A Comparative Investigation of Women's Environmental Orientation Structures within the Scope of the Sustainable Development Goal: The Case of Türkiye & Pakistan

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Abstract

This comparative study examines the environmental attitudes of female consumers in Türkiye and Pakistan. These countries are ranked 45th and 164th, respectively, in the Human Development Index and are examined within the scope of the Sustainable Development Goals. The study used survey data from 320 female consumers, 160 from each country. The findings show that there is no significant difference in the levels of environmental value perception of women in the two countries, independent of demographic variables such as age, education, income, occupation, and marital status (H_1-H_5 rejected). However, significant differences were found in perceived personal environmental impact depending on age, occupation, income, and marital status (H_6, H_8, H_9, and H_{10} were accepted). Turkish women (70.6%) are more likely to purchase environmentally friendly products than their Pakistani counterparts (58.8%) (H_{11} accepted). The main barrier to purchasing in Türkiye is the high cost of products (46.8%), while in Pakistan, it is the lack of product variety (45.5%). The study emphasizes the need for targeted social policies, such as financial incentives and environmental education programs, to promote sustainable consumption.

Keywords: *Sustainable Development, Ecofeminism, Environmentally Friendly Products, Environmental Values, Environmental Impact.*

Sürdürülebilir Kalkınma Hedefi Kapsamında Kadınların Çevresel Yönelim Yapılarının Karşılaştırmalı İncelemesi: Türkiye ve Pakistan Örneği

Öz

Bu karşılaştırmalı çalışma, İnsani Gelişme Kategorisinde sırasıyla 45. ve 164. sırada yer alan Türkiye ve Pakistan'daki kadın tüketicilerin Sürdürülebilir Kalkınma Hedefleri kapsamındaki çevresel eğilimlerini incelemektedir. Araştırma, her iki ülkeden 160'şar olmak üzere toplam 320 kadın tüketiciden anket verisi ile gerçekleştirilmiştir. Bulgular, demografik değişkenlerden (yaş, eğitim, gelir, meslek, medeni durum) bağımsız olarak, iki ülke kadınlarının çevresel değer algısı düzeyleri arasında anlamlı bir fark olmadığını göstermiştir (H_1-H_5 reddedilmiştir). Ancak, yaş, meslek, gelir ve medeni durum değişkenlerine bağlı olarak çevre üzerindeki kişisel etki düzeylerinde anlamlı farklılıklar tespit edilmiştir (H_6, H_8, H_9, H_{10} kabul edilmiştir). Türk kadınları (%70,6), Pakistanlı emsallerine (%58,8) kıyasla çevre dostu ürünleri daha yüksek düzeyde satın alma eğilimi sergilemektedir (H_{11} kabul edilmiştir). Satın almanın önündeki temel engel

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Türkiye'de ürünlerin pahalılığı (%46,8), Pakistan'da ise ürün farklılığının olmamasıdır (%45,5). Çalışma, sürdürülebilir tüketimi teşvik etmek amacıyla mali teşvikler ve çevre eğitimi programları gibi hedefli sosyal politikaların geliştirilmesi gerekliliğini vurgulamaktadır.

Keywords: *Sürdürülebilir Kalkınma, Ekofeminizm, Çevre Dostu Ürünler, Çevresel Değerler, Çevresel Etki.*

Genişletilmiş Özet

Bu çalışma, kadın tüketicilerin sürdürülebilir kalkınma hedefleriyle (SKA) ilişkili olarak çevresel eğilimlerini araştırmaktadır. SKA, mevcut neslin ihtiyaçlarını gelecek nesillerin kendi ihtiyaçlarını karşılama yeteneğinden ödün vermeden karşılayan kalkınma olarak tanımlanır. Birleşmiş Milletler Üye Devletleri için 2015 yılında belirlenen 17 SKA arasında, toplumsal refahı artırmak ve sürdürülebilirliği sağlamak temel ulusal hedeflerdir. SKA'nın önemli bir kısmı cinsiyet eşitliği ve kadınlarla doğrudan ilişkilidir. Eko-feminist yaklaşıma göre, kadınların yaşamları ve statüleri çağdaş çevre sorunlarıyla bağlantılıdır ve kadınlar çevresel sorunlardan doğrudan etkilenmektedir; örneğin iklim değişikliği nedeniyle yerinden edilen kişilerin tahmini %80'i kadındır. Çalışma, Türkiye ve Pakistan'daki kadın nüfusu üzerinde yürütülen bir alan araştırması aracılığıyla, kadın tüketicilerin çevre dostu ürünleri kullanma düzeyini, çevresel değerleri ve çevre üzerindeki kişisel etkileri (Çevresel Eğilim Yapısı) ile ilişkilendirerek incelemiştir. Bu karşılaştırma için Türkiye (Çok Yüksek İnsani Gelişme Kategorisinde, 45. sırada) ve Pakistan'ın (İnsani Gelişme Kategorisinde, 164. sırada) seçilmesi, gelişim düzeylerindeki farklılıkların yansımasını görmeyi amaçlamaktadır. Literatür taraması, kadın tüketicilerin çevresel eğilim yapıları üzerine yapılan çalışmalarda okuryazarlık ve istihdam düzeylerinin incelenmediğini ve Türkiye ile Pakistan'ı karşılaştıran herhangi bir çalışmanın bulunmadığını ortaya koyarak araştırmanın özgün değerini vurgulamaktadır. Çalışmanın verileri, yaş, eğitim, gelir, meslek ve medeni durum gibi demografik faktörlerin yanı sıra, katılımcıların çevre dostu ürün kullanım düzeylerini ve 26 ifadeden oluşan beşli Likert ölçeğiyle belirlenen çevresel eğilim düzeylerini içeren bir çevrimiçi anket yöntemiyle toplanmıştır. Hipotez testleri MANOVA yöntemiyle analiz edilmiştir. Kavramsal modele göre, demografik özellikler çevresel değerleri ve kişisel çevresel etki düzeylerini doğrudan, çevre dostu ürün kullanım düzeyini ise dolaylı olarak etkilemektedir. Ankete katılan kadınların çoğunluğu her iki ülkede de 18-24 yaş aralığında, lisans düzeyinde eğitimli, öğrenci ve orta gelir grubundadır. Katılımcıların yarısından fazlası çevre dostu ürün satın aldığını belirtmiştir ve birincil neden çevreyi korumaktır. Türkiye'de çevre dostu ürünlerin pahalı olması birincil engel iken, Pakistan'da bu ürünlerin diğer ürünlerden farklı olmaması ilk sırada yer almaktadır.

