Pamukkale Üniversitesi
Sosyal Bilimler Enstitüsü Dergisi
Pamukkale University Journal of Social Sciences Institute
ISSN1308-2922 EISSN2147-6985

Article Info/Makale Bilgisi
Received/Geliş:10.02.2020 **Accepted/Kabul:**10.06.2020
DOİ: 10.30794/pausbed.687013
Araştırma Makalesi/ Research Article

Yılmaz, Z. (2020). "Green Product Consumption Analysis: Awareness, Interest Level and Sensitivity of Consumers" *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, sayı 41, Denizli, s. 594-614.

GREEN PRODUCT CONSUMPTION ANALYSIS: AWARENESS, INTEREST LEVEL AND SENSITIVITY OF CONSUMERS

Zafer YILMAZ*

Abstract

In this paper, a survey is conducted by adopting Likert scale method, and its consequences are interpreted in terms of Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products of consumers about the concept green product. 183 volunteer people from different ages, income and education levels have participated in this survey. We use descriptive and inferential statistics in this study for our analysis. We proposed hypotheses and test them by applying "independent samples test" considering 95% confidence level. We use IBM SPSS Statistics application to find the results of the t-test. Specifically, the effects of gender, marital status, income level of consumers on their preferences are analyzed.

The results of independent samples test show that Participants' environmental sensitivity changes with respect to gender, marital status and income level and females, married people and people with income level greater than 4000 TL are more environmental sensitive. Green product awareness of participants changes with respect to gender and female participants' green product awareness is greater than males. Interest level of participants in green products changes with respect to marital status and income level and married people and people with income level greater than 4000 TL are more interested in green products. The people with an income level of 4000TL and over are more willing to buy green products than people with an income level lower than 4000TL if the green products' prices are 25% or 50% more expensive than non-green products. We realize that whatever the income levels of people are, they are not willing to buy green products without considering how high they cost.

Keywords: *Green product, Green consumption, Sustainable product.*

YEŞİL ÜRÜN TÜKETİM ANALİZİ: FARKINDALIK, İLGİ DÜZEYİ VE MÜŞTERİLERİN HASSASİYETİ

Özet

Bu çalışmada, Likert ölçeği kullanılarak bir araştırma yapılmış ve çalışma sonuçları müşterilerin yeşil ürün hassasiyeti, yeşil ürün farkındalığı ve yeşil ürünlere ilgi düzeyi açılarından değerlendirilmiştir. Araştırmaya değişik yaş gruplarında, eğitim ve gelir seviyelerinden 183 gönüllü katılmıştır. Analizler için tanımlayıcı ve çıkarımsal istatistikler kullanılmıştır. Hipotezler önerilmiş ve bunların testi için bağımsız değişken testi %95 güven aralığında uygulanmıştır. T-testine ait sonuçların bulunması için IBM SPSS programı kullanılmıştır. Spesifik olarak, cinsiyet, medeni durum ve gelir düzeyinin müşteri tercihleri üzerindeki etkileri analiz edilmiştir.

Bağımsız değişken testinin sonuçlarına göre; katılımcılarım çevre hassasiyeti cinsiyet, medeni durum ve gelir seviyelerine göre değişmektedir ve kadınlar, evliler ve gelir seviyesi 4000 TL üzerinde olanlar daha çevreye duyarlıdırlar. Katılımcıların yeşil ürün

*Assistant Professor, Business Administration Department, TED University, ANKARA.
e-posta:zafer.yilmaz@tedu.edu.tr, (orcid.org/0000-0001-5839-5381)

farkındalığı cinsiyete göre değişmektedir ve kadın katılımcıların farkındalığı erkeklere göre daha yüksektir. Katılımcıların yeşil ürünlere ilgi düzeyi medeni durum ve gelir düzeyine göre değişmektedir ve evli katılımcılar ile gelir düzeyi 4000TL ve üzeri olan katılımcılar yeşil ürünler ile daha fazla ilgilenmektedir. Gelir düzeyi 4000TL ve üzeri olanlar daha düşük gelir seviyesi olan katılımcılara göre fiyatı yeşil olmayan aynı ürünlerden %25 veya %50 daha pahalı olan yeşil ürünleri almaya daha isteklidirler. Çalışmada şu anlaşılmıştır ki, gelir seviyesi ne olursa olsun katılımcılar yeşil ürünlerin maliyeti ne kadar yüksek olursa olsun onları almaya istekli değillerdir.

Anahtar Kelimeler: *Yeşil ürün, Yeşil tüketim, Sürdürülebilir ürün.*

1. INTRODUCTION

Production and consumption have been inevitable in every period of the history of the world for the continuation of the human generation. However, in the new world order that was emerged with the industrial revolution, fed by continuous consumption, and developed in this way, people consumed more than they need for self-satisfaction. Recently, consumption is seen as a means of communication with environment and the outside world via psychological satisfaction rather than satisfying physiological needs (Koç, 2011). The pressure created by industrialization and mass consumption on the environment is a subject discussed on a macro and micro scale, from the growth and development policies of countries to their individual lifestyles. In general, many environmental problems such as global warming, destruction of the ozone layer and marine resources, the use of chemicals, nuclear activities and waste, air pollution, noise pollution and light pollution are located within the framework of discussions (Ramlogan, 1997). Technological developments and rapid industrialization in the world lead to the rapid destruction of the environment we live in. Recently, the demand for environmental friendly products has increased in proportion to the increasing awareness of environmentalism. In other words, with the importance of the environment, green consumer and consumption concepts were born in the process of turning towards environmental friendly alternatives in consumption and these concepts became the focus of environmental discussions (Schlegelmilch et al, 1996).

The strength of this relation between the necessity and awareness of environmentalism is still an object at issue. This study aims to fill in the gap by focusing the tendencies of consumers and measuring their knowledge about green product consumption. The organization of the study is as follows: a detailed literature survey is given in the next section, following with an overview of green products including historical context, objectives, and trends. After a detailed method description and survey analysis, conclusion and future works sections are given.

2.LITERATURE REVIEW

This study aims to measure the sensitivity and awareness of consumers about green product consumption. The detailed literature review in this term is given below.

Odabaşı (1992) refers that, with the inclusion of environmental marketing concept in marketing, it is seen that sub-concepts starting with green are being produced in the marketing field. “Green consumer” can be considered as one of these concepts. The consumers who are determined as environmentally conscious are those people who use their purchasing as a power to protect themselves and their environment.

Schlegelmilch et al (1996) shows that those with high environmental awareness consume more green products, and most consumers are not sure that manufacturers produce green products.

Varinli (2012) point outs that while in the former years the interest of the consumers was only purchasing and consumption, today “conscious green consumers” are interested in the production systems, products, and environmental impacts of waste from businesses consuming scarce resources.

Coddington (1993) finds that, green consumers are determined as the type of consumers who can affect the environment through their purchasing habits. The green consumers’ socially responsible consumption choices include the product manufacturers, the production authorities and even the knowledge of the environmental impact of the raw materials used in the product during and after disposal.

As Neuner (2000) states, today manufacturers and consumers are more sensitive to and conscious about the using of environmentally friendly products. What is more, it has been proven by Çabuk and Nakıboğlu (2003) that there are significant relationships between consumers' level of environmental sensitivity and their level of awareness of environmental products. When examining the relationships between the sociodemographic characteristics of consumers and green purchasing behaviors, it was realized that gender, marital status, age, education level and income level affected purchasing. Çabuk et al (2008) reveals that the profile of individuals who buy green products is generally female, married, young, educated and have a high household income. In addition, Thai and Western consumers have similar characteristics. Similarly, Soonthonsmai (2001) agrees that educated, young, high-income people in both parts give importance to green consumption. Straughan and Roberts (1999) states that, in America, young people are more sensitive to environmental issues. Also, women are more concerned than men, and there was a positive relationship between education level and environmental attitude.

Shrum et al (1995) examines the green consumer's purchasing characteristics and their effect on advertisement strategies. As a result of the research, it is revealed that gender discrimination does not mean gender difference. According to that, green consumer has an idea, detailed information about the product to be purchased and she is a careful buyer.

Studies are also conducted on university students. With a study of 160 marketing students at a university in the UK, Schlegelmilch et al. (1996) found a positive relationship between environmental awareness and green buying behavior.

Alkibay's (2001) study is conducted with 1200 university students in Ankara found that women consumers are more supportive to green products however men can pay more for such products than women due to men's higher incomes.

Hussein and Cankul (2010)'s study, conducted with 225 students at Gazi University, found that there is a relationship between the occupation of the parents and the desire of buying green products of the students. Another important outcome is that most of those students are worried about the destruction of the environment. However, they are unable to reflect this concern to their behavior when buying products.

In Aslan and Cınar's (2015) study, according to the survey conducted on Caucasian university students, it was concluded that the students do not have adequate information about green marketing activities and were ambivalent about buying green products.

In the study of Yılmaz and Arslan (2011), the environmental sensitivity, environmental protection, and environmentally friendly consumption behaviors of the university students were investigated according to the gender of the students, where their parents live and the educational level of their parents. The research results showed that the gender of the students, the place where their parents lived, and especially their level of education affected environmental sensitivities and behaviors.

By using the detailed literature survey and interviewing with green product customers we defined our survey questions. Our study differs from the above studies since we try to find;

- How the decisions of the customers differ with respect to price differences between green and non-green products,
- If the decisions to buy more expensive green products differs with respect to education level and average income,
- If the awareness of green products changes with respect to gender,
- Rates of the media, social media, and others in terms of green product sensitivity
- Causes of the customers' using and not using environmentally friendly products.

The research questionnaire and results to the above research subjects are given in methodology section.

3. SUSTAINABLE PRODUCT, GREEN PRODUCT, GREEN CONSUMPTION

Before focusing on methodology and findings it is better to clarify what are the meanings of sustainable product, green product, and green consumption.

3.1 Sustainable Product

The emergence of many environmental problems, especially global warming, and the widespread public coverage of these problems has brought to the fore the concept of "sustainable consumption", which is described as a solution proposal. At the same time, the increase in consumption has made it necessary to examine the effects of consumption and to transform consumption trends into sustainable ones. Businesses have sought to continue their efforts to create a sustainable world by placing more emphasis on marketing work. Thus, there has been a shift from the concept of Sustainable Development, which is related to the "production dimension" of sustainability, to the concept of sustainable consumption, which is the "consumption dimension" (Karalar et al, 2008).

The concept of environmentally sensitive or sustainable consumption is a subject carefully monitored by business circles, government, non-profit institutions. This concept is used to express the consumption of products and services sensitive to the use of Natural Resources, waiting for pollution to be minimized (World Business Council for Sustainable Development, 2008)

Sustainable consumption is a concept aimed at increasing the consumption of goods and services that increase the quality of life and reducing the consumption of pollutants and ensuring the needs of future generations without interruption (Demir, 1994). It is also a tool for the implementation of economic citizenship that individuals will acquire through their political and environmental preferences in their private consumption behavior (Seyfeng, 2005).

Jackson and Michaels (2003) explain sustainable consumption as; the needs of future generations to avoid the threat of Natural Resources, toxic substances, wastes and by minimizing the life-cycle of the absorption of harmful substances; to create a better quality of life is defined as the use of products and services that answer the basic needs.

3.2 Green Product

Consumers demand products that reduce waste, recycle more, use renewable sources in production and do not pollute the environment. These demands led to the formation of the "green product" concept. Green or environmentally friendly products are products that do not pollute nature, do not consume natural resources, can be recycled, and protected (Turhan et al. 2015).

Green products are also called ecological products. Üstündağlı and Güzeloğlu (2015) describes ecological products as product groups which have a recycling strategy, reduced package usage, no unnecessary waste or reduced use of toxic materials.

When describing a product as green, four aspects are addressed: content, structure and packaging, and message and positioning (Ayyıldız and Genç, 2008). In business world, green product is defined as a product that protects the natural environment and supports its growth by reducing waste, poison, and destruction by protecting nature, resources, and energy. Green products must carry the specifications listed below (Turhan et al. 2015) ;

- Should not pose a health threat to humans or animals,
- Should not harm the environment,
- Should not consume excessive amounts of energy and natural resources throughout the product life cycle,
- Should not cause unnecessary waste, packaging etc.
- There should be no unnecessary use,

- Animals and other creatures should not be tortured,
- Environmental harmful materials should not be used.

3.3 Green Consumption

Green purchasing can be defined as the process of purchasing goods, services and construction works with the same basic function, with less environmental impact between goods, services and construction works compared to their counterparts over the life cycle.

As the environment gained importance, the concepts of "green consumer" and "green consumption" were born and these concepts became the focus of the environmental debate (Schlegelmilch et al, 1996).

The concept of Green Consumption is sensitive about the use of natural resources, pollution minimized, waiting to be used to denote the consumption of products and services (World Business Council for Sustainable Development, 2008: 7).

Adams et al (1991) refers to 'green consumption' as the purchase of products based on individual choices and perceived as environmentally friendly products.

The convincing indicators show that significant number of consumers are changing their habits and buying green products in order to decrease the negative effect of their consumption on the environment. As it is indicated in the study of Perera, (2018), this adaptation in the direction of buying more environmentally friendly green products is often stated to as green consumption and seems to have increased in especially most of the developed nations.

According to the study of Steg and Vlek, (2009), the green consumer behavior, which can be accepted as a practice of pro-environmental behavior, can be determined as a type of consumption that damages the environment very little, or even welfares the environment. Past researches have provided experimental proofs that green or pro-environmental consumer behavior includes private and public-sphere behavior.

Ertz et al., 2016 explains "Private-sphere behavior" as purchasing, usage and disposal of personal and home products that effect the environment in a negative way, such as automobiles, public transportation, or recycling.

Stern, (2000) explains "Public-sphere behavior" as activities that have impacts on the environment directly through committed environmental activism. Those activities affect the public policies, such as acting in environmental organizations, protests or petitioning on environmental subjects indirectly.

There are also some studies in which difficulties are identified to green consumption. For example, Gleim et al. (2013) informs that price of the products and lack of expertise are the obstacles to the consumption of green products. In the study of He et al. (2016) which examines Chinese people's consumption, the results show that consumer preference, reference group and face perception contributes to non-green consumption behavior. Tan et al, (2016) explains that trust and pro-social status, perceived risk performance, price and quality of the products and consumer cynicism are the most important reasons why the consumers do not chose green products to buy although they are environmentally conscious.

3.4 History of Green Product

Although environmental problems have been faced in all periods of history, it is the case of the last century that problems have become threatening the ecological balance. The mind transformation that brought about the Industrial Revolution and the Industrial Revolution was an important turning point in the destruction of the ecological balance.

In the process that began with industrialization in the 18th century and dates to today, countries have increased their consumption level by indifferently using natural resources along with economic development. Industrialization, which developed rapidly in the 19th century, gave rise to the concept of environment in the 20th century. Population growth in the 20th century increased the use of energy and foodstuffs. During this

period, people thought that this increase would bring about scarcity. Because industrialization was not planned during this period and the environmental factor was ignored. The abandonment of traditional farming methods with industrialization and the concentration of new technologies in agriculture has also caused serious damage to the natural environment. At the end of this process, the resulting waste materials have increased very intensively and become a threat to environmental pollution and human life. Environmental problems had an intense impact until the 1970s (Ilkin, 1991).

Green consumption, environmental bias, eco-friendly and sustainable consumption in terms of various statements are taken together. However, environmental protection and its reflection on consumption practices are different processes. However, sustainable consumption includes many behavioral practices that require the transformation of nature-oriented sensitivities into a way of life. It is stated that the conceptual uncertainties involved in various dimensions such as being Green, friendship of nature and reflection on consumption are related to the lack of a clear definition for the concept of Environment (Shrum et al., 1995). Therefore, in general, only the nature of concern about the physical environment, such as air, water, soil, can be addressed under the heading 'green' (Shrum et al., 1995), environmental awareness related to consumption can also be considered a quality of being green (Gök and Türk, 2011). Green products are also defined in this context as ecological products or environmentally friendly products. More broadly, green refers to a product group with recycling strategies or recyclable content to reduce its impact on the natural environment, reduced package use or reduced use of toxic materials (Chen and Chai, 2010).

4. METHODOLOGY AND ANALYSIS

As we can conclude from literature review, many people have an intension to consume green product and to stabilize the consumption behavior. However, there is a lack of knowledge and awareness or the market is not well-designed to trigger their action. The main contribution given by this paper is how gender, education level and income status effect the awareness about green products and decision of buying. This study finds; how the decisions of the customers differ with respect to price differences between green and non-green products, if the decisions to buy more expensive green products differs with respect to education level and average income, rates of the media, social media and others in terms of green product sensitivity and causes of using and not using environmentally friendly products.

In this study, for the purpose of measuring the sensitivity and averseness of consumers about green product consumption, survey is conducted, and the Likert scale method is adopted. The Likert scale which is a closed-ended investigation question is used to measure the participant's views on a set of statements. Participants can choose from a variety of answers from opposite ends after evaluating the prompt. Likert scales may consist of five, seven, or nine points, depending on the level of complexity desired from the contributors. In addition to personal information of participants, the survey in this study consists of 3 main parts: Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products. The survey is prepared and presented through Google Forms on November and December 2019 and forwarded to randomly chosen participants who live in Ankara-Turkey. 183 volunteer people from different ages, income and education levels have participated.

A full text of survey and the answers of participants and our evaluation on outcomes of survey are given bellow.

The survey consists of two parts. First part is about personal information, and the second part is about the statements of sensitivity to green product consumption.

In conducted survey, the number of respondents is 183. The information related to demographic profiles of participants and percentage of participants for each demographic property are given in Table 1. For example, according to the answers to gender question female participants are 68.8% and male participants are 31.2%.

Table 1: Demographic Profile of the Participants

Gender	%	Age	%	Marital Status	%	Education	%	Income(TL)	%
Female	68.8	18-24	61	Single	77	Primary and High school	9	0-1000	43
Male	31.2	25-29	11	Married	23			1001-2000	15
		30-39	16			University	79	2001-4000	15
		40-49	7			Master	8	4001-7000	16
		50-60	5			PhD	4	7001-10000	6
								Above 10000	5
Total	100	Total	100	Total	100	Total	100	Total	100

We realize from the answers that majority of the participants have undergraduate education level, single, between 18-24 ages, female, and an income level up to ₺1000.

Part 6, 7 and 8 include gradated statements. Participants may select only one grade. Grades are:

- 1: 'I strongly disagree',
- 2: 'I disagree',
- 3: 'I am on the fence',
- 4: 'I agree' and
- 5: 'I strongly agree'.

In Part 6, environmental sensitivity scale is found. Our hypotheses in this section are:

H1.1: Environmental Sensitivity of participants does not change with respect to gender.

H1.2: Environmental Sensitivity of participants does not change with respect to marital status.

H1.3: Environmental Sensitivity of participants does not change with respect to income level.

We first did a descriptive analysis for all questions and the percentage distributions according to the answers of 8 questions are given in Table 2.

Table 2. The results of Environmental Sensitivity Scale

	1 %	2 %	3 %	4 %	5 %	Average1
I am an environmentalist.	2.2	4.4	16.4	51.4	25.7	3.94
When purchasing a product, I consider how it will affect the environment and other consumers.	3.3	14.2	32.2	38.3	12.0	3.42
I believe that I can protect the environment by purchasing environmentally friendly products.	2.7	7.1	19.1	44.8	26.2	3.85
When purchasing a product, I always bring the awareness of purchasing products with lowest pollutant.	5.5	15.8	26.2	34.4	18.0	3.44
I do not buy a product which has a potential of harming the environment.	5.5	11.5	29.5	33.3	20.2	3.51
When I have a chance of making a choice between two identical products, I always prefer the one that is less harmful to the environment and other people.	4.4	3.8	19.7	38.8	33.3	3.93
I do not purchase the products of firms that do not respect the environment.	6.0	9.3	24.0	30.6	30.1	3.69
I have participated at least one activity about the environment.	8.7	13.7	10.9	29.0	37.7	3.73
					Total Average	3.69

The results of part 6 questions show that the customers are sensitive to the environment since all the result averages are over 3.42 and average of all questions (Average 1) is 3.69. This means the customers are between "I am on the fence" and "I agree". The highest average which is 3.94 is valid for the first question, thus the customers agree that they are environmentalist. For this question, 51.4 percent of the customers select "I agree" answer. The lowest average is 3.42 which is found for question 2 and customers think that they are on the fence when purchasing a product, they consider how it will affect the environment and other consumers.

We use the averages of 8 questions (Average1) which are given in Table 2 to test if the environmental sensitivity scale does not change with respect to gender, marital status or income level. We test our 3 hypotheses by applying "independent samples test" considering 95% confidence level that means that α=0.05. We use IBM SPSS Statistics application to find the results of the t-test. Table 3 shows the results for group statistics and independent sample test. The number of female participants is 126 while it is 57 for male participants. The mean of the female participants' answers (3,768) is greater than male participants' answers (3.513). Since the Significance value found by Levene's test for Equality of Variances is 0.073 and it is greater than 0.05 we check the Sig (2-tailed) value which is found by t-test (0.039) in order to test our hypothesis H1.1. Since the Sig (2-tailed) value which is 0.039 is less than 0.05 the hypothesis H1.1 is rejected. Eventually, Environmental Sensitivity of participants changes with respect to gender and females are more environmental sensitive than males. The values of group statistics and independent sample test for marital status and income level are given in Table 3. Since the Sig (2-tailed) values for marital status (0.002) and income level (0.02) are less than 0.05 we also reject the hypotheses H1.2 and H1.3. Thus, we find that Environmental Sensitivity of participants changes with respect to marital status and income level. So, married people and people with income level greater than 4000 TL are more eco-sensitive than single people and people with an income level lower than 4000.

Table 3. Group Statistics and Independent Sample Test for Environmental Sensitivity Scale

Group Statistics			N	Mean	**Independent Samples Test**	Levene's Test for Equality of Variances		t-test for Equality of Means	
						F	Sig.	t	Sig. (2-tailed)
Average1	Gender	Female	126	3,768	Equal variances assumed	3,259	0,073	2,084	0,039
		Male	57	3,513	Equal variances not assumed			1,889	0,062
	Marriage	Single	141	3,591	Equal variances assumed	0,471	0,493	-3,197	0,002
		Married	42	4,015	Equal variances not assumed			-2,885	0,005
	Income	0-4000 TL	133	3,607	Equal variances assumed	0,165	0,685	-2,353	0,020
		4001 over	50	3,905	Equal variances not assumed			-2,428	0,017

In Part 7, green product awareness is found. Our hypotheses in this section are:

H2.1: Green product awareness of participants does not change with respect to gender.

H2.2: Green product awareness of participants does not change with respect to marital status.

H2.3: Green product awareness of participants does not change with respect to income level.

In Part 7, green product awareness is found. The percentage distributions according to the answers of 9 questions are given in Table 4.

Table 4. The results of Green Product Awareness

	1 %	2 %	3 %	4 %	5 %	Average2
I give importance to the organic, ecologic, and natural products.	3.3	8.7	12.0	45.4	30.6	3.91
I have knowledge about green product concept.	1.6	12.6	20.2	39.3	26.2	3.76
Purchasing green product makes me happy.	1.6	5.5	14.2	36.6	42.1	4.12
I can recognize a green product by looking at the product tag.	3.8	12.0	40.4	31.7	12.0	3.36
I think green products are healthier.	1.6	2.7	8.2	46.4	41.0	4.22
I have ever purchased/used a green product.	1.6	7.1	19.1	36.1	36.1	3.98
I was happy with the green product that I have purchased.	1.6	7.1	30.1	33.3	27.9	3.79
I am going to purchase/use green products again.	1.6	4.4	23.0	41.0	30.1	3.93
I know at least 3 green product brands.	14.2	20.2	34.4	17.5	13.7	2.96
	Total Average					3.78

The results of part 7 questions show that the customers are aware of green products since all the result averages except result for question 9 are over 3.36 and average of all questions is 3.78. This means the customers are between “I am on the fence” and “I agree”. The highest average which is 4.22 is valid for the fifth question, thus the customers think that green products are healthier. For this question, 46.4% of the customers select “I agree” and 41% of the customers select “I strongly agree” answers. The lowest average is 2.96 which is found for question 9 and customers think that they are on the fence when we ask them to write three green product brands.

We use the averages of 9 questions (Average2) which are given in Table 4 to test if the green product awareness does not change with respect to gender, marital status or income level. We test our 3 hypotheses by applying “independent samples test” considering 95% confidence level that means that α=0.05. We use IBM SPSS Statistics application to find the results of the t-test. Table 5 shows the results for group statistics and independent sample test. The mean of the female participants’ answers (3.86) is greater than male participants’ answers (3.591). Since the Significance value found by Levene’s test for Equality of Variances is 0.859 and it is greater than 0.05 we check the Sig (2-tailed) value which is found by t-test (0.028) in order to test our hypothesis H2.1. Since the Sig (2-tailed) value which is 0.028 is less than 0.05 the hypothesis H2.1 is rejected. Eventually, green product awareness of participants changes with respect to gender and female participants’ green product awareness is greater than males. The values of group statistics and independent sample test for marital status and income level are given in Table 5. Since the Sig (2-tailed) values for marital status (0.068) and income level (0.475) are greater than 0.05 we accept the hypotheses H2.2 and H2.3. Thus, green product awareness of participants does not change with respect to marital status and income level.

Table 5. Group Statistics and Independent Sample Test for green product awareness

Group Statistics			N	Mean	**Independent Samples Test**	Levene’s Test for Equality of Variances		t-test for Equality of Means	
						F	Sig.	t	Sig. (2-tailed)
Average2	Gender	Female	126	3,860	Equal variances assumed	0,032	0,859	2,222	0,028
		Male	57	3,591	Equal variances not assumed			2,196	0,030
	Marriage	Single	141	3,719	Equal variances assumed	0,285	0,594	-1,837	0,068
		Married	42	3,966	Equal variances not assumed			-1,730	0,089
	Income	0-4000 TL	133	3,751	Equal variances assumed	1,141	0,287	-0,716	0,475
		4001 over	50	3,842	Equal variances not assumed			-0,677	0,500

In Part 8, interest level in green products is found. Our hypotheses in this section are:

H3.1: Interest level of participants in green products does not change with respect to gender.

H3.2: Interest level of participants in green products does not change with respect to marital status.

H3.3: Interest level of participants in green products does not change with respect to income level.

In Part 8, interest level in green products is found. The percentage distributions according to the answers of 10 questions are given in Table 6.

Table 6. The results of Interest Level in Green Products

	1 %	2 %	3 %	4 %	5 %	Average3
I know about the brands producing green products.	9.8	19.7	32.2	29.5	8.7	3.08
I follow the news and advertisements about green products.	12.0	25.7	32.2	23.0	7.1	2.87
I encourage the people around me to buy green products.	8.7	18.0	24.0	37.2	12.0	3.26
I find the prices of green products affordable.	16.4	29.5	32.8	18.0	3.3	2.62
If a green product is 25% more expensive than a non-green product, I prefer the green product.	5.5	23.5	41.5	19.1	10.4	3.05
If a green product is 50% more expensive than a non-green product, I prefer the green product.	14.2	26.2	32.2	18.0	9.3	2.82
I do my best to use green product whatever it costs.	16.9	25.1	37.7	13.7	6.6	2.68
I am more interested in the news about green products on paper and television.	11.5	19.1	24.0	31.1	14.2	3.17
I follow the social media accounts selling green products.	21.9	22.4	23.0	24.0	8.7	2.75
I give a like much more to the pictures about green product on social media.	18.0	17.5	31.1	23.5	9.8	2.90
	Total Average					2,92

The results of part 10 questions show that the interest level of the customers is not high since all the result averages are between 2.62 and over 3.17 and average of all questions (Average3) is 2.92. This means the customers are between “I do not agree” and “I am on the fence”. The highest average which is 3.17 is valid for the eighth question, thus the customers think that they are more interested in the news about green products on paper and television. For this question, 31.1% of the customers select “I agree” and 24% of the customers select “I am on the fence” answers. The lowest average is 2.62 which is found for question 4 and customers think that they are between “I am on the fence” and “I do not agree” when they are asked if the prices of green products are affordable.

We use the averages of 10 questions (Average3) which are given in Table 6 to test if the interest level in green products does not change with respect to gender, marital status or income level. We test our 3 hypotheses by applying “independent samples test” considering 95% confidence level that means that α=0.05. We use IBM SPSS Statistics application to find the results of the t-test. Table 7 shows the results for group statistics and independent sample test. The mean of the female participants’ answers (2.982) is greater than male participants’ answers (2.793). Since the Significance value found by Levene’s test for Equality of Variances is 0.009 and it is less than 0.05 we check the Equal variances not assumed row of Sig (2-tailed) value which is found by t-test (0.103) in order to test our hypothesis H3.1. Since the Sig (2-tailed) value which is 0.103 is greater than 0.05 the hypothesis H3.1 is accepted. Eventually, interest level in green products of participants does not change with respect to gender and females and male participants have same interest level in green products. The values of group statistics and independent sample test for marital status and income level are given in Table 7. Since the Sig (2-tailed) values for marital status (0.000) and income level (0.008) are less than 0.05 we reject the hypotheses H3.2 and H3.3. Thus, interest level in green products of participants changes with respect to marital status and income level, so

married people and people with income level greater than 4000 TL are more interested in green products than single people and people with an income level lower than 4000.

Table 7. Group Statistics and Independent Sample Test for Interest Level in Green Products

Group Statistics			N	Mean	**Independent Samples Test**	Levene's Test for Equality of Variances		t-test for Equality of Means	
						F	Sig.	t	Sig. (2-tailed)
Average3	Gender	Female	126	2,982	Equal variances assumed	0,009	0,925	1,648	0,101
		Male	57	2,793	Equal variances not assumed			1,643	0,103
	Marriage	Single	141	2,821	Equal variances assumed	0,724	0,396	-3,637	0,000
		Married	42	3,267	Equal variances not assumed			-3,568	0,001
	Income	0-4000 TL	133	2,837	Equal variances assumed	1,038	0,310	-2,680	0,008
		4001 over	50	3,152	Equal variances not assumed			-2,599	0,011

Figure 1 shows how much various media organs are interested in green product consumption from the eyes of participants.

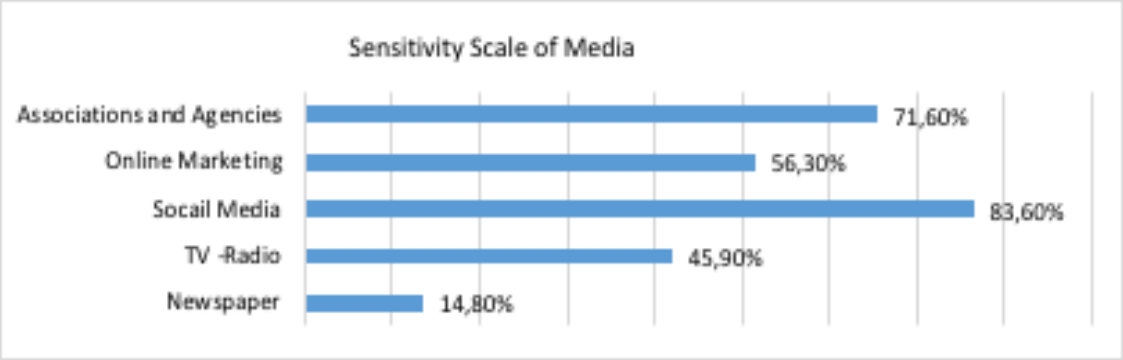


Figure 1. Sensitivity Scale of Media

The participants of the research think that social media is the most sensitive media organ among all. Associations and Agencies comes second with a percentage of 71.6. Third most sensitive media organ is online marketing websites with a percentage of 56.3. Eventually, TV and Radio channels and newspapers should be more sensitive about green product consumption.

Figure 2 shows participants' answers of causes of using environmentally friendly products.

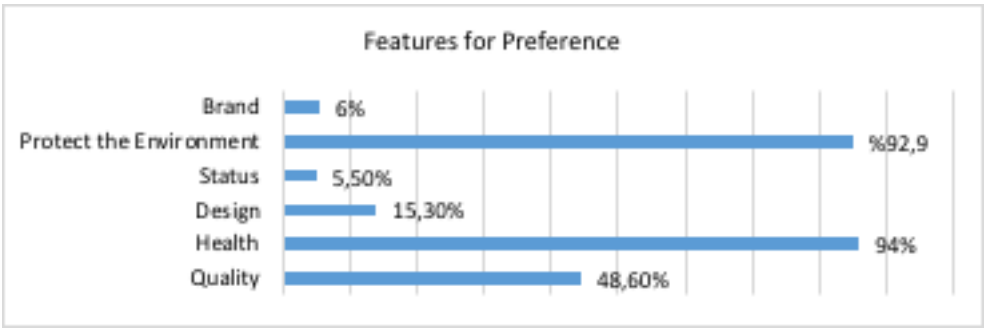


Figure 2. Causes of Using Environmentally Friendly Products

The participants of the research think that the causes that force them to buy green products are the green products are healthier, they protect environment and they are in good quality.

Figure 3 shows why participants' do not use green products.

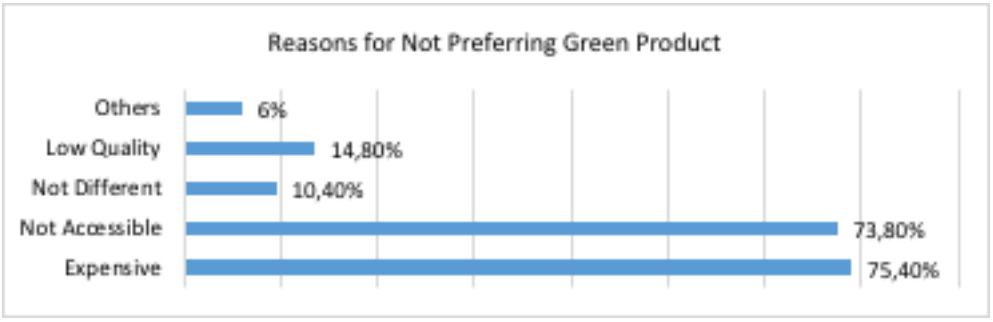


Figure 3. Reasons for Not Preferring Green Product.

The participants of the research think that the reasons that force them to not to buy green products are the green products are expensive and they are not accessible.

4.1 Further Analysis

In this section, detailed analyses are conducted on some of the questions selected from the survey in order to make interpretations. The aim is to come up with a conclusion to see and show what differences have effects on preferences.

As a first further analysis, for comparison and understanding how income affects the consumption behavior of persons whose incomes are different, twice of minimum wage (about ₺4,000) is defined as breaking point and the participants are divided into two groups, lower and upper class referring to this point.

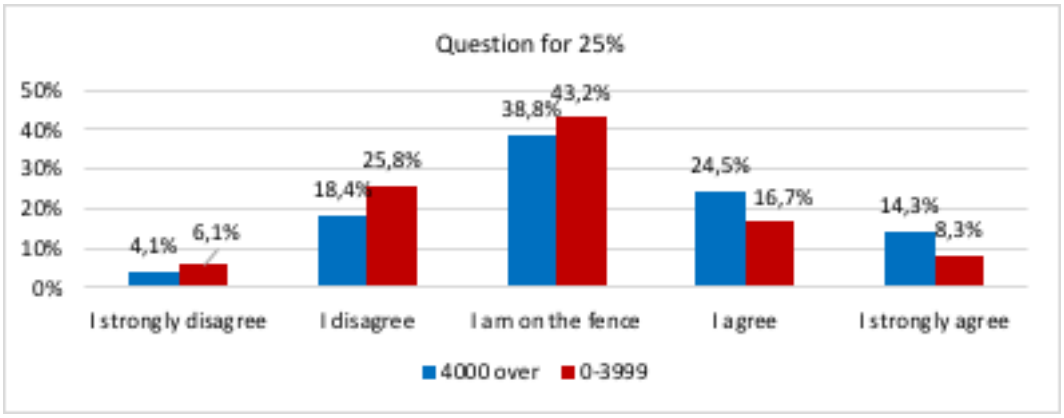
The following questions are to understand how much the revenue situation affects green product purchase.

a) If a green product is 25% more expensive than a non-green product, I prefer the green product.

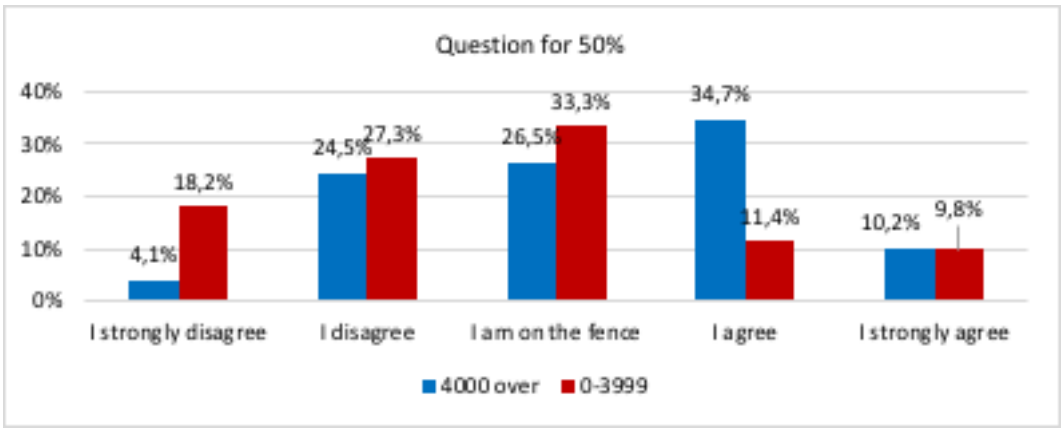
b) If a green product is 50% more expensive than a non-green product, I prefer the green product.

c) I do my best to use green product whatever it costs.

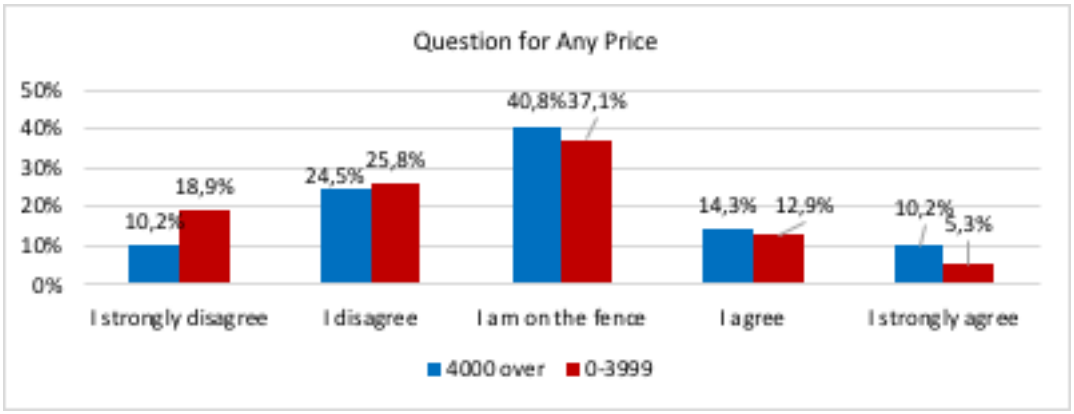
The results according to the answers to the above three questions are given in Figure 4.



(a)



(b)



(c)

Figure 4. The green product preference considering income level.

In this section, the income level is examined in 2 different segments. The first one is over ₺4000 and the second one is below ₺3999 and below. The questions are related to the purchasing power of green product. The decimal numbers over the columns in the Figure 4 are showing the percentage of each answer to the total number of answers. When all this is taken into consideration, the results are as follows.

In Figure 4.a we realize that for over ₺4000, the proportion of participants who say 'I strongly agree' is 14%, while those who 'I agree' are 24.5%. For ₺0-3999, 'I strongly agree' is 8.3% and 'I agree' is 16.7%. Consequently,

in this case, income level affects directly green product purchasing. That can be also concluded by comparing the percentage of each answers in Figure 4.b and Figure 4.c. In two different figures, which shows the participants whose income is over ₺4000 are more self-confident and agree to pay more.

We also apply a t-test in order to find if we accept the following hypotheses;

H4.1: Green product purchasing power of participants does not change with respect to income level if the green product's price is 25% expensive than non-green product.

H4.2: Green product purchasing power of participants does not change with respect to income level if the green product's price is 50% expensive than non-green product.

H4.3: Green product purchasing power of participants does not change with respect to income level whatever the green product's price is.

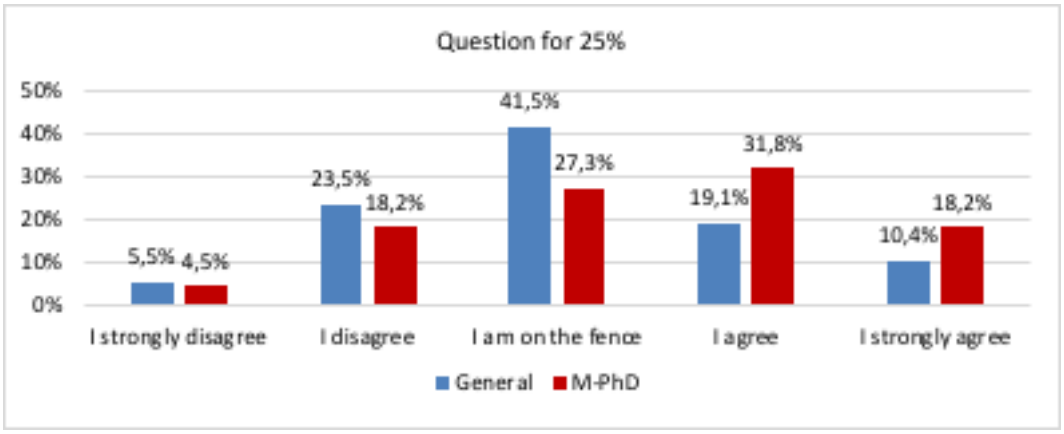
We focus on three questions given in Table 8 to test our hypotheses. Number of participants in both income levels and means of their answers are given in group statistics section of Table 8.

Table 8. Group Statistics and Independent Sample Test for Green product purchasing power

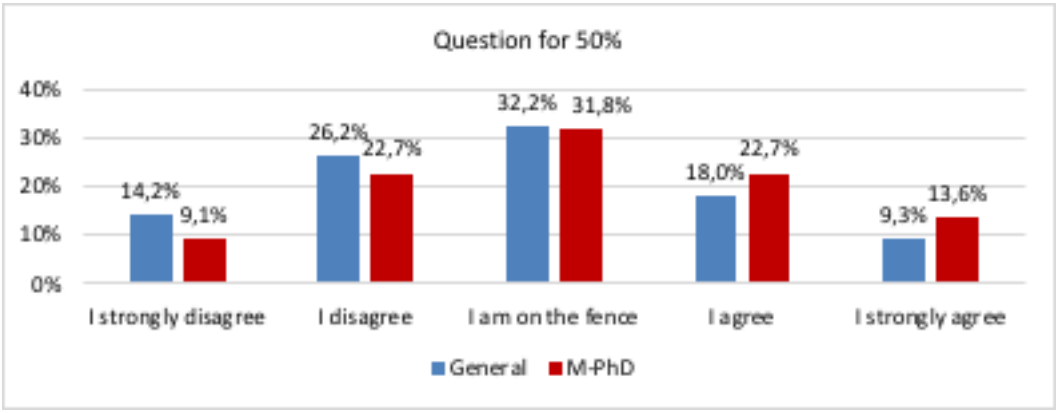
Test for Income	**Group Statistics**			**Independent Samples Test**	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Income	N	Mean		F	Sig.	t	Sig. (2-tailed)
If a green product is 25% more expensive than a non-green product, I prefer the green product	1	133	2,96	Equal variances assumed	1,894	0,170	-1,990	0,048
	2	50	3,30	Equal variances not assumed			-1,929	0,057
If a green product is 50% more expensive than a non-green product, I prefer the green product	1	133	2,68	Equal variances assumed	0,290	0,591	-2,987	0,003
	2	50	3,26	Equal variances not assumed			-3,116	0,002
I do my best to use green product whatever it costs	1	133	2,61	Equal variances assumed	0,293	0,589	-1,367	0,173
	2	50	2,86	Equal variances not assumed			-1,353	0,180

When we focus on the values of Sig. (2-tailed) column for three questions, we see that the values are less than 0.05 for questions 1 and 2 which means that we reject the hypotheses H4.1 and H4.2. So, the people with an income level of 4000TL and over are more willing to buy green products than people with an income level lower than 4000TL if the green products' prices are 25% or 50% more expensive than non-green products. Since the Sig. (2-tailed) value for third question (0.173) is greater than 0.05 we accept the hypothesis H4.3. We realize that whatever the income levels of people are they are not willing to buy green products whatever they cost.

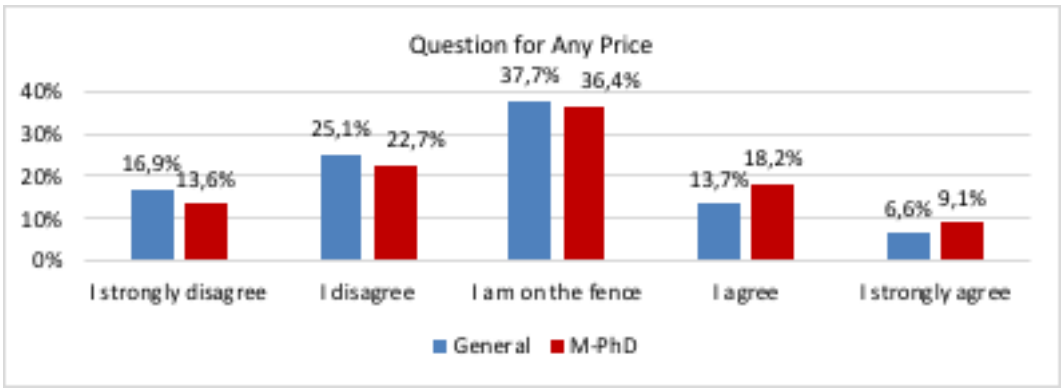
As a second analysis, a specific group which was included in the first analysis is focused to understand if education level makes any change on the preferences. For this purpose, it is only limited with the answers of persons who have Post-Graduate (master) and/or Doctorate (PhD) degree for the same questions in the first analysis.



(a)



(b)



(c)

Figure 5. The green product preference considering the education level

In Figure 5.a we realize that for M-PhD holders, the proportion of participants who say 'I strongly agree' is 18.2%, while those who 'I agree' are 31.8%. For all participants, 'I strongly agree' is 10.4% and 'I agree' is 19.1%. Consequently, in this case, education level affects directly green product purchasing. That can be also concluded by comparing the percentage of each answers in Figure 5.b and Figure 5.c. In two different figures, which shows the participants whose education level is MS and PhD. are more self-confident and agree to pay more.

As a third analysis, it is aimed to see if gender makes any differences on the preferences. To minimize the effect of other parameters, a group of participants who have similar lifestyle is chosen. To do that, only the

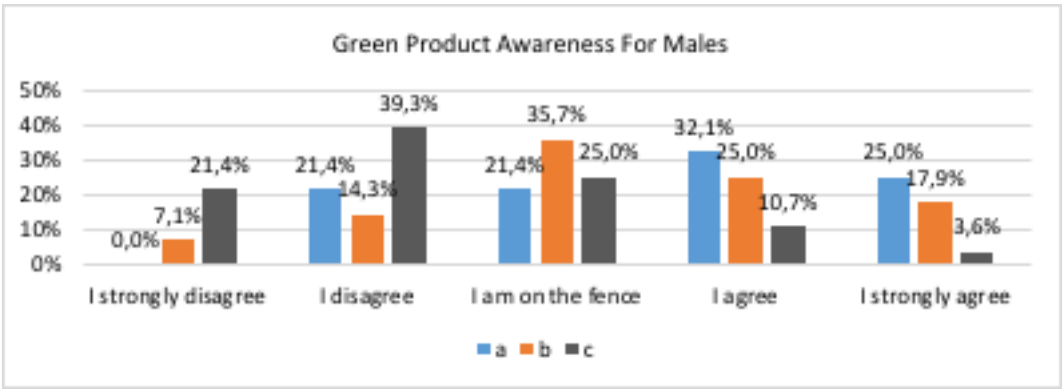
participants whose age are between 18 and 24 and students are focused. Due to their relatively lower income status, questions not causally related to financial side are selected. The three questions assigned for this analysis are given below.

a. I have knowledge about green product concept.

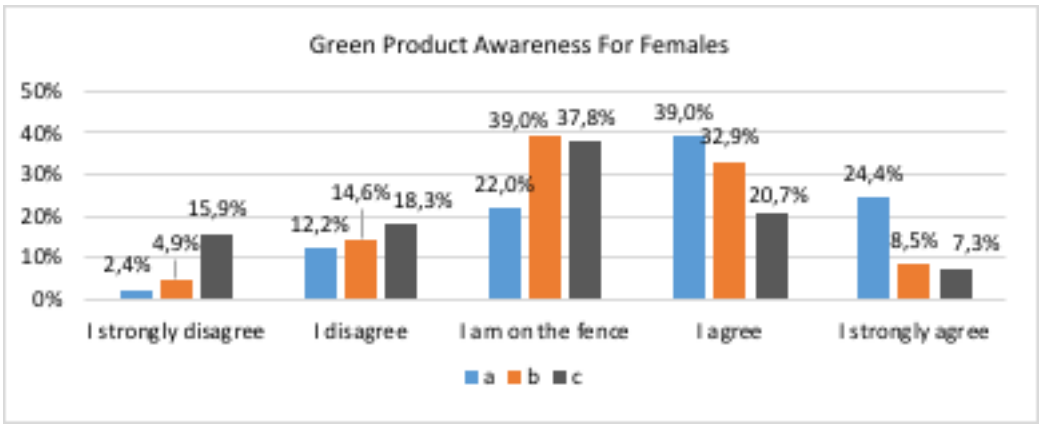
b. I can recognize a green product by looking at the product tag.

c. I know at least 3 green product brands.

Figure 6.a shows male participants' answers and Figure 6.b shows female participants' answers of green product awareness.



(a)



(b)

Figure 6. Male and female participants' answers of green product awareness.

When the weight of answers given to the questions by females and males are compared, it can be seen they are too close to each other which does not enable an exact distinction even if the answers of females reflect a better awareness.

Therefore, we apply a t-test in order to find if we accept the following hypotheses;

H5.1: Green product awareness of participants does not change with respect to gender for the question I have knowledge about green product concept.

H5.2: Green product awareness of participants does not change with respect to gender for the question I can recognize a green product by looking at the product tag.

H5.3: Green product awareness of participants does not change with respect to gender for the question I know at least 3 green product brands.

We focus on three questions given in Table 9 to test our hypotheses. Number of participants in both income levels and means of their answers are given in group statistics section of Table 9.

Table 9. Group Statistics and Independent Sample Test for Green product awareness for three questions

Test for Gender	**Group Statistics**			**Independent Samples Test**	Levene's Test for Equality of Variances		t-test for Equality of Means	
	Gender	N	Mean		F	Sig.	t	Sig. (2-tailed)
I have knowledge about green product concept	F	126	3,82	Equal variances assumed	0,344	0,558	1,130	0,260
	M	57	3,63	Equal variances not assumed			1,121	0,265
I can recognize a green product by looking at the product tag	F	126	4,32	Equal variances assumed	0,310	0,579	2,267	0,025
	M	57	4,02	Equal variances not assumed			2,063	0,042
I know at least 3 green product brands	F	126	3,11	Equal variances assumed	0,348	0,556	2,489	0,014
	M	57	2,63	Equal variances not assumed			2,492	0,014

When we focus on the values of Sig. (2-tailed) column for three questions, we see that the values are less than 0.05 for questions 2 and 3 which means that we reject the hypotheses H5.2 and H5.3. Eventually, by also focusing on the female and male participants' answers, we can claim that female participants' ability to recognize a green product by looking at the product tag is greater than males. Females' knowledge about at least 3 green product brands is better than males. Female participants are more aware about the brands of green products. Since the Sig. (2-tailed) value for first question (0.26) is greater than 0.05 we accept the hypothesis H5.1. This means that both females and males claim that they have knowledge about green product concept.

5. CONCLUSION

Throughout this paper the position of the concept green product in the minds is expressed in such a way that a comprehensive understanding and the historical background of the concept are detailed in section 3, questions posed to a target group whose members are chosen randomly and their answers are given in methodology section with statistical graphics and further analysis including our interpretations.

It is concluded that the concept green product is not well understood yet and those products are esoteric such that it only addresses to a minority who accepts that concept as a lifestyle. Therefore, it feels a requirement of being a part of this minority to pay an adequate attention. For the side of consumers, consuming green products should be reflected as need to do, not as good to do, and enough information should be disseminated in the ratio of the need. On the side of the providers and regulators, new methods and technologies may be utilized in order to increase the accessibility of and to reduce the costs of green products, and regulations may be established to push the providers to prefer green production.

It is also concluded that education level and income status of participants makes differences on their preferences as it is stated in such a way that the higher education level the better understanding of and loyalty to the concept, and when the income is higher the participants feel more free to purchase green products. However, both the participants that have higher income and education levels would not buy green products with extremely high prices. If the price of the green product is 50% or more expensive than non-green product, they

would prefer to buy non-green products. This is a key point for the producers of green products to focus to sell the green products up to 25% more expensive than non-green products in order not to lose customers.

The survey in this study consists of 3 main parts: Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products. In order to see if gender, marital status and income level make differences between participants we did "independent samples test" considering 95% confidence level. The results of independent samples test show that;

• Environmental Sensitivity of participants changes with respect to gender and females are more environmental sensitive than males.

• Environmental Sensitivity of participants changes with respect to marital status and married people are more eco-sensitive than single people.

• Environmental Sensitivity of participants changes with respect to income level and people with income level greater than 4000 TL are more eco-sensitive than people with an income level lower than 4000.

• Green product awareness of participants changes with respect to gender and female participants' green product awareness is greater than males.

• Green product awareness of participants does not change with respect to marital status and income level.

• Interest level of participants in green products does not change with respect to gender and females and male participants have same interest level in green products.

•Interest level of participants in green products changes with respect to marital status and married people are more interested in green products than single people.

• Interest level of participants in green products changes with respect to income level and people with income level greater than 4000 TL are more interested in green products than people with an income level lower than 4000.

• The people with an income level of 4000TL and over are more willing to buy green products than people with an income level lower than 4000TL if the green products' prices are 25% more expensive than non-green products.

• The people with an income level of 4000TL and over are more willing to buy green products than people with an income level lower than 4000TL if the green products' prices are 50% more expensive than non-green products.

• We realize that whatever the income levels of people are, they are not willing to buy green products without considering how high they cost.

The participants of the research think that social media, associations and agencies and online marketing websites are the most sensitive media organs among all. TV and Radio channels and newspapers should be more sensitive about green product consumption.

The participants accept that the causes that force them to buy green products are the green products are healthier, they protect environment and they are in good quality. The participants believe that the reasons that force them to not to buy green products are the green products are expensive and they are not accessible. We cannot expect a friendly reaction from an environment where we live unconsciously.

Limitations of the study: Our most important limitation was to reach more participants for our questionnaire. People are not so willing to participate in researches in Turkey. Second, green consumption and green products are emerging subjects in developing countries and sensitivity, awareness and interest level of people are not so high. We believe, as the awareness and interest level of people increase, they will be more willing to buy green products and participate in studies related with green consumption.

Future study suggestions: The survey in this study consists of 3 main parts: Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products. The number of parts in future survey may be increased for a more detailed analysis. We did "independent samples test" in order to see if gender, marital status and income level make differences between participants. This analysis can be extended by focusing on education, age, location of participants and other parameters to see if the participants' Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products change with respect to those parameters. Multi criteria decision methodologies such as AHP (Analytic Hierarch Process), ANP (Analytic Network Process) etc. can be used to find the weights of Environmental Sensitivity Scale, Green Product Awareness, and Interest Level in Green Products on decisions of customers to buy green products.

REFERENCES

Adams, R., Carruthers, J., and Hamil, S. (1991). *Changing Corporate Values: A Guide to Social and Environmental Policy and Practice in Britain's Top Compani*es. Londan: Kogan Page.

Alkibay, S., (2001), "Yeşil pazarlama faaliyetlerine üniversite öğrencilerinin ilgisi üzerine bir Araştırma", *Ticaret ve Turizm Eğitim Fakültesi Dergisi*, 4: 76–93.

Aslan, F., Çınar, R., (2015). "Yeşil planlama faaliyetleri çerçevesinde Kafkas üniversitesi öğrencilerinin çevreye duyarlı ürünleri kullanma eğilimlerini belirlemeye yönelik bir Araştırma", *Kafkas Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi,* 6 (9): 169–184.

Ayyıldız H., and Genç K.Y., (2008), "Çevreye Duyarlı Pazarlama: Üniversite Öğrencilerinin Çevreye Duyarlı Pazarlama Uygulamaları İle Iliđli Tutum Ve Davranışları Üzerine Bir Araştırma", *Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Cilt 12, Sayı 2.

Coddington, W. (1993) *Environmental Marketing: Positive Strategies for Reaching the Green Consumer.* New York, McCraw-Hill Inc.

Çabuk, S., and NAKIBOĞLU, M. B. (2003). "Çevreci pazarlama ve tüketicilerin çevreci tutumlarının satın alma davranışlarına etkileri ile ilgili bir uygulama". Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 12(12).

Çabuk, S., NAKIBOĞLU, A. G. B., and Keleş, C. (2008). "Tüketicilerin yeşil ürün satın alma davranışlarının sosyo-demografik değişkenler açısından incelenmesi". Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 17(1), 85-102.

Chen, T. and Chai, L. (2010), "Attitude towards the Environment and Green Products: Consumers' Perspective", *Management Science and Engineering* Vol.4, No.2, pp. 27-39.

Demir, G. (1994). Sustainable Consumption. Ankara: Sustainable Consumption Symposium.

Ertz M., Karakas F., Sarigollu E., (2016), "Exploring pro-environmental behaviors of consumers: An analysis of contextual factors, attitude, and behaviors", *Journal of Business Research*, v. 69, no. 10, pp. 3971-3980.

Gleim M.R., Smith J.S., Andrews D., Cronin J.J., (2013), "Against the green: a multi-method examination of the barriers to green consumption". *J. Retailing*, 89 (1) pp. 44-61

Gök, A. and Türk M. (2011). "Perakendeci İşletmelerde Çevreyi Koruma Bilinci Üzerine Bir Araştırma", *Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*. 16 (2): 125-152.

He A., Cai T., Deng T., Li X. (2016), "Factors affecting non-green consumer behavior: an exploratory study among Chinese consumers". *Int. J. Consumption Studies*, 40 (3) pp. 345-356.

Hussein, A.T., Cankül, D. (2010). "Üniversite öğrencilerinin yeşil pazarlama faaliyetleri kapsamında çevreye ilişkin davranışlarını belirlemeye yönelik bir Araştırma", *Ticaret ve Turizm Eğitim Fakültesi Dergisi*, 1: 50–67.

Ilkin, A. and Alkin, E. (1991), Çevre Sorunları, TOBB Yayınevi.

Jackson, T., and Michaelis, L. (2003). *Policies for Sustainable Consumption: A Report to The Sustainable Development Commission.* Sustainable Development Commission.

Karalar, R., Erdoğan, Z., and Kiracı, H. (2008). "Çevreye İlişkin Bilgi Düzeyi İle Sürdürülebilir Tüketici Davranışı İlişkisi", (s. 340-358), 13. Ulusal Pazarlama Kongresi, Adana 2008.

KOÇ, Erdoğan (2011). *Tüketici Davranışı ve Pazarlama Stratejileri Global ve Yerel Yaklaş*ım, Seçkin Yayıncılık, Ankara

Neuner, M. (2000) "Collective Prototyping: A Consumer Policy Strategy to Encourage Ecological Marketing" *Journal of Consumer Policy*, 23:153-175.

Odabaşı, Y. (1992). *Yeşil Pazarlama: Kavram ve Gelişmeler*. Pazarlama Dünyası

Schlegemilch, B., Bohlen, G., and Diamantopoulos, A. (1996). "The Link Between Green Purchasing Decisions and Measures of Environmental Consciousness". *European Journal of Marketing* 30(5), 35-55.

Perera, C., Auger, P. and Klein, J. (2018). "Green Consumption Practices among Young Environmentalists: A Practice Theory Perspective". *J Bus Ethics* 152, 843–864.

Ramlogan R. 1997. "Environment and human health: a threat to all" *Environmental Management and Health*. 8:51–66.

Seyfeng, G. (2005). "Shopping for Sustainability: Can Sustainable Consumption Promote Ecological Citizenship?" *Environmental Politics*, Vol:14 No:2 ss. 289-290.

Shrum, L.J., McCarty, J.A., ve Lowery, T.M. (1995) "Buyer Characteristics of the Green Consumer and Their Implication for Advertising Strategy" *Journal of Advertising*, 24(2) ;71-90.

Soonthonsmai, V. (2001). "Predicting intention and behavior to purchase environmentally sound or green

products among Thai consumers: An application of the Theory of Reasoned Action" Doctoral dissertation, Nova Southeastern University.

Steg L., and Vlek C., (2009), "Encouraging pro-environmental behavior: An integrative review and research agenda", *Journal of Environmental Psychology*, vol. 29, pp. 309-317.

Stern C., (2000), "Toward a coherent theory of environmentally significant behavior", *Journal of Social Issues*, vol. 53, no.3, pp. 407-424.

Straughan, R. D., and Roberts, J. A. (1999). "Environmental segmentation alternatives: a look at green consumer behavior in the new millennium". *Journal of Consumer Marketing*, 16(6), 558-575.

Tan L.P., Johnstone M.Lee and Yang Lin (2016), "Barriers to green consumption behaviors: The roles of consumers' green perceptions". *Australasian Marketing Journal* (AMJ) V. 24, Issue 4, P. 288-299.

Turhan, E., Gültekin, Ö. and Özdemir, Y. (2015). "Yeşil ergonomiye genel bakış", *Süleyman Demirel Üniversitesi Mühendislik Bilimleri ve Tasarım Dergisi*, 3 (3): 559–565.

Üstündağlı and Güzeloğlu (2015), "Gençlerin Yeşil Tüketim Profili: Farkındalık, Tutum Ve Davranış Pratiklerine Yönelik Analiz", *Global Media Journal TR Edition*, 5 (10) Spring 2015, 341.

Yılmaz, V., and Arslan, T. (2011). "Üniversite öğrencilerinin çevre koruma vaatleri ve çevre dostu tüketim davranışlarının incelenmesi", *Anadolu Üniversitesi Sosyal Bilimler Dergisi*, 11 (3): 1-10.

Varinli, İ. (2012), *Pazarlamada Yeni Yaklaşımlar*, Ankara, Detay Yayıncılık.

Beyan ve Açıklamalar (Disclosure Statements)

1. Bu çalışmanın yazarları, araştırma ve yayın etiği ilkelerine uyduklarını kabul etmektedirler (The authors of this article confirm that their work complies with the principles of research and publication ethics).

2. Yazarlar tarafından herhangi bir çıkar çatışması beyan edilmemiştir (No potential conflict of interest was reported by the authors).

3. Bu çalışma, intihal tarama programı kullanılarak intihal taramasından geçirilmiştir (This article was screened for potential plagiarism using a plagiarism screening program).