

# A Study of Anxiety Levels Among University Students in Relation to Sustainable Consumption Awareness

## Üniversite Öğrencilerinin Gelecek Kaygısının Sürdürülebilir Tüketim Bilinci Bağlamında İncelenmesi

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**Abstract:** It is well-established that future anxiety exerts an effect on the consumption behaviour of individuals. This concern is theorised to direct consumers towards sustainable consumption awareness. In order for consumption to be sustainable, it is imperative to increase social awareness. The present study investigates the effect of future anxiety and sustainable consumption awareness of undergraduate students studying at the university on the intention to purchase sustainable products. Thus, this study investigates the effect of future anxiety and sustainable consumption awareness of undergraduate students studying at the university on the intention to purchase sustainable products. To this end, a sample group of 218 university students was surveyed online. Structural Equation Modelling (SEM) was performed using the IBM SPSS 27 statistical programme and its add-on AMOS 24 programme. The results of the study revealed no positive relationship between future anxiety and sustainable environmental consumption awareness, nor between future anxiety and intention to purchase sustainable products. However, a positive relationship was identified between future anxiety and sustainable environmental consumption awareness. Furthermore, sustainable environmental consumption awareness has been found to be positively associated with both sustainable economic consumption awareness and sustainable purchase intention. Additionally, sustainable product purchase intention has been demonstrated to be positively linked with sustainable economic consumption awareness.

**Keywords:** Future Anxiety, Sustainable Consumption Awareness, Sustainable Product Purchase Intention

**Özet:** Gelecek kaygısının bireylerin tüketim davranışları üzerinde etkili olduğu bilinmektedir. Bu kaygının, tüketicileri sürdürülebilir tüketim bilincine yönlendirdiği düşünülmektedir. Tüketimin sürdürülebilir olabilmesi için toplumsal bilincin artırılması şarttır. Bu bağlamda, bu çalışmanın eğitim seviyesinin en yüksek olduğu üniversitelerde gerçekleştirilmesi gerektiği düşünülmüştür. Yapılan çalışma ile üniversitede okuyan lisans öğrencilerinin gelecek kaygısı ile sürdürülebilir tüketim bilincinin sürdürülebilir ürün satın alma niyetine olan etkisi araştırılmaktadır. Bu doğrultuda, çevrimiçi anket yöntemi kullanılarak üniversite öğrencilerinden oluşan 218 kişilik bir örneklem grubuna ulaşılmıştır. Toplanan veriler IBM SPSS 27 istatistik programı ve eklentisi AMOS 24 programı kullanılarak Yapısal Eşitlik Modellemesi (YEM) yapılmıştır. Araştırmanın sonucuna göre; gelecek kaygısı ile sürdürülebilir çevresel tüketim bilincinin ve gelecek kaygısı ile sürdürülebilir ürün satın alma niyeti arasında pozitif bir ilişkiye rastlanılmamıştır. Gelecek kaygısı ile sürdürülebilir çevresel tüketim bilinci arasında pozitif yönlü bir ilişki vardır. Sürdürülebilir çevresel tüketim bilinci ile hem sürdürülebilir ekonomik tüketim bilinci hem de sürdürülebilir satın alma niyeti arasında pozitif yönlü bir ilişki bulunmaktadır. Sürdürülebilir ürün satın alma niyeti ile sürdürülebilir ekonomik tüketim bilinci arasında pozitif yönlü bir ilişkiye rastlanılmıştır.

**Anahtar Kelimeler:** Gelecek Kaygısı, Sürdürülebilir Tüketim Bilinci, Sürdürülebilir Ürün Satın Alma Niyeti

## 1. Introduction

It is an established fact that the demands placed upon consumers are infinite, whilst the resources available to meet these demands are finite. Consumers must to recognise that to meet their needs, they must take significant steps to ensure the correct and effective use of limited natural resources, to implement measures to

prevent environmental pollution, and to transfer our natural resources in a manner that ensures the benefits of future generations.