Çalışmanın kilit bulguları arasında; Çevresel Değerler: Yaş, eğitim, meslek, gelir ve medeni durum gibi demografik değişkenlerden bağımsız olarak Türkiye ve Pakistanlı kadın tüketicilerin çevresel değer algısı düzeyleri arasında anlamlı bir fark bulunmamaktadır (H1-H5 hipotezleri reddedilmiştir). Kişisel Çevresel Etki: Yaş, meslek, gelir düzeyi ve medeni durum değişkenlerine bağlı olarak Türk ve Pakistanlı kadın tüketicilerin çevre üzerindeki kişisel etki düzeyleri arasında anlamlı bir fark vardır (H6, H8, H9, H10 hipotezleri kabul edilmiştir). Özellikle Türkiye'deki kadınlar, Pakistanlı emsallerine göre daha yüksek kişisel çevresel etki düzeyi göstermektedir (özellikle 35-44 yaş grubu). Ürün Kullanımı: Türk kadın tüketicilerin çevre dostu ürün kullanma düzeyi, Pakistanlı kadın tüketicilere göre daha yüksektir (H11 kabul edilmiştir). Türk kadın tüketiciler, çevre dostu temizlik ürünleri, tekstil, elektronik ve organik gıda ürünlerini daha sık satın almaktadır. Sonuçlar, her iki ülkedeki kadınların güçlü çevresel değerlere sahip olduğunu, ancak bu değerleri bireysel davranışa dönüştürmenin sosyo-ekonomik koşullara ve ulusal politikalara bağlı olarak değiştiğini göstermektedir. Türkiye'de orta gelirli tüketiciler yeşil ürünlere daha çok ilgi gösterirken, Pakistan'da bu ilgi yüksek gelirli tüketicilerde daha belirgindir. Sürdürülebilir tüketimi teşvik etmek için hedefe yönelik sosyal politikalara ihtiyaç vardır. Öneriler şunları içermektedir: çevre eğitim programlarının güçlendirilmesi, sürdürülebilir

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ürünleri daha uygun fiyatlı hale getirmek için sübvansiyonlar veya vergi indirimleri gibi finansal teşvikler sağlanması, yeşil ürünlerin bulunabilirliğinin artırılması ve pazar geliştirme ve kadınları sürdürülebilirlik savunucusu yapacak kültürel ve sosyal kapsayıcılık stratejilerinin geliştirilmesi. Kadınları ekonomik engelleri kaldırarak, farkındalığı artırarak ve erişilebilirliği iyileştirerek güçlendirmek, uzun vadeli sürdürülebilirliğe ulaşmak için hayati önem taşımaktadır.

1. Introduction

Sustainable development is based on improving social welfare and achieving sustainability as key national objectives. Sustainable development can be defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). In this context, in 2015, 17 goals were set for all United Nations Member States sustainable development goal. These goals are:

1- To end all forms of poverty everywhere,

2- End hunger, achieve food security and good nutrition and support sustainable agriculture,

3- To ensure that people live healthy lives and that everyone can prosper at all ages,

4- Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all,

5- Ensuring gender equality and strengthening the social position of women and girls,

6- To ensure the availability and sustainable management of water and sewerage services for all,

7- Ensure accessible, reliable, sustainable and modern energy for all,

8- Ensuring sustainable and inclusive economic development, promoting full and productive employment and decent work,

9- Building resilient infrastructures, promoting sustainable and inclusive industrialization and encouraging innovation,

10- To reduce inequalities within and between countries,

11- Making cities and settlements inclusive, safe, strong and sustainable,

12- To ensure sustainable consumption and production models,

13- Take urgent action to combat climate change and its impacts,

14- Conserve and sustainably use the oceans, seas and marine resources for sustainable development,

15- Protect, restore and promote the sustainable use of terrestrial ecosystems, manage forests sustainably, combat desertification, halt and reverse the loss of soil fertility and halt the loss of biodiversity,

16- Promote peaceful and inclusive societies for sustainable development, ensure access to justice for all, and build effective, accountable and inclusive institutions at all levels,

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17- Strengthen the means of implementation and revitalize global cooperation for sustainable development (UNDP, 2015).

Although the total population of the world and the population in many countries is distributed almost equally between men and women, it is not possible to say that the distribution of resources, wealth, income and ultimately welfare is equal. In fact, poverty is distributed in favour of women in almost all geographies, and women and children are directly and predominantly affected by poverty and deprivation. Therefore, it is not possible to talk about gender equality in the distribution of wealth and poverty (Aytaç, 2023). Precisely for this reason, an important part of sustainable development goals is directly related to gender equality and women. Another important topic in development goals is the environment. Women and the environment are closely related to each other. This relationship can be explained especially by the ecofeminist discourse. According to the ecofeminist approach, women's lives and status are linked to contemporary environmental problems (Gaard and Gruen, 1993). In other words, according to Ecofeminism, women are directly affected by environmental problems. Especially when it comes to climate change, women are more likely to be affected by change. As a matter of fact, it is estimated that 80% of the people displaced due to climate change are women (Rodrigueaz, 2022).

Specifically, women in underdeveloped countries are more exposed to disproportionate harms arising from environmental problems such as deforestation, water pollution and environmental toxins. Considering that efforts for gender equality overlap with environmental concerns (Bosworth, 2023), this study investigated women's level of use of environmentally friendly products in relation to their environmental values and personal impact on the environment, which are important for sustainable development. Women, who are also consumers, can be segmented in a particular social system according to the environmental values they hold and their personal impact on the environment. The Environmental Tendency Structure, which consists of environmental values and personal impact factors towards the environment, can best explain the adoption of environmentally friendly products by consumers (women). Environmental disposition structure has an indirect relationship with education and income levels of individuals. For this reason, within the scope of the study, the level of use of environmentally friendly products by female consumers depending on their literacy and employment status has been revealed through a field research conducted on the female population living in Türkiye and Pakistan. The reason for selecting Türkiye and Pakistan within the scope of the research is to see the reflection of the differences in the level of development on the study. In this context, it is aimed to make a comparison between Türkiye, which is in the very high human development category and ranks 45th in the ranking of the human development index, and Pakistan, which is in the human development category and ranks 164th (UNDP, 2024). The main purpose of choosing the female population living in Türkiye and Pakistan as the main mass is to compare the levels of use of environmentally friendly products depending on the environmental value and personal impact on the environment, which are important in terms of sustainable development between two countries with different literacy and employment levels.

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2. Literature Review

The Web of Science bibliometric database was used to examine the studies carried out in recent years in the literature on the environmental tendencies of female consumers. As a result of the search conducted by typing the keywords 'TS=female consumers'; TS=environmental values; TS=women consumers' in the detailed search section of the Web of Science database, it was determined that 311 scientific studies on the subject were conducted in the last thirty-two years between 1991-2023.   Detailed statistical information on scientific studies is given in Table 1:

Table 1: Publication Information

Year of Publication (Last 5 years)	Issue	Publication Type	Issue	Fields of Publication (Top five fields)	Issue
2023 (January-October)	22	Research Article	284	Environmental Science	71
2022	44	Review	11	Business	61
2021	32	Proceedings	4	Green Sustainable Technology	42
2020	27	Book Chapter	3	Environmental Studies	37
2019	25	Early View	7	Management	26
		Letter to the Editor	2		

Source: Derived from Web of Science dataset for 2023.

