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The Effect of Environmental Responsibility on Green Consumption Intention: The Moderator Role of Price Sensitivity and the Mediator Role of Environmental Concern. A Case Study in Turkey

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Abstract
The aim of this study is to investigate the effect of environmental responsibility on green consumption intention, the mediating role of environmental concern and the moderator role of price sensitivity in this relationship. Much research has focused mainly on the determinants of green consumption in recent years. An online questionnaire was prepared through Google Forms to collect data and a total of 418 responses were received. The data were analyzed using SPSS for Windows 25.0 and 23.0. Path analysis, mediation role and moderator effect were analyzed in line with the model. Results suggest that environmental responsibility has been an important factor affecting both green consumption intention and environmental concern. Environmental concern does not have a mediating role in the relationship between environmental responsibility and green consumption intention. Lastly, price sensitivity plays a moderator role both in the relationship between environmental responsibility and green consumption intention and between environmental concern and green consumption intention.

Keywords Green consumption ıntention · Environmental responsibility · Environmental concern · Price sensitivity

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1 Introductıon

In parallel with the developments in the world, population growth, rapid urbanization and industrial developments in Turkey, climate change has caused a series of environmental problems such as deforestation, desertification and water scarcity. In order to cope with these problems, Turkey has adopted new legislation and institutional practices as part of the European Union's harmonization effort within the scope of the Green Deal (Özen, 2022). Therefore, it is considered important to determine and analyze the environmental behavior of consumers in our country.

The increase in consumption of goods and services has led to a detrimental effect on the environment (Jaiswal & Bihari, 2020). McDougally (1993) argues that environmental destruction is mainly caused by excessive consumption, which makes green consumption the key to sustainable development (Wu & Chen, 2014). The role of personal consumption in environmental degradation has become a growing concern. A key factor in the debate is the consumer with personal consumption. Their decisions can help protect the environment or contribute to its degradation (Kinnear et al., 1974). On the other hand, the seriousness of environmental problems has changed the behavior of consumers and led them to focus on green consumption (Cheng et al., 2020; Verma and Chandra, 2018). Therefore, green consumption is an important research topic in the context of businesses and consumers as the focus of marketing strategies (Peattie, 2010). In fact, green consumption has been adequately described in the literature, but more recent research focuses on the determinants of green consumption. In this research, associating green consumption with determinants such as environmental responsibility, anxiety and price sensitivity reveals the importance of the research (Kabadayı et al., 2015). Green consumption, which is based on the use of resources in the world within the limits of sustainability, is an environmentally responsible form of consumption that seeks ways to minimize the damage to natural life (Karalar and Kiracı, 2011).

Human behavior, for better or for worse, has a wide impact on global ecology. Most of the recent environmental problems are a direct result of human behavior. Therefore, environmental problems may require behavioral solutions (Hirsh, 2010). It is extremely important to understand people's behavior regarding environmental problems, assuming that turning to alternative behaviors can make a difference (Ali et al., 2015). In the literature, mostly focused on corporate social responsibility or environmental responsibility of enterprises, research evaluating green marketing as a competitive advantage for businesses has been conducted. However, there seems to be little research investigating the environmental responsibility of consumers in the context of green consumption (Yue et al., 2020). On the other hand, most of the current research on environmental responsibility was conducted in the 1970s and 1980s, when very few environmentally friendly products were available and very few consumers could seriously consider the environmental impact of a product (Follows and Jobber, 2000).

Environmental responsibility, which consists of feelings of personal moral obligation toward people or nature (Slavoljub et al., 2015), emerged from the norm activation theory. According to the model, most consumers are more inclined to develop helping behavior when they realize the dangerous consequences of environmental problems and when they understand the impact of their personal consumption on the emergence of these problems as individuals (Akdoğan, 2021; Cherian & Jacob, 2012). In this sense, environmental responsibility has an altruistic meaning. In other words, it requires individuals to have a strong other orientation and to make personal sacrifices to protect the environment for the

long-term benefits of the world and humanity (Lee, 2009). Therefore, a participatory sense of responsibility among consumers about the importance of the environment can promote green consumption (Chen & Peng, 2012; Paul et al., 2016). Therefore, more research is needed to better understand the role of environmental responsibility as a predictor of green consumption (Yue et al., 2020; Zheng et al., 2020; Eden, 1993).

