must maintain both informational campaigns. The application of an extended UTAUT framework supports these results. In this manner the key psychosocial constructs analogous to performance expectancy and facilitating conditions were influential, but their salience varied between the two nations' contexts. Some cross-country contrasts were evident in the significance of other UTAUT-related variables. The importance of education factor was found to be a significant predictor of green energy intentions in the UK sample but not in the sample from Türkiye. This result suggested that participants from the UK placed higher value on education and a stronger integration of sustainability in the educational system translated into greater willingness to embrace green energy at the individual level. British participants who are more educated or who consider education important may have higher environmental literacy and confidence in new technologies. In this manner, they showed stronger green energy intentions. In contrast, the Turkish sample did not show a unique effect of the education variable on intentions. This could imply that formal education does not yet play as direct a role in shaping pro-environmental energy behaviors among the participants from Türkiye. Cultural and systemic differences such as how environmental topics are covered in school curricula or the public discourse might explain this disparity. Additionally, some constructs that one might expect to motivate behavior, such as perceived benefits of green energy and perceived country-level benefits had only limited effects in both countries' models. The weak influence of these extrinsic benefit considerations indicates that people's green energy decisions were driven more by personal values and ecological awareness than by calculations of economic or national gain. Even in Türkiye, where economic concerns and practical questions like "Can I afford it?" or "Will this technology work for me?" are often prominent (Arı & Yılmaz, 2021), this study's findings suggested that intrinsic motivations outweighed pure utilitarian benefits in reported intentions. However, it should be noted that this does not mean that personal gain is irrelevant. It implies that without a baseline environmental concern or awareness even potential cost savings alone may not encourage action.

Except for the attitudinal and knowledge-based determinants, the study also examined demographic patterns in green energy intention, uncovering both universal trends and context-specific distinctions. Several demographic effects proved consistent across the Turkish and UK samples. Gender differences were observed in both samples, with women reporting higher intentions to use green energy than men which is a pattern often attributed to women's greater environmental concern in the literature. Age was another common factor. In this manner, older individuals tended to express stronger intentions to adopt green energy than younger adults among the participants. This could reflect life-stage effects or greater exposure to environmental issues over time. Likewise, education level showed a positive association with green energy intention in both samples. Participants holding a university degree or higher were more inclined toward green energy than those with lower education levels. This indicated that education enhances environmental awareness and openness to new technologies (Wall et al., 2021). These parallel findings in two different sample

suggest there are universal dimensions to pro-environmental behavior. In this manner it can be said that being female, older or more educated generally correlates with greater willingness to engage in green energy consumption. However, this indication is limited to sample of this study. Nevertheless, such commonalities indicated that certain socio-psychological tendencies, for example, environmental sensitivity and knowledge-based confidence may transcend cultural boundaries. On the other hand, one demographic factor which is employment status displayed a country-specific difference. Among sample from the UK, employed individuals particularly those working full-time exhibited significantly higher green energy intentions than the unemployed, whereas in Türkiye's sample the effect of employment status was not statistically significant. This divergence may be due to structural or economic differences between the countries. It is possible that in the UK, stable employment enables individuals to consider investing in or adopting renewable solutions, aligning with research that higher economic security facilitates pro-environmental investments (Omar & Hasanujzaman, 2023). In Türkiye, where renewable options might be perceived as less affordable or where subsidies and support are still developing, employment per se did not differentiate intentions. This may mean that factors other than job status are more critical for adoption in that context. Overall, the demographic comparisons reinforce that while some drivers of green energy behavior are universally relevant, the weight of their effects can be shaped by each country's socio-economic landscape. These findings have important practical implications for promoting green energy behaviors in different cultural settings. The fact that environmental concern and awareness are key drivers in both sample indicates that any policy aimed at increasing green energy adoption should include components that boost public knowledge about green energy and underscore the urgency of environmental issues. However, the differing emphases between Türkiye and the UK suggest that policy strategies must be culturally tailored. Tailoring strategies to the socio-psychological drivers prominent in each society will enable policymakers and stakeholders to foster a more rapid and enduring shift toward green energy, thereby contributing to both national energy goals and the broader fight against climate change.

However, it is important to emphasize that the findings of this study are limited to the sample included in the research. Because the data were collected using non-probability sampling, the results cannot be generalized to the entire populations of Türkiye or the UK. Instead, the study provides valuable insights into the relationships among psychosocial and demographic factors within the participant group. To prove the results of this study further cultural comparisons can be made by using other countries as an investigation area. China-Türkiye comparison, UK-India comparison can be important to be studied by the future research. Future research should employ probability-based and nationally representative samples to enhance the external validity of the findings.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethical approval for this research was granted by the Istanbul Kent University Social and Human Sciences Research Ethics Committee, decision dated 30.05.2025, meeting number 2025/05.

Informed Consent: Electronic informed consent was obtained from all participants before they began the questionnaire; participation was voluntary, and anonymity and confidentiality were ensured.

Data Availability: Due to privacy and confidentiality considerations, raw survey data are not publicly available. De-identified datasets and analysis materials (e.g., codebooks and regression outputs) are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence–based tools or applications were used in the conception, analysis, writing, or figure preparation of this study. All content was produced by the author in accordance with scientific research methods and academic ethical principles.

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