In the context of contemporary consumer society, the adoption of sustainable consumption practices assumes paramount importance, as it facilitates the transfer of resources to future generations. Given the projected in-

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crease in the world population from 8 to 10 billion over the next 30 years (UN, 2023). It is anticipated that both demand and supply will expand concomitantly (Chapman, 2015). Concurrently with this period of exponentially rising global population, the inefficient use of natural resources is proving deleterious to the environment. Moreover, it is anticipated that the proportion of the global population residing in urban areas will reach 60% within the next 20 years, representing an increase from the current 50% (Smith & Barrientos, 2005). The projected increase in urbanisation in the coming years highlights a growing reliance on technology, energy, and natural resources by consumers. The process of urbanisation has increased in conjunction with the advent of the Industrial Revolution. This has led to a concomitant increase in the demand for necessities, including water, food, shelter and energy (Peattie & Peattie, 2009). Furthermore, this increase contributes to the contamination of the air, water and wider environment. It is therefore thought that, in the context of the depletion of resources, greater care should be taken to use scarce resources more efficiently and only to the extent necessary. The practice of expending natural resources without consideration of their finite nature should be discontinued. The 1987 report of the World Commission on Environment and Development, *Our Common Future*, addressed the environmental, economic and social dimensions of sustainability (U.N, 1987). Subsequently, the concept of sustainable consumption was first discussed on a global scale at the Earth Summit held in Rio de Janeiro, Brazil, in 1992, where the Sustainable Development Action Plan was adopted. Nevertheless, a precise definition was first proposed in 2002. According to the definition created by the Organisation for Economic Co-operation and Development (OECD), sustainable consumption can be defined as “the use of goods and services that meet basic needs and offer a better quality of life while minimising the use of natural resources, toxic substances, waste emissions and environmental pollutants from a life cycle perspective, taking into account the needs of future generations” (OECD, 2002). Consequently, a consensus has been reached on the definition of sustainable consumption at the global level.

The concept of sustainable consumption requires analysis from both economic and environmental perspectives. From an economic standpoint, sustainable consumption can be defined as the ability of an economy to sustainably support a certain level of production through the utilisation of recycled resources. It can be posited that the formation of more robust relationships is contingent upon the awareness of sustainable consumption among economists and politicians (Nash, 2009; Anand & Sen, 2000). It is evident that the level of awareness regard-

ing environmentally sustainable consumption remains relatively low on a global scale (McKinnon et. al., 2015). Nevertheless, it is believed that immediate action should be taken to reduce current consumption and to achieve a state of ecological balance (Schaefer, 2005). Projections indicate that by December 2024, 4.8 hectares of forest cover, 6.2 billion litres of water, 227 MWh of energy consumption, and 884 million individuals will face food insecurity. This underscores the critical importance of effective natural resource management (WOM, 2024).

Despite the fact that 74% of consumers self-identify as users of sustainable products, it is estimated that only 30% of consumers exhibit sustainable purchasing behaviour. (Pedro Pereira Luzio & Lemke, 2013). However, it has been observed that the younger generation is more sensitive to sustainability anxiety than other age groups (Kotler et. al., 2021). Accordingly, the sample of this study consists of university students as they are relatively young and have a more advanced cultural and cognitive level than their peers. The objective of this study is to ascertain the propensity of this demographic to purchase sustainable products. This will be achieved by examining whether a segment of the population that has not yet entered the business world has anxiety about the future and whether they are aware of sustainable consumption.

## 2. Theoretical Background

### 2.1. Future anxiety

The term “anxiety” is used to describe a complex set of reactions to cognitive and situational stressors. These reactions manifest as an emotional state that varies in intensity from one individual to another, exhibits fluctuations over time, and is more pervasive than negative emotions (Spielberger et. al., 1971; Zaleski et. al., 2019). It can be posited that future anxiety is constituted by individuals’ thoughts about prospective future events. Despite its negative valence, it is characterised by features that enable people to continue planning and to be motivated by thinking about the future (Zaleski et. al., 2019). In the study conducted by Kemp et al. in 2021, it was observed that anxiety has a positive correlation with consumer spending, with the propensity of individuals to regulate their negative emotions through the act of purchasing (Kemp et al., 2021). However, a contrasting study undertaken in China yielded a divergent conclusion, asserting that the attitudes of anxious consumers serve to diminish the impact of their attitudes on sustainable purchase intention (Wang et al., 2021). In a separate study, the impact of sustainable consumption