Environmental anxiety is generally expressed emotionally against environmental problems (Abdul-Muhmin, 2007; Garg et al., 2021; Newton, et al., 2015). As a matter of fact, Lee (2009) states that environmental anxiety expresses an emotional feature and represents individuals' concerns about the environment, protectionism, likes and dislikes (Lee, 2009: 88). Studies on environmental concern are generally conceptualized as an immediate priority of intention, assuming that environmental concern can directly motivate green consumption intention (Lee, 2008; Hedlund, 2011; Hartmann and Apaolaza, 2012; Paladino & Ng, 2013; Koenig-Lewis et al., 2014).; Newton, et al., 2015; Lasso & Dahles, 2018). However, the results of some studies have revealed that the relationship between environmental concern and green consumption intention is somewhat weak (Mainieri et al., 1997; Grønhøj & Thøgersen, 2009; Carrington et al., 2010; Tiwari et al., 2017). This situation is often referred to as the attitude–behavior gap (Alwitt & Pitts, 1996; Chan & Lau, 2000; Garg et al., 2021; McDonald et al., 2015). When all these situations are evaluated together, the relationship between these two variables, as an unresolved issue in the literature, suggests that some other external factors and situations should be taken into account (Newton et al., 2015; Yue et al., 2020). Price, one of the moderator variables that can have an impact on green consumption intention, is one of these factors. Hence, there is a need to explore price sensitivity. This may enable researchers to reach more accurate relationship levels (Albayrak et al., 2013).

Green product purchasing behaviors are different from general purchasing-related consumer behaviors. Making a general purchase behavior is only achieved by evaluating the benefits and costs associated with the individual consumer performing the behavior. In contrast, in the context of a green product, the consumer is unlikely to provide immediate personal gain or satisfaction, but instead achieves a future-proof result that often benefits society (Kim & Choi, 2005). In other words, the consumption of green products includes making sacrifices for others and not thinking for one's own benefit (White & Simpson, 2013; Jaiswal & Bihari, 2020: 70). When it comes to the green consumption decision, it has not yet been investigated in our country whether consumers prefer their personal interests to environmental social interests. Few empirical findings provide evidence that environmental responsibility looks promising as a field of social thought, especially when it comes to environmental decision making (Attaran and Çelik, 2015). Based on the findings in the literature, the first problem of the research is the determinants of green consumption. The second problem of the research is to determine whether environmental responsibility encourages environmental concern and green consumption by motivating self-sacrifice to protect the environment. Another problem of the research is; the aim of this study is to investigate the relationship between environmental concern and green consumption, the intermediary role of environmental responsibility, environmental concern and green consumption, and to determine whether price has a regulatory role as an external factor in this relationship.

For this reason, the research is based on a model that proposes the mediator role of environmental concern and the moderator role of price sensitivity in the relationship between environmental responsibility, environmental concern and green consumption intention. In this context, the aim of the research is to investigate the green consumption intention by focusing on the environmental responsibility and environmental concerns of consumers in

Turkey, as well as to examine the mediator of environmental concern in this relationship and the regulatory role of price sensitivity in the relationship of each independent variable with green consumption intention. The research is expected to expand the existing knowledge on the determinants of green consumption. In particular, this research presents findings on the role of environmental responsibility and price sensitivity in influencing consumers' green product consumption intentions in a developing economy. As a matter of fact, this research was carried out in response to the academic calls of eco-psychologists Yue et al., (2020) regarding the need for additional research on the above-mentioned variables. However, a general green product category was adopted in this research and was conducted on participants in Turkey as a developing country. In this direction, the research continues with the creation of hypotheses by examining the relevant literature, determining the research methodology, analyzing the data and interpreting the findings. Afterward, the limitations of the research and suggestions for future researchers are presented by determining the theoretical and practical implications.