In the last five years there has been an increase in the number of studies on the environmental behaviour patterns of female consumers, most of the studies are research articles and the number of studies in the field of environmental sciences and economics has been higher than in other fields. In order to explain the original value of the study, the data obtained from the WoS bibliometric database were analysed at keyword and country level using the CiteSpace bibliometric scientific mapping programme. Thus, it was tried to determine what the common keywords contained in scientific studies on the environmental tendency structures of female consumers are and in which countries these studies are mostly conducted. The results of the analysis are given below.

2.1. Keyword Network Analysis

In the keyword network analysis in Figure 1, it can be said that 292 of 311 studies on the environmental tendency structures of female consumers are co-cited and 949 common keywords are found in these co-cited studies. It can be said that the first five most frequently used keywords in the studies are attitudes, consumption, behaviour, planned behaviour and environmental concern. It can be argued that in the first studies conducted between 1991 and 2023, the common keyword was consumption, while in the later studies, keywords such as willingness to pay, values, attitudes, behaviour, sustainable consumption, green purchasing behaviour, environmental knowledge, green planned behaviour, environmental problems, environmental responsibility and climate change were frequently used.

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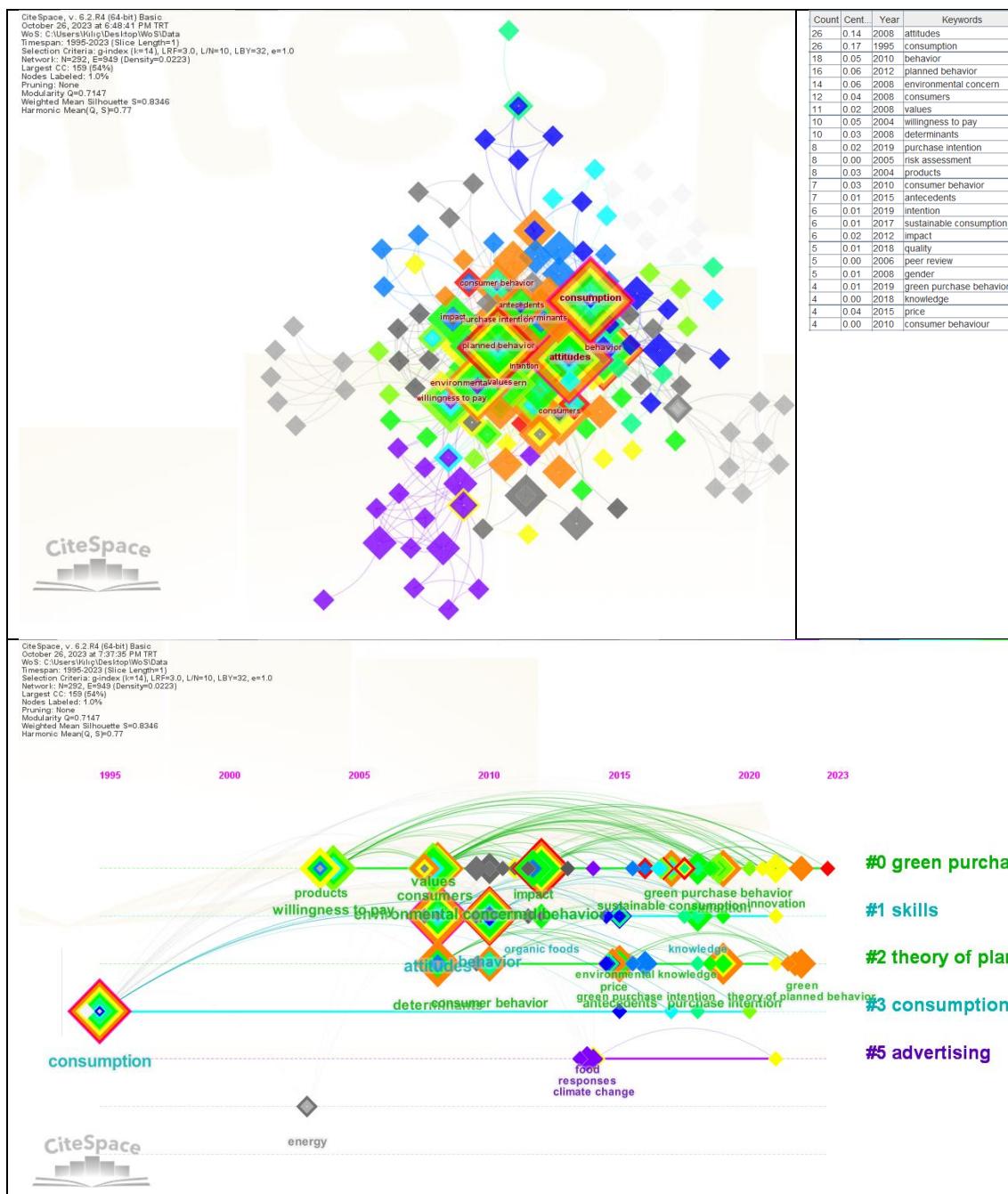
Figure 1: Keyword Network Map
Source: CiteSpace 2023

It is seen that literacy and employment keywords are not included in the studies on the environmental tendency structures of women consumers. Therefore, the unique value of this study is to examine the environmental tendency structures of women consumers according to their literacy and employment levels and thus their consumption levels of environmentally friendly products. Figure 2 shows the country network analysis:

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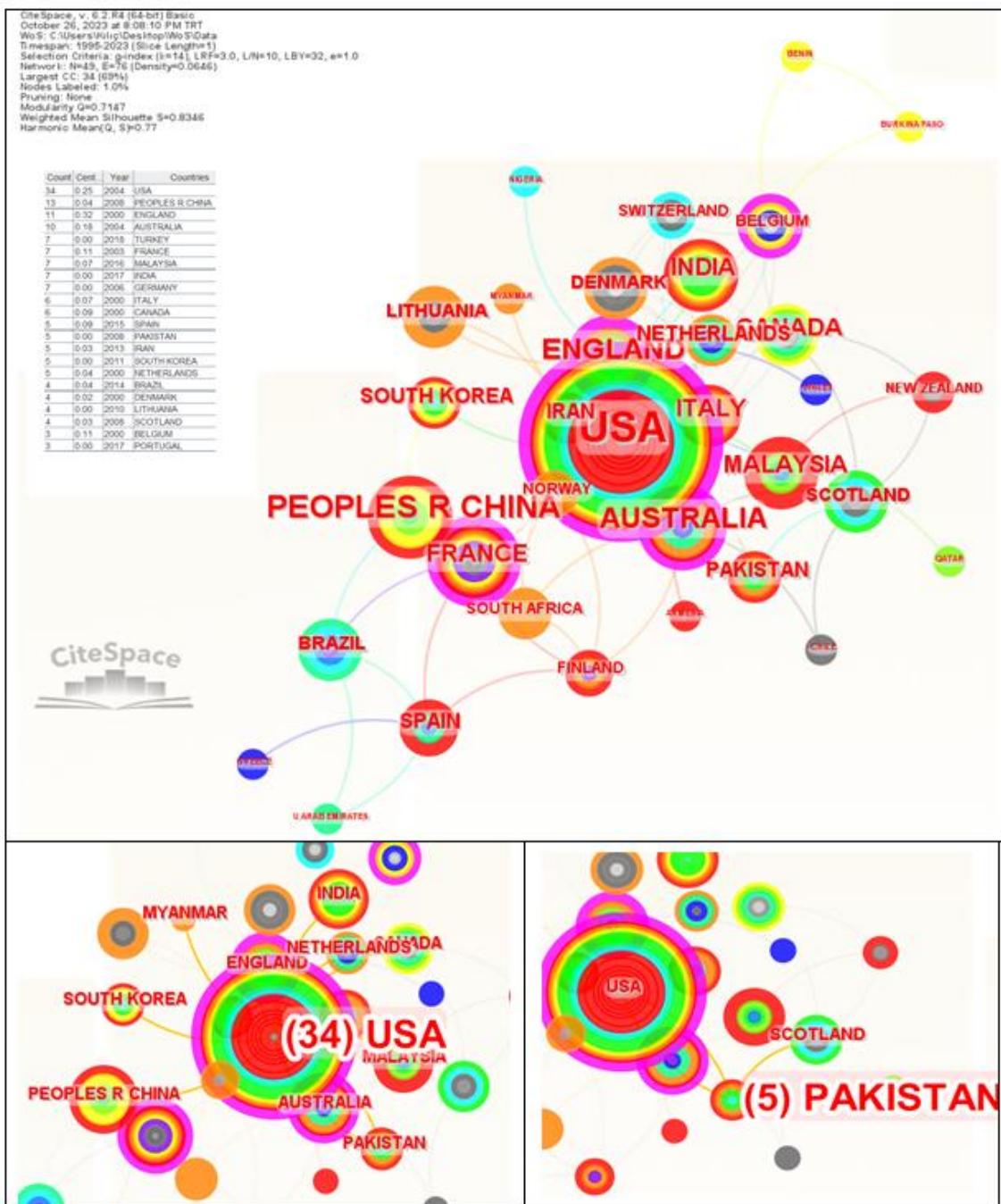
Figure 2: Country Network Map
Source: CiteSpace 2023

The country network analysis in Figure 2 shows that there are 49 countries with at least one scientific study examining the environmental disposition constructs of female consumers and 76 countries co-cite scientific studies. The country with the highest number of co-citations is the USA. In the USA, 34 publications made between 2004-2023 received a total of 1683 co-citations. In Pakistan, there are 5 publications on this subject between 2008-2023. These publications have received a total of 77 co-citations. The country with the highest co-citation performance is the USA. Türkiye also has 7 publications between 2018-2023. However, these publications have not been co-cited.

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The results of the country network analysis have been analysed in detail and it has been determined that there is no study that comparatively examines the environmental tendency structures of women consumers in Türkiye and Pakistan. In this sense, the study has a unique value. Table 2 shows the scientific works accessed as a result of the literature review on the studies on the environmental behavior patterns of women consumers:

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Table 2: Literature Review Data

Date	Country	Authors	Title	Co-Citations	Journal	Key Words	Findings
2016	USA	Chekima, B; Syed Khaid Wafa, S.A.W; Igau, O.A; Chekima, S; Sondoh Jr., S.L.	Examining green consumerism motivational drivers: does premium price and demographics matter to green purchasing?	243	Journal of Cleaner Production	green purchase intention; environmental attitude; eco-label; cultural value; premium price; demographic characteristics	Results indicate that environmental attitude, eco-label and cultural value (man–nature orientation) significantly influence the green purchase intention.
2017	China	Echegaray, F; Hansstein, F., V.	Assessing the intention-behavior gap in electronic waste recycling: the case of Brazil	233	Journal of Cleaner Production	electronic waste; recycling; sustainable consumption; intention-behavior gap; theory of planned behavior; brazil	The study determined that the majority of participants had a positive intention towards recycling electronic devices, especially women, middle-aged individuals and local residents from low-income groups.
2017	Portugal	Paço, A; Lavrador, T.	Environmental knowledge and attitudes and behaviours towards energy consumption	186	Journal of Environmental Management	environmental knowledge; attitudes; pro-environmental behaviours; energy; sustainability	According to the results of this study, which examined environmentally friendly consumer profiles, no relationship was found between knowledge and attitudes or between knowledge and behavior. However, it has been determined that women exhibit more awareness than men when it comes to attitudes and behaviors.
2011	USA	Gam, H., J.	Are fashion-conscious consumers more likely to adopt eco-friendly clothing?	121	Journal of Fashion Marketing and Management	consumer behaviour; united states of america: fashion, women; marketing strategy	The findings from research analysis indicated that one fashion orientation factor, two shopping orientation factors, and three environmental concern and eco-friendly behavior factors are significantly related to consumers' purchase intention regarding EFC.
2013	Hong Kong	Chan, E., S., W.	Gap analysis of green hotel marketing	115	International Journal of Contemporary Hospitality Management	green marketing; hotels; gap analysis; perceptions; marketing	As a result of the study, it was found that female hotel managers and customers are more interested in green hotel products and green image.
2018	USA	Lang, C; Armstrong, C.M.J.	Collaborative consumption: The influence of fashion leadership, need for uniqueness, and materialism on female consumers' adoption of clothing renting and swapping	115	Sustainable Production and Consumption	collaborative consumption; renting; swapping; fashion leadership; need for uniqueness; materialism	The results indicated that three personality traits, including fashion leadership, need for uniqueness, and materialism, significantly influence the intention to rent and swap clothing.
2010	USA	Barber, N; Taylor, D., C; Deale, C., S.	Wine Tourism, Environmental Concerns, and Purchase Intention	99	Journal of Travel & Tourism Marketing	market segmentation; ecotourism; gender; wine tourism	This study aims to define the environmental wine tourist by examining environmental personality traits and certain demographic characteristics regarding purchase intention. As a result of the study, it was determined that wine tourists may be willing to pay for environmentally friendly wines, women may have stronger environmental attitudes towards protecting wine region destinations, thus affecting stronger behaviors towards purchasing intention.

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Table 2: Literature Review Data

2019	USA	Su, C(Joan); Tsai, Chin-Hsun(Ken); Chen, Ming-Hsiang; Lv, Wan Qing	U.S. Sustainable Food Market Generation Z Consumer Segments	95	Sustainability (MDPI)	generation Z; market segmentation; sustainable food attributes	Environmental consciousness was measured using a composite score of the environmental involvement scale and the environmental values scale. It has been determined that Gen Z consumers with high environmental consciousness and moderate ecological awareness considered more eco-friendly and healthy product attributes when purchasing sustainable food, whereas Gen Z consumers with low environmental consciousness considered more extrinsic product attributes(e.g., price and convenience).
2014	France	Pinto, D., C; Herter, M., M; Rossi, P; Borges, A.	Going green for self or for others? Gender and identity salience effects on sustainable consumption	78	International Journal of Consumer Studies	gender; identity-based motivation; personal and social identities; sustainable consumption	According to the results of the experimental study, it was determined that female participants declared higher levels of sustainable consumption compared to male participants in situations where personal identity comes to the fore. However, in situations where social identity came to the fore, it was observed that male participants increased their sustainable consumption intentions to the same level as female participants.
2017	USA	Patel, J; Modi, A; Paul, J.	Pro-environmental behavior and socio-demographic factors in an emerging market	66	Asian Journal of Business Ethics	pro-environmental behavior; socio-demographics; manova, emerging market	In this study, the role of socio-demographic factors on consumers' pro-environmental behavior was examined. The results show that men exhibit higher pro-environmental behavior than their female counterparts. Additionally, while married consumers exhibit more pro-environmental behavior than singles, middle-aged consumers exhibit higher pro-environmental behavior than young and older consumers. Furthermore, highly educated consumers are more pro-environmentalist than graduates and post-graduates
2015	USA	Cho, E; Gupta, S; Kim, Youn-Kyung	Style consumption: its drivers and role in sustainable apparel consumption	61	International Journal of Consumer Studies	consumer ethics; guilt; shame; australia; indonesia	This study examined style consumption (SC) differences by gender as a way to promote sustainable apparel consumption. As a result of the research, it was determined that frugal apparel consumption(FAC), fashion consciousness (FC) and ecologically conscious consumption(ECC) increase the likelihood of SC. Specifically, it has been determined that FAC, FC and ECC are higher in women. In addition, it finds that gender is a significant factor mediating the effect of FC and that of ECC on SC.
2015	USA	Chekima, B;Chekima, S; Syed Khalid Wafa, S.A.W; Igau, O.A; Sondoh Jr., S.L.	Sustainable consumption: the effects of knowledge, cultural values, environmental advertising, and demographics	59	International Journal of Sustainable Development & World Ecology	green purchase intention; environmental knowledge; cultural values; environmental advertising; demographics, SEM	This study aims to examine the impact of environmental knowledge, cultural values and environmental advertising and to determine the moderating effect of income level, education level and gender on consumers' green purchasing intentions. The findings show that cultural values and environmental advertisements are the main influences in forming green purchase intentions. It also shows that the motivational factors of green purchase intentions are greater among highly educated individuals, especially among women.

Source: Derived from Web of Science dataset for 2023.

When the scientific studies in Table 2 are examined, it is seen that there has been an increase in the number of studies on the environmental behavior patterns of female consumers in the last five years, most of the studies are research articles, and the number of studies in the fields of environmental sciences and economics is higher than other fields (Chekima et al. 2016; Echegaray and Hansstein 2017; Pakço and Lavrador 2017; Gam, 2011; Chan 2013; Lang and Armstrong, 2018; Barber, Taylor and Deale 2010; Ching-Hui et al. 2019; Pinto et al. 2014; Patel, Modi, and Poul 2017; Cho, Gupta, and Kim 2015; Chekima et al. 2015) .

3. Methodology

The main body of the study consists of female consumers from Türkiye and Pakistan. Türkiye and Pakistan were selected as the sample size for the study because Türkiye ranks among the top 50 countries and Pakistan among the top 200 countries in the Human Development Index. The study aims to examine the environmental education of female consumers in relation to the Sustainable Development Goals (SDGs). Thus, the environmentally friendly product consumption levels of female consumers in these two countries were examined in relation to their environmental values, which are shaped by their demographic characteristics, as well as their environmental tendencies, which are formed within the framework of their personal impact levels on the environment. The sample size was determined using the convenience sampling method, reaching a total of 320 consumers (160 from each country). The survey was conducted between January and June of 2023. The reliability and validity of the survey data were measured using Cronbach's alpha and found to be 85.1%. This ratio indicates that the survey data are highly reliable and valid. Accordingly, it can be concluded that the scale used in the study is internally consistent, meaning all questions consistently measure the structure related to the conceptual model of the study.

The data in the study were obtained by using the online survey method. The questionnaire form consists of three parts. The first part consists of multiple-choice questions to determine the demographic characteristics of the participant regarding age, education, occupation, marital status and income. The second section consists of multiple-choice questions to determine whether the participants use environmentally friendly products. The third section consists of 26 statements prepared to determine the environmental tendency levels of the participants and ranked according to a five-point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree'. In determining these statements, the studies of Oliver (2007), Ginsberg and Bloom (2004), Roberts (1996) and Kaiser et al. (1999).

The main mass of the study consists of female consumers living in Türkiye and Pakistan. The sample volume was determined by convenience sampling method. In the analysis of the data obtained in the study, percentage and frequency methods from descriptive statistical methods were used. In addition, hypothesis tests regarding the differences between the environmental education structures of female consumers living in Türkiye and Pakistan and their level of use of environmentally friendly products were analysed using MANOVA method.

The conceptual model created within the scope of the main objective of the study is presented in Figure 3:

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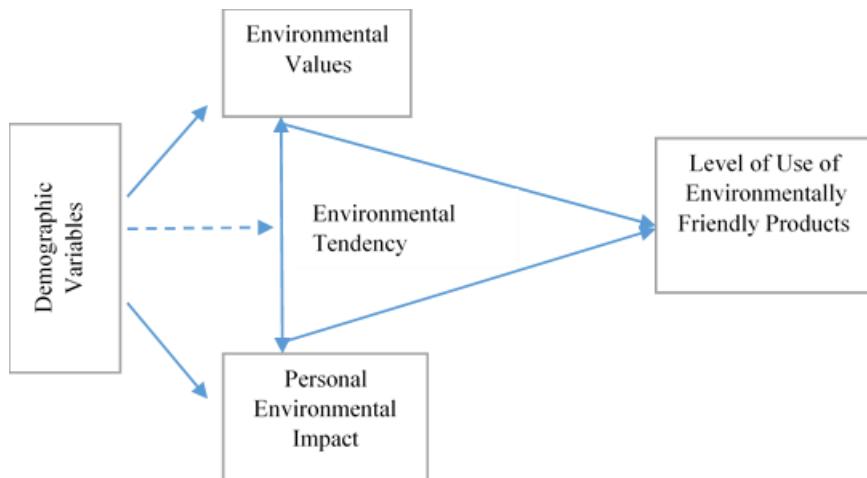
Figure 3: Conceptual Model

According to the conceptual model in Figure 3, female consumers' level of use of environmentally friendly products is influenced by the environmental disposition construct, which includes both environmental values and personal impact towards the environment. Environmental values and personal impact towards the environment are the strongest determinants of ecological behaviour. The model also shows that demographic characteristics of female consumers such as age, income, education level, occupation and marital status directly affect their environmental values and personal impact levels towards the environment, and indirectly affect the environmental tendency structures that emerge depending on these two variables. In this sense, it can be said that the level of use of environmentally friendly products by female consumers may differ within the framework of environmental tendency structures shaped according to their demographic characteristics. Within the scope of the study, the relationships between the variables in the model are examined within the scope of female consumers living in Türkiye and Pakistan. The hypotheses developed within the scope of the conceptual model of the study are given below:

H_1: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their ages.

H_2: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their level of education.

H_3: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their occupations.

H_4: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their income levels.

H_5: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their marital status.

H_6: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their ages.

H_7: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their education levels.

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H_8: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their occupations.

H_9: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their income levels.

H_{10}: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their marital status.

H_{11}: There is a difference between the level of use of environmentally friendly products by female consumers in Türkiye and Pakistan.

3.1. Data Analysis and Results

Table 3 summarizes the percentage and frequency data on the age, education, occupation, income and marital status of the female consumers who participated in the survey and their consumption habits of environmentally friendly products:

Table 3: Characteristics of Female Consumers

Age	Türkiye n/%	Pakistan n/%	Education	Türkiye n/%	Pakistan n/%	Job	Türkiye n/%	Pakistan n/%
18-24	**75/46,9**	**92/57,5**	Primary School	3/1,9	1/0,6	Hausewife	18/11,3	12/7,5
25-34	31/19,4	53/33,1	High School	19/11,9	0/0	Self-Employment	5/3,1	3/1,9
35-44	36/22,5	10/6,3	College	16/10,0	6/3,8	Teacher	11/6,9	13/8,1
45-54	13/8,1	4/2,5	**Licence**	**80/50,0**	**82/51,3**	Academician	30/18,8	9/5,6
55-64	5/3,1	1/0,6	Master's	12/7,5	48/30,0	Civil Servant	11/6,9	8/50,0
			Doctorate	30/18,8	23/14,4	**Student**	**71/44,4**	**97/60,6**
						I'm not working	14/8,8	18/11,3
Total	160/100,0	160/100,0	Total	160/100,0	160/100,0	Total	160 / 100,0	160/ 100,0

Income	Türkiye n/%	Pakistan n/%	Civil Status	Türkiye n/%	Pakistan n/%	Do you purchase Eco-Friendly products?	Türkiye n/%	Pakistan n/%
Low	41/25,6	61/38,1	Married	66/41,3	34/21,3	**Yes**	**113/70,6**	**94/58,8**
Middle	**106/66,3**	**95/59,4**	**Single**	**94/58,8**	**126/78,8**	No	47/29,4	66/41,3
High	13/8,1	4/2,5						
Total	160 / 100,0	160 / 100,0	Total	160 / 100,0	160 / 100,0	Total	160 / 100,0	160 / 100,0

Why not purchase eco-friendly products?	Türkiye n/%	Pakistan/ %	What is your reason for purchasing eco-friendly products?	Türkiye n/%	Pakistan n/%
Expensive	**22/46,8**	8/12,1	Quality	8/7,1	19
I can not find	8/17,0	24/36,4	Because it's healthy	40/35,4	23
No different from other products	11/23,4	**30/45,5**	Prestige	8/	13
Low quality	6/12,8	4/6,1	**To protect the environment**	**50**	**26**
			Brand	7	13
Total	47/100,0	66/100,0	Total	113/100,0	94/100,0

The data in Table 3 shows that the majority of the consumers surveyed in Türkiye and Pakistan are in the age group of 18-24, undergraduate education level, student and middle-income group. In both countries, the rate of single consumers among the surveyed consumers is higher than married consumers. More than half of the participants stated that they purchase environmentally friendly products, and the first reason for purchasing environmentally friendly products is to protect the environment. Among the reasons why consumers do not use environmentally friendly products, the fact that environmentally friendly products are

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expensive ranks first for consumers in Türkiye, while it is not different from other products ranks first for consumers in Pakistan. It can be stated that the rate of consumers who use environmentally friendly products is higher than those who do not. A total of 320 consumers participated in the survey, including 160 from Türkiye and 160 from Pakistan. Of those, 71% in Türkiye and 59% in Pakistan stated that they use environmentally friendly products. Table 4 shows the data on the level of use of environmentally friendly products by female consumers at country level:

Table 4: Levels of Use of Environmentally Friendly Products (Türkiye & Pakistan)

Environmentally Friendly Products	Always		Frequently		Sometimes		Rarely		Never		Total	
	T	P	T	P	T	P	T	P	T	P	T	P
Environmentally friendly cleaning products	n	n	n	n	n	n	n	n	n	n	N	N
Products made from recycled paper	22	4	42	13	38	32	8	20	3	25	113	94
Products made from recycled plastic	24	7	39	17	29	25	18	28	3	17	113	94
Products made from recycled glass	21	7	36	22	34	25	18	25	4	15	113	94
Environmentally friendly textile products	26	8	41	22	30	27	13	21	3	16	113	94
Organic food products	18	6	43	24	36	19	9	26	7	19	113	94
Environmentally friendly electronic products	41	9	33	15	19	21	15	17	5	32	113	94
Environmentally friendly construction materials	16	11	28	19	43	18	18	20	8	26	113	94
Environmentally friendly building materials	11	9	25	23	42	17	20	18	15	27	113	94
Environmentally friendly IT products	17	8	22	25	38	19	20	14	16	28	113	94
Environmentally Friendly Products	20	9	19	23	47	14	20	18	7	30	113	94

The data in Table 4 show that Turkish female consumers purchase environmentally friendly cleaning, textile, electronic, building material and IT products and organic food products more frequently than Pakistani female consumers in terms of the level of use of environmentally friendly products.

Table 5 and Table 6 present data on the average environmental value and personal impact on the environment according to nationality, age, education, occupation, income and marital status of female consumers who participated in the survey.

Table 5: Differences in Environmental Value Perception Level of Female Consumers

Environmental Value Scale Averages (Türkiye & Pakistan)							
Nationality	Age	Education	Occupation	Income	Marital Status	Mean	Std. Deviation
Türkiye	18-24	Master's Degree	Student	High Income	Married	3,7059	0,12478
	25-34	High College	Housewife	Middle Income	Married	4,6471	0,99827
	35-44	High School	Self-employment	Middle Income	Married	5,0000	0,73471
	45-54	High School	Unemployed	Middle Income	Married	3,9412	0,05882
	55-64	High School	Self-employment	Middle Income	Married	5,0000	1,28943
Pakistan	18-24	Undergraduate	Student	Middle Income	Single	4,5294	0,49913
		Undergraduate	Unemployed	Middle Income	Single	4,5294	0,48149
	25-34	Master's Degree	Civil Servant	Middle Income	Married	4,6471	0,29607
	35-44	Phd	Civil Servant	Middle Income	Married	4,8235	0,77816
	45-54	Phd	Teacher	Middle Income	Married	3,6765	0,20797
	55-64	Phd	Civil Servant	Middle Income	Married	4,8235	0,58232

Table 5 shows the average environmental value perception level of Turkish and Pakistani female consumers according to demographic variables. The groups with the highest average environmental value perception in both countries are primarily middle-income. In Türkiye, the

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groups with the highest perception levels consist mainly of married and self-employed individuals. In Pakistan, civil servants stand out among the groups with the highest perception levels. In terms of education, groups with a high school diploma, a college degree, or a postgraduate degree in Türkiye have high perception levels, while consumers with a bachelor's, master's, or doctoral degree in Pakistan have high perception levels. Examining age groups reveals that female consumers aged 35-44 and 55-64 in both Türkiye and Pakistan exhibit higher average environmental value perceptions than other age groups. However, hypothesis tests (H_1-H_5) conducted within the scope of this study showed no significant difference in environmental value perception levels between Turkish and Pakistani female consumers, regardless of demographic variables such as age, education, income, occupation, and marital status. This finding reveals that women in both countries have strong environmental values.

Table 6: Differences in Personal Impact Level of Female Consumers towards the Environment

Nationality	Age	Education	Occupation	Income	Marital Status	Mean	Std. Deviation
				Mean Levels of Personal Impact on the Environment (Türkiye & Pakistan)			
	18-24	Master's Degree	Student	Middle Income	Single	4,2222	3,5294
	25-34	Master's Degree	Student	Middle Income	Single	4,7778	0,57018
	35-44	High School	Civil Servant	Middle Income	Single	4,7778	0,65105
		Master's Degree	Unemployed	Middle Income	Married	4,7778	0,86156
Türkiye		Phd	Civil Servant	Middle Income	Single	4,7778	1,01227
		Phd	Unemployed	Middle Income	Married	4,7778	1,64992
	45-54	Undergraduate	Civil Servant	Middle Income	Married	5,0000	0,67586
	55-64	High School	Civil Servant	Middle Income	Married	5,0000	0,62854
		Phd	Civil Servant	Middle Income	Married	5,0000	0,15713
	18-24	Master's Degree	Student	High Income	Single	5,0000	0,23570
	25-34	Master's Degree	Student	Middle Income	Single	4,8333	0,70711
Pakistan	35-44	Phd	Teacher	Middle Income	Married	4,1111	0,39021
	45-54	Master's Degree	Teacher	Low Income	Married	5,0000	1,33565
		Master's Degree	Student	High Income	Single	5,0000	2,82843
	55-64	Phd	Teacher	Low Income	Married	5,0000	0,23570

Table 6 compares the average personal impact level of female consumers in Türkiye and Pakistan on the environment according to demographic variables. Income group analysis reveals that the group with the highest average personal impact in Türkiye consists of middle-income consumers. In Pakistan, however, all three income groups (low, middle, and high) have high average levels. In terms of occupation, groups such as students, civil servants, teachers, and the unemployed are among those with high average environmental personal impact levels in both countries. Considering education levels, consumers with at least a high school diploma, bachelor's degree, master's degree, or doctoral degree have higher average environmental impact levels in both countries. Regarding age groups, female consumers aged 45–54 and 55–64 in both countries show higher average personal environmental impact levels than consumers in other age groups. Hypothesis tests (H_6, H_8, H_9, and H_{10}) related to these data showed that Turkish and Pakistani female consumers have significantly different personal impact levels on the environment depending on age, occupation, income level, and marital status. Notably, Turkish women were found to have a higher personal environmental impact than their Pakistani counterparts.

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In the study, whether there is a significant difference between the averages of environmental value perception level and personal impact level towards the environment of Turkish and Pakistani female consumers participating in the survey depending on age, education, occupation, income and marital status was analysed by MANOVA method and the data in Table 7 were obtained:

Table 7: Hypothesis Test Analysis

	Dependent variable	Type III sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Age	Environmental Values	0,565	4	0,141	0,442	0,779	0,006
	Personal Environmental Impact	**14,393**	**4**	**3,598**	**4,592**	**0,001**	**0,055**
Education	Environmental Values	1,071	5	0,214	0,671	0,646	0,011
	Personal Environmental Impact	7,242	5	1,448	1,790	0,114	0,028
Occupation	Environmental Values	0,777	6	0,130	0,403	0,877	0,008
	Personal Environmental Impact	**12,165**	**6**	**2,028**	**2,548**	**0,020**	**0,047**
Income	Environmental Values	1,086	2	0,543	1,718	0,181	0,011
	Personal Environmental Impact	**8,995**	**2**	**4,497**	**5,652**	**0,004**	**0,035**
Marital Status	Environmental Values	0,870	1	0,870	2,754	0,098	0,009
	Personal Environmental Impact	**7,790**	**1**	**7,790**	**9,774**	**0,002**	**0,030**

As Table 7 is analysed, it is seen that there is no significant difference between the mean environmental value perception levels of Turkish and Pakistani female consumers participating in the survey in terms of age, education, occupation, income and marital status independent variables at $p<0.05$ significance level. However, it is seen that there is a difference at the significance level of $p<0.05$ between the averages of the level of personal impact towards the environment according to the independent variables of age, occupation, income and marital status, except for the independent variable of education of Turkish and Pakistani female consumers participating in the survey. According to the statistical data in Table 7, H_1, H_2, H_3, H_4, H_5 and H_7 developed within the scope of the conceptual model of the study are rejected at $p<0.05$ significance level, while H_6, H_8, H_9 and H_{10} are accepted at $p<0.05$ significance level.

It can be argued that there is no difference between Turkish and Pakistani female consumers' perception of environmental values according to their age, education level, occupation, income level and marital status. On the other hand, Turkish and Pakistani female consumers' personal impact levels towards the environment differ depending on their age, occupation, income level and marital status.

Wilks' Lambda analysis was performed to explain the percentage of change in the averages of the personal impact level of female consumers towards the environment of age, occupation, income and marital status independent variables and the data in Table 8 were obtained:

Table 8: Wilks' Lambda Values

Age Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Wilks' Lambda	0,941	2,412	8,000	626,000	0,014	0,030
ProfessionEffect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Wilks' Lambda	0,947	1,439	12,000	622,000	0,018	0,048
Income Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Wilks' Lambda	0,963	2,992	4,000	630,000	0,018	0,019
Marital Status Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Wilks' Lambda	0,969	5,083	2,000	316,000	0,007	0,031

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According to the results of Wilks' Lambda analysis, age, occupation, income level, marital status and marital status have an effect of 3.0%, 4.8%, 1.9%, 1.9% and 3.1%, respectively, on the change in the averages of personal impact level of female consumers towards the environment. As a result of the ANOVA analysis conducted to test hypothesis H_{11}, the data in Table 9 were obtained:

Table 9: Tests of Between – Subjects Effects

	Dependent variable	N	Mean	St.Dv.	Sum Square	df	Mean Square	F	Sig.
Nationality	Level of environmentally friendly product use								
Türkiye		160	**3,3012**	0,82934	22,578	1	**22,578**	**26,202**	0,000
Pakistan		160	2,7700	1,01763					