awareness on brand attitude and purchase intention was examined. The research conducted by Yılmaz and Arslan in 2021 concluded that future anxiety has a positive effect on brand attitude, but no effect on purchase intention (Yılmaz & Arslan, 2021). In this regard, it can be posited that consumer anxiety exert a guiding influence on sustainable consumption behaviours, thereby impacting purchase intentions and the decision-making process (Kemp et al., 2021; Wong et al., 2023; Hwang & Yeo, 2022).

## 2.2. Sustainable Product Purchase Intention

The concept of intention is defined as the subjective possibility that forms between attitude and behavior, serving as a key determinant in shaping actions (Davis, 1989). In the context of consumer behavior, intention acts as a bridge between a consumer's attitude and their purchasing behavior. The positivity or negativity of a consumer's intention has a direct impact on whether the purchase will take place. (Ajzen & Fishbein, 2000). Consumer purchasing decisions are influenced by various factors, one of the most significant being the environment. When consumers make decisions about sustainable products, their choices often align with their personal value systems and environmental priorities (Laroche et al., 2001). This highlights the necessity of cultivating consumer awareness about the link between their consumption patterns and environmental outcomes. It is imperative that we disseminate information to our consumers to cultivate consumer groups that are aware that the quality of the environment will increase in direct proportion to the increase in the use of sustainable products. Furthermore, consumers' purchasing intentions are also affected when they have information about the sustainable product purchasing process. In the absence of sufficient information, it may not be possible for the consumer to make a sustainable purchasing decision. Consequently, it is crucial to increase the number of consumers who are oriented towards sustainable products (Young et. al., 2010; Zeynalova & Namazova, 2022). It is evident that consumers are aware of the direct impact of their purchasing behaviour on environmental issues. Consequently, it can be posited that they engage in environmentally conscious shopping practices (Laroche et. al., 2001). Nevertheless, it is evident that consumers exhibit disparate behaviours when compelled to procure products. It can be posited that the attitudes of consumers towards the environment exert a negligible influence on their intention to purchase sustainable products when a sense of necessity is perceived (Cheah & Phau, 2011).

## 3. Research Methodology

The study population comprises undergraduate university students in Istanbul. Given the size of the population and the practical limitations of reaching each student, a non-random convenience sampling method is employed to make causal inferences. Structural Equation Modelling requires a minimum of 100 cases, with 200 cases being preferable (Loehlin, 1992). In this regard, the study reached 218 participants currently enrolled at the university. Following the decision of the Istanbul Rumeli University Ethics Committee (document number 2024/8, dated 30/10/24), the online survey method was selected as the preferred means of reaching the participants. The questionnaire comprised two sections. The first section enquired about the participants' age, gender, employment status and income level. The second section employed three distinct scales identified in academic literature during the modelling process. The Future Anxiety Scale was based on the methodology of Zaleski 1996 (Zaleski, 1996). In order to create the Sustainable Consumption Scale, the Turkish literature was adapted from the study conducted by Balderjahn (Balderjahn et al., 2013). To assess the Sustainable Product Purchase Intention scale, the study conducted by Robert in 1996 was employed as a point of reference. (Robert, 1996). The scales comprise a total of 22 items. A 5-point Likert scale was employed, with the following responses: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree.

The research model is presented in Figure 1 as a basis for developing hypotheses.

The independent variables of this study are future anxiety and sustainable consumption awareness.

The dependent variable is sustainable purchasing intention.

The following hypotheses are posited within the framework of these explanations:

**H1:** There is a positive correlation between future anxiety and sustainable environmental consumption awareness.

**H2:** There is a positive correlation between future anxiety and sustainable economic consumption awareness.

**H3:** The results indicate a positive correlation between future anxiety and sustainable purchasing intention.

**H4:** There is a positive correlation between awareness of

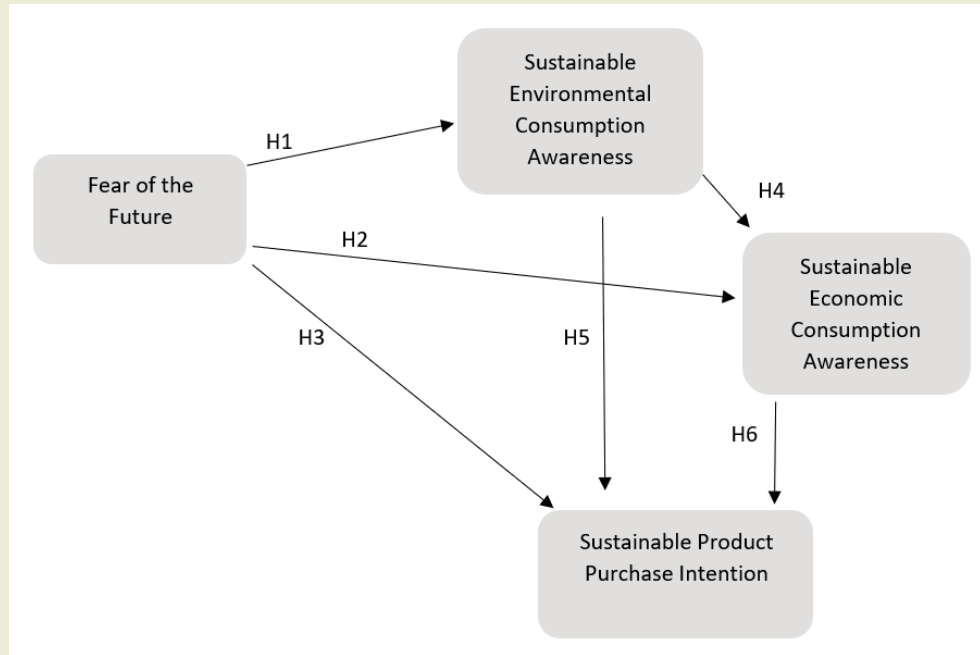


Figure 1. Research Model

sustainable environmental consumption and awareness of sustainable economic consumption.

**H5:** There is a positive correlation between awareness of sustainable environmental consumption and the intention to make sustainable purchases.

**H6:** There is a positive correlation between awareness of sustainable economic consumption and the intention to purchase sustainably.

#### 4. Data Collection and Sample

Structural equation modelling (SEM) is a frequently employed technique in social sciences, enabling the measurement of attitudes, intentions and behaviours, as well as the investigation of causal relationships. Consequently, SEM was utilised in the present study. Reliability and validity tests, in addition to confirmatory factor analysis (CFA), were conducted for the scales employed in the study.

Table 1 reveals that 61.5% of the participants are female. As the study encompasses undergraduate students, 92.2% of the participants are within the age range of 18-24. It is evident that only 16 students are 25 years of age or above. Given that the participants are university students, 62.4% of them are not employed. Upon analysis of the participants' income status, it is observed that 55.5% of them have an income of 17.002 TL or below.

Table 1. Demographic Characteristics of the Participants (n:218)

Groups	Features	f	%
Gender	Female	134	61,5
	Male	84	38,5
Age	18-24	202	92,2
	25-44	16	7,3
Work status	not working	136	62,4
	part-time work	46	21,1
	full-time work	36	16,5
Income*	<17.002 TL	121	55,5
	17.003 TL- 30.000 TL	62	28,4
	>30.001 TL	35	16,1

\*Monthly income, based on Turkish Lira (TL); exchange rate at 1TL =0.032USD

#### 5. Research results

##### 5.1. Confirmatory Factor Analysis, Reliability and Validity

According to the results of the analyses, Composite Reliability (CR) and Cronbach's  $\alpha$  values and Average Variance Explained (AVE) values obtained for all scales were created. Similar to the studies in the literature, it is expected that the CR value is not less than 0.60, CR value is above 0.70 and AVE value is greater than 0.50 (Fornell & Larcker, 1981) and CR values are expected to be greater than AVE values. In addition, the AVE value is expected to be >0.5 (Hair et al., 2012). Thus, conver-

**Table 2.** Measurement Items

Variables	Factor Loading	Cronbach's $\alpha$	CR	AVE
<b>Future Anxiety</b>		0,938	0,93	0,75
FA1	0,885			
FA2	0,887			
FA3	0,948			
FA4	0,797			
FA5	0,818			
<b>Sustainable Consumption Awareness</b>				
ENV1	0,915	0,946	0,95	0,76
ENV2	0,658			
ENV4	0,797			
ENV5	0,959			
ENV6	0,912			
ENV7	0,961			
ECO1	0,798	0,910	0,90	0,60
ECO2	0,791			
ECO3	0,789			
ECO4	0,805			
ECO5	0,763			
ECO6	0,712			
<b>Sustainable Product Purchase Intention</b>		0,922	0,92	0,74
PI1	0,876			
PI2	0,845			
PI3	0,898			
PI4	0,835			

gent and divergent validity of the study was ensured.

In the context of structural equation modelling (SEM), the construction and evaluation of a model are conducted in two distinct phases (Anderson & Gerbing, 1988). Once the scales had been validated and demonstrated reliability, the model constructed for hypothesis testing was subjected to a second stage of evaluation. The analysis yielded the conclusion that the goodness-of-fit indices of the model fell within the acceptable range and demonstrated a satisfactory fit. In the evaluation of the established model, the following indices were examined: chi-square fit test ( $\chi^2/df$ ), NFI (normed fit index), IFI (incremental fit index), TLI, CFI (comparative fit index), and RMSEA (square root of the mean of prediction errors) coefficients. While there are no definitive limitations on the values of these indices, it is commonly accepted that the ranges provided in Table 3 offer a useful indication of model goodness (Bentler, 1980; Bentler & Bonett, 1980; Byrne, 2010). In accordance with these findings, it was established that the discriminant and convergent validity of the scales was supported (Anderson & Gerbing, 1988; Fornell & Larcker, 1981; Hair et al., 2019).

**Table 3.** Model Goodness of Fit Indices Table (N:218)

Goodness of Fit Indexes	Measurement Model Goodness of Fit Indexes	Reference Values	Results
$\chi^2/df$	2,673	$CMIN/DF \leq 3$	Good Fit
NFI	0,901	$,80 \leq GFI \leq 1$	Good Fit
IFI	0,935	$,90 \leq TLI \leq 1$	Good Fit
TLI	0,925	$,90 \leq TLI \leq 1$	Good Fit
CFI	0,935	$,90 \leq CFI \leq 1$	Good Fit
RMSEA	0,08	$,03 \leq RMSEA \leq ,08$	Good Fit

Upon analysis of Table 4, it becomes evident that there is no discernible correlation between future anxiety and two key variables: sustainable environmental consumption awareness and intention to purchase sustainable products. A positive relationship is observed between future anxiety and sustainable environmental consumption awareness. Similarly, a positive relationship is evident between sustainable environmental consumption awareness and both sustainable economic consumption awareness and sustainable purchase intention. Addi



**Table 4.** Path Analysis Results

			Estimate	S.E.	C.R.	P	Results
ENV	<---	FA	,743	,065	11,502	***	Supported
ECO	<---	FA	-,021	,072	-,297	,767	Not Supported
RI	<---	FA	-,040	,063	-,631	,528	Not Supported
ECO	<---	ENV	,357	,082	4,365	***	Supported
RI	<---	ENV	,630	,087	7,238	***	Supported
RI	<---	ECO	,625	,079	7,893	***	Supported

\*\*\*p <0.010; \*\*p<0.050; \*p<0.100

tionally, a positive relationship is identified between sustainable product purchase intention and sustainable economic consumption awareness. In conclusion, hypotheses H1, H4, H5 and H6 are supported, while hypotheses H2 and H3 are not.

## 6. Discussion on Results and Findings

### 6.1. Managerial implications

In the current era, consumers are increasingly inclined towards sustainable products. It is of significant interest to ascertain the perceptions and attitudes of the younger generation of university students with regard to sustainable products and consumers with a propensity to purchase sustainable products. In this context, the present study sought to investigate the extent to which consumers' future anxiety and awareness of sustainable consumption may influence their intention to purchase sustainable products.