2 Literature review and hypotheses

2.1 Green consumption

Green consumption is a form of consumption that is perceived as a part of environmental reform, which includes addressing environmental problems through the adoption of environmentally friendly lifestyles to reduce the environmental destruction caused by excessive consumption, and placing responsibility or joint responsibility (with producers) on consumers (Connoly & Prothero, 2008).; Wu & Chen, 2014; Testa et al., 2020). In this context, businesses also accept the circular economy (CE) process, which is a closed-loop production system about reducing consumption, reusing products and services, and recycling waste products, as an important phenomenon in order to ensure environmental sustainability by taking responsibility (Awan et all., 2022).

Since the beginning of the industrial revolution, human development has been changing in an unprecedented and unsustainable way. For this reason, since social change also requires individual change, green consumption envisages the inclusion of individuals in consumption within this responsibility axis for a livable environment today and in the future (Pollex, 2017). Green consumption proposing the 5R principle in recent years; it means reducing consumption, re-evaluating, reusing, recycling and saving (Zheng et al., 2020). Therefore, green consumption; it acts as a balancing element between meeting consumer demands and protecting the environment, by influencing the entire consumption process, including the selection, use and processing of products. In this context, researching the factors affecting green consumption can provide environmental benefits such as deciding on the rational use of resources, contributing to the improvement of environmental degradation and contributing to the promotion of green consumption (Sun et al., 2018).

According to the theory of planned behavior, behavioral intention can trace an individual's behavior to a foundation underlying behavioral beliefs (Ajzen, 1991). According to the theory, behavioral intention is an important indicator of actual behavior (Ajzen, 2002). In other words, the behavior of the consumer is a function of the intention to perform the behavior in question (Kumar, 2019). By applying the theory of planned behavior comprehensively, researchers found that green consumption predicts different determinants (Ahmad et al., 2020). Accordingly, consumers' green consumption intention (Chen

& Tung, 2014; Wu & Chen, 2014; Ali et al., 2015; Yadav & Pathak, 2017; Zheng et al., 2020; Kamalanon et al., 2022), green consumption value (Kao & Tu, 2015), environmental beliefs (Marwat et al., 2022) and cultural dimension (Liobikienė et al., 2016).

Environmental behavior is a very complex phenomenon both in terms of causal influencers on behavior and in terms of its diversity (Stern, 2000). Therefore, researchers have considered green consumption from various perspectives. Socio-demographic factors (Diamantopoulos et al., 2003; Çabuk et al., 2008; Kwon and Ahn, 2021), demographic, psychological and behavioral factors (Laroche et al., 2001; do Paço et al., 2009), perceived consumer effectiveness (Roberts, 1996; Ay and Ecevit, 2005; Akdoğan et al., 2020), green self (Sharma et al., 2020; Küçük and Ayyıldız, 2020), personal and social norms (Arvola et al., 2008; Khare & Sadachar, 2017), price or willingness to overpay (Chekima et al., 2016; Singh & Pandey, 2018). Considering the studies on green consumption as a whole, problems related to unsustainable consumption increase despite all the studies in the literature for the need for additional research (Kabadayı et al., 2015). This situation necessitates a more comprehensive understanding of the determinants of green consumption (Kilbourne & Pickett, 2008).

2.2 Environmental Responsibility and Green Consumption Intention

The changing ecological balance not only affected the flow of life negatively but also made us question our individual contributions to these changes. (Doğan et al., 2020). The environmental responsibilities of consumers in the face of changing ecological balance have the potential to affect behavioral intention as well as their ability to make a significant difference (Peattie, 2010). Therefore, the formation and applicability of environmental responsibility is of vital importance for the environment. Because it is based on the belief that it is possible to persuade individuals and institutions to accept responsibility for causing environmental problems and to change their daily practices to reduce negative consequences (Slavoljub et al., 2015). Therefore, there is a need to understand the role consumers can play in protecting nature and the responsibility they have as citizens (Jaiswal & Bihari, 2020). The structure of environmental responsibility is based on previous research by Stone et al. (1995), described by. Accordingly, environmental responsibility is explained as a situation that expresses the intention of taking action toward the solution of environmental problems without acting as an individual concerned with his own economic interests (Stone et al., 1995). The study of Kaiser et al., (1999) revealed that 59% of the variance in ecological behavioral intention was explained by the individual's sense of responsibility toward the environment (Kaiser et al., 1999). Studies report that environmentally responsible consumers tend to behave environmentally friendly and in fact, they are ready to pay more in favor of green products (Ali et al., 2015).