According to the data in Table 9, it is determined that there is a difference between the level of environmentally friendly product usage of Turkish and Pakistani female consumers participating in the survey at the significance level of $p<0.05$ according to sig. 0.000. According to the averages of eco-friendly product usage level, it can be said that Turkish female consumers use eco-friendly products at a higher level than Pakistani female consumers. In this case, hypothesis H_{11} developed according to the conceptual model of the study is accepted. Table 10 shows the acceptance/rejection status of the hypotheses:

Table 10: Hypothesis Acceptance / Rejection

Hypothesis	Accept/Reject p < 0,05
H_1: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their ages.	Reject
H_2: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their level of education.	Reject
H_3: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their occupations.	Reject
H_4: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their income levels.	Reject
H_5: There is a difference between the environmental values of female consumers in Türkiye and Pakistan according to their marital status.	Reject
H_6: There is a difference between the level of personal impact on the environment according to the age of female consumers in Türkiye and Pakistan.	Accept
H_7: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their educational levels.	Reject
H_8: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their occupations.	Accept
H_9: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their income levels.	Accept
H_{10}: There is a difference between the personal environmental impact levels of female consumers in Türkiye and Pakistan according to their marital status.	Accept
H_{11}: There is a difference between the level of use of environmentally friendly products by female consumers in Türkiye and Pakistan.	Accept

5. Conclusion and Discussion

This study investigates the environmental tendencies of women consumers in Türkiye and Pakistan, within the framework of the Sustainable Development Goals (SDGs). In particular, it focuses on the relationship between women and the environment, emphasising the eco-feminist perspective that links women's social status to environmental challenges. Through an extensive survey analysis, the study identifies key similarities and differences in women's environmental

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values, personal impact on the environment, and consumption patterns of environmentally friendly products in both countries. This section discusses the implications of the findings, the wider sustainability debate and recommendations for policy makers and stakeholders. Key findings and their implications;

Environmental values and personal impact on the environment; The study finds that female consumers in both Türkiye and Pakistan have similar perceptions of environmental values, irrespective of demographic factors such as age, income, education, occupation and marital status. However, significant differences emerge when analysing their personal impact on the environment. Turkish women, particularly in the 35-44 age group, show a higher level of personal impact on the environment than their Pakistani counterparts. This finding suggests that while environmental awareness exists in both nations, its translation into individual behaviour varies depending on socio-economic conditions and national policies.

Demographic influences on green consumption; The research shows that income and education levels have a significant impact on green consumer behaviour. In Türkiye, middle-income consumers are more likely to engage with green products, while in Pakistan, high-income consumers are more likely to engage in sustainable consumption. This discrepancy can be attributed to the different levels of economic development, access to green products and consumer incentives in each country. In addition, education plays a crucial role in shaping personal levels of environmental impact. In Türkiye, consumers with at least a high school education show higher levels of environmental engagement, while in Pakistan women with a postgraduate education are more likely to participate in sustainable consumption. These findings suggest that increasing educational opportunities for women could significantly improve green consumer behavior.

Product preferences and consumption trends; The data shows that Turkish female consumers are more likely to purchase green cleaning products, textiles, electronics and organic food than their Pakistani counterparts. This difference may be due to differences in product availability, affordability and consumer awareness programmes. Turkish government policies have actively promoted green products through subsidies and tax incentives, while similar initiatives remain limited in Pakistan. In addition, while price sensitivity is a major barrier to green consumption in both countries, Pakistani consumers tend to perceive green products as similar to conventional alternatives, reducing their motivation to pay a premium for sustainability. This perception highlights the need for marketing strategies that effectively communicate the long-term benefits of green products.

Broader discussion on sustainability and gender:

The role of women in sustainable development; Women play a crucial role in sustainable development through their involvement in household consumption, child rearing and community development. The study highlights the need to integrate gender-responsive strategies into environmental policies. As key decision-makers in household consumption, women can drive demand for sustainable products, making them key actors in achieving the SDGs. Gender-focused sustainability programmes should emphasise women's empowerment through environmental education, financial incentives and targeted awareness campaigns. Governments and NGOs should design policies that recognise the intersectionality of gender and environmental issues, to ensure more inclusive and effective sustainable development initiatives.

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The various challenges in promoting the widespread adoption of sustainable consumer behaviour and green consumerism among women in both Türkiye and Pakistan can be summarised as follows:

- Economic Barriers: Higher costs associated with green products discourage low-income groups from making sustainable choices. Financial constraints, particularly in developing countries, limit access to green alternatives.

- Limited Awareness: Although environmental values are strong among women in both countries, a lack of awareness of product benefits and long-term sustainability impacts prevents higher adoption rates.

- Access Issues: In Pakistan, the availability of green products is lower than in Türkiye, which affects consumers' purchasing decisions. Inefficiencies in the supply chain further limit access to sustainable goods.

- Cultural and Social Norms: Societal expectations and traditional gender roles influence purchasing behaviour. In conservative societies where women have limited financial autonomy, sustainable consumption decisions may depend on male household members.

To address these challenges and promote sustainable consumption among women, the following policy recommendations are proposed:

Strengthen environmental education; It is important to initiate environmental education programmes targeting women in both urban and rural areas. Sustainability education must be integrated into school curricula to encourage long-term behaviour change. Digital campaigns can be launched to raise awareness of the benefits of green products.

Financial and economic incentives; It is important to provide subsidies or tax breaks to make sustainable products more affordable. Microfinance programmes can be introduced to support women entrepreneurs in the green economy. Reward schemes can be set up for consumers who regularly buy green products.

Improve accessibility and market development; Increase the availability of green products through partnerships between governments and the private sector. Support local businesses that produce sustainable products to strengthen the green economy.Infrastructure and logistics should be improved to ensure that sustainable products reach underserved areas.

Cultural and social inclusion strategies; Develop community-based initiatives that empower women to become advocates for sustainability. Engage religious and community leaders to promote green consumption as a collective social responsibility. Create platforms where women can share their experiences and best practices on sustainable living.

This study provides valuable insights into the environmental tendencies of female consumers in Türkiye and Pakistan, highlighting the need for targeted policies and initiatives to promote sustainable consumption. While women in both countries have strong environmental values, their ability to translate these values into action depends on various socio-economic and cultural factors. By removing economic barriers, raising awareness, improving accessibility and fostering cultural engagement, policy makers and stakeholders can facilitate greater participation in sustainable consumption. Empowering women as key drivers of environmental change is essential to achieving long-term sustainability and advancing the global SDGs.

Future research directions; In light of the findings and discussions presented, future studies can explore

- The impact of cultural perceptions on women's environmental behaviour in different socio-economic contexts.

- The role of policy interventions in promoting green consumerism among women.

- A comparative analysis of sustainable consumption behaviour in different regions beyond Türkiye and Pakistan.

- Longitudinal studies examining the evolution of women's environmental attitudes over time.

Declaration

Ethical approval for this study was granted by the Hitit University Non-Interventional Research Ethics Committee on July 6, 2023, under decision number 2023-195. Permission to conduct the research was also obtained.

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