The research was conducted via an online survey of undergraduate students at the university. A total of 218 students participated in the survey. It can be reasonably inferred that 202 of these students are 24 years of age or younger, thereby representing the younger generation.

A substantial body of research indicates that younger consumers tend to exhibit heightened levels of concern about the future relative to other age groups (Schlegelmilch et al., 2003). Additionally, it can be posited that their inclination towards purchasing sustainable products is also heightened (Chekima et al., 2016). In accordance with the existing literature, this study found a positive correlation between future anxiety and awareness of sustainable environmental consumption. The H1 hypothesis is thus supported. However, an examination of the economic dimension of sustainable consumption awareness revealed no positive relationship between future anxiety and sustainable consumption

awareness. Consequently, hypothesis H2 is not supported. While the future anxiety of young consumers affect environmental consumption, it is evident that they do not affect the economic aspect. It can be posited that young generation consumers are more concerned about environmental events. When the sustainable product purchase intention of young consumers is analysed, a positive relationship was found between future anxiety and sustainable purchase intention, in alignment with the literature. Hypothesis H3 is therefore supported. It can be concluded that young consumers have future anxiety and intend to prefer sustainable products in their purchasing processes.

The study revealed a positive correlation between sustainable environmental consumption awareness and sustainable economic consumption awareness. The H4 hypothesis is therefore accepted. In this study, the concept of consumer consumption consciousness is considered to have two distinct dimensions. A positive relationship was identified between these two dimensions. It can be posited that younger consumers attach significance to both economic and environmental consumption consciousness. There is a positive correlation between environmental and economic consumption awareness and sustainable purchase intention. In this regard, the H5 and H6 hypotheses are supported. It can be posited that young consumers intend to purchase sustainable products to protect the environment, to safeguard natural resources in an appropriate manner and to guarantee that the needs of future generations can be met. Consequently, the fact that young generations wish to act in a more conscious manner gives rise to the necessity for businesses to attach greater importance to sustainable production and consumption.

The main topics highlighted in the study are as follows:

#### Prominence of Environmental Awareness:

The positive effect of university students' future anxiety environmental sustainability awareness indicates that this group has increased sensitivity towards en-

environmental issues. This reflects the impact of global challenges such as climate change, environmental degradation, and nature conservation on university students. However, the limited effect of future anxiety on economic sustainability awareness suggests that this aspect should be emphasized more through education and communication.

#### **Neglecting the Economic Dimension:**

The lack of a relationship between economic sustainability awareness and future anxiety may indicate that university students do not consider economic sustainability as important as environmental sustainability. This highlights the need for more effective explanations and education about economic sustainability. For instance, the benefits of resource efficiency or the positive impact of recycling on both environmental and individual economies can be emphasized.

#### **Sustainable Purchase Intention:**

The finding that university students' future anxiety positively influence their intention to purchase sustainable products suggests that this group has strong potential to prefer sustainable products. This presents significant opportunities for businesses, as university students represent not only the current market but also the future market.

#### **Comprehensive Awareness and Consumer Behaviour:**

The positive relationship between environmental and economic sustainability awareness indicates that university students recognize the importance of sustainable consumption. However, there are still barriers to converting this awareness into actionable behaviour. Anxiety about price, product accessibility, and doubts regarding the actual sustainability of products can hinder this transformation.

These insights underline the necessity of targeted strategies to enhance sustainability awareness and facilitate its integration into everyday consumer behaviours

among university students.

## **6.2. Limitations and directions for further studies**

Upon evaluation of the limitations of the research, the use of a convenience sampling method is evident. This method was selected due to the constraints posed by cost. However, to overcome this limitation, the sample size was carefully selected to ensure statistical sufficiency.

In future research, university students residing in different cities can be reached. This will allow for investigation of potential differences between cities, regions, and countries. Any observed differences can then be compared.

### **Research Ethics**

Not applicable.

### **Author Contributions**

The author solely conducted all stages of this research.

### **Competing Interests**

The authors have no conflicts of interest to declare.

### **Research Funding**

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### **Data Availability**

The raw data can be obtained on request from the author.

### **Peer-review**

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