The environmental responsibility of consumers has been studied in different countries and in various contexts. (Musova et al., 2021) found that environmental responsibility in Slovakia creates positive changes in consumers' perceptions of green consumption and their approach to environmental problems. Kumar and Ghodeswar (2015) examined the factors affecting consumers' green product purchasing decisions in India. Jaiswal and Bihari (2020) found that there is a positive relationship between consumers' environmental responsibility and green product purchasing behavior in India. On the other hand, Lai (2000) and Lee (2009) found that consumers' perceived environmental responsibility to take corrective measures is rather weak despite their awareness of environmental problems.

Considering the results of the research, it is seen that despite the positive findings between environmental responsibility and green consumption intention, consumers tend to resist participating in activities that involve some cost such as additional time, increased effort and behavior change for individual responsibility (White & Simpson, 2013). However, environmental responsibility, as a psychosocial variable, represents the individual's sense of duty or obligation toward the environment (Hines et al., 1987). In other words, when the individual is willing to contribute to the solution of environmental problems, he is likely to take actions that will fulfill his duties and responsibilities toward the environment. In addition, intention regarding green consumption is an important factor to be considered in understanding environmental responsibility (Attaran and Çelik, 2015). Therefore, the following hypothesis has been proposed:

H1: Environmental responsibility is positively associated with green consumption intention.

2.3 Environmental Responsibility and Environmental Concern

Environmental concern is an important variable related to green consumption concepts in the green marketing literature. Basically, environmental anxiety is a direct predictor of certain environmental behaviors (Prakash & Pathak, 2016). For this reason, environmental concern is one of the first conceptual terms used in research on environmental problems that aim to describe environmentally responsible actions (Sultana et al., 2022). The first research on environmental concerns in the marketing literature dates back to the early 1970s. Bamberg (2003); Jones and Dunlap (1992); the research of Kinnear et al., (1974) is evidence that initially focused on ecological challenges and concerns about the environment. In recent years, it has been seen that research on environmental concerns has focused on consumers' decisions (Kautish & Sharma, 2020). Both the theoretical structure and measurement of environmental concern differ in research (Kilbourne & Pickett, 2008). In general, environmental concern indicates the degree to which people are aware of environmental problems and show their willingness to support their efforts to solve them or to contribute personally to their solutions (Alibeli & Johnson, 2009; Paul et al., 2016). This desire is linked to a particular form of motivation. The motivation to be environmentally responsible is closely linked to consumers' personal commitment to environmental protection and their individual-level actions to improve the quality of the environment. (Musova et al., 2021). Therefore, an individual is likely to be aware of the harmful consequences and have a sense of environmental responsibility for their actions (Jaiswal & Bihari, 2020). The research of Yue et al., (2020) supports this logical basis. The results of the research revealed that environmental responsibility has a positive effect on environmental anxiety. Similarly, Musova et al., (2021) found in their research that environmental responsibility creates positive changes in consumers' perceptions and approaches to environmental problems. Based on theoretical explanations and previous research findings, the following hypothesis has been proposed:

H2: There is a positive relationship between environmental responsibility and environmental concern.

2.4 Environmental concern and green consumption ıntention

Environmental anxiety is generally interpreted as awareness of the dangerous consequences of environmental problems or perceptions and a positive attitude toward protecting the environment (Tam & Chan, 2018). According to another definition, environmental concern is consumers' concerns about environmental problems that may occur today and in the future (Ay and Ecevit, 2005). Grondhuis and Aman, (2012) defined environmental anxiety as the emotional tendencies of consumers, that is, anger against the corruption of nature (Zheng, 2020). Consumers who are concerned about environmental problems want to consume products that will have less negative impact on the environment (Esmaeilpour & Bahmiary, 2017). In general, research on environmental concern; it includes attitude studies that examine differences in environmental views based on consumers' demographic and socioeconomic characteristics, experimental and quasi-experimental research that tests hypotheses derived from social-psychological theory such as norm activation theory, and applied research on environmental attitudes and behaviors that investigate social factors (Alibeli & Johnson, 2009). Indeed, various studies have proven that environmental concern is a strong determinant of green consumption intention (Pickett-Baker & Ozaki, 2008; Hartmann and Apaolaza, 2012; Prakash & Pathak, 2016; Zhang et al., 2019; Zheng et al., 2020).

Kim and Choi (2005) revealed in their research that environmental concern has a direct and positive effect on green consumption intention, indicating that consumers with strong environmental concerns may be interested in the consumption of products that reflect this concern. (Kim & Choi, 2005). Fraj and Martinez (2007) revealed that consumers who are concerned about environmental problems tend to act more strongly pro-environmentally. Similarly, Joshi and Rahman (2015), examining the results in 53 articles on green consumption, determined that consumers' environmental concerns and product qualities are factors that predict green consumption. Khare (2015) found that consumers' environmental concerns and past experiences are determinants of green purchasing behavior. Maichum et al., (2016) revealed in their research conducted in Thailand that environmental concern has a significant effect on purchase intention. Kumar et al., (2021) states that environmental concern encourages behavioral change in consumers to protect the environment (Kumar et al., 2021). Therefore, consumers' environmental concerns remain as an important driver of green consumption (Garg et al., 2021). Based on the theoretical explanations and research findings, the following hypothesis has been proposed:

H3: Environmental concern is positively associated with green consumption intention.

2.5 Mediating role of environmental anxiety

According to Panov and Lidskaya (2012), environmental responsibility has an application-oriented character that ensures the unity of consciousness and activity of individuals in the face of environmental problems (Mititsina et al., 2021). Environmentally responsible behavior refers to actions by individuals or groups that reflect concerns about the natural environment (Cheng et al., 2013). In this sense, individuals who feel a degree of personal responsibility toward the environment are likely to be concerned about environmental problems. As a matter of fact, in this research, it is thought that environmental responsibility can affect green consumption intention through the environmental concern. Planned

behavior theory supports the inclusion of additional structures in the model, provided that they make a significant contribution to the explanation of behavior (Yadav & Pathak, 2017). In this context, Zheng and et al., (2021); Duong et al., (2022) revealed in their study that environmental responsibility increases the explanatory power of attitude variables, positively affects the attitude toward green purchasing, and then the attitude has a positive effect on sustainable purchases. This finding reveals the necessity of green commitment to green activity in order to achieve a positive outcome for environmentally friendly products such as green consumption. In addition, Young et al., (2010) found that consumers who have a sense of responsibility for current environmental problems are more concerned about environmental problems and are more likely to purchase environmental products (Yue et al., 2020). Yue et al., (2020) environmental responsibility; they found that green consumption intention affects directly and positively, and indirectly and positively through environmental concern. Based on the theoretical explanations and findings, the following hypothesis has been proposed:

H4: Environmental concern has a mediating role between environmental responsibility and green consumption intention.

2.6 Price Sensitivity

Price sensitivity is explained as an individual difference variable that explains how consumers respond to the price level of a product or service (Goldsmith & Newell, 1997). Price sensitivity is a factor that has significant effects on consumers' intention to purchase green products (Walia et al., 2020). Price refers to the amount of money consumers have to spend as a measure of sacrifice in consumers' evaluation of product alternatives. Therefore, being willing to pay a much higher price to protect the environment is one of the important environmental behaviors. Especially for emerging markets, price sensitivity is an important criterion for choosing among green products. Since eco-friendly products usually have higher prices; this may cause reluctance to buy them (Hartono et al., 2020). The moderator role of price sensitivity on green product purchase intention has been confirmed by many studies (Hartono et al., 2020; Saleki et al., 2019; Zinoubi, 2020). In his research, Erdil (2018) concluded that the interaction of environmental concerns and price sensitivity of millennial consumers reduces their green purchase intention. This result shows that although the environmental anxiety and environmental attitude levels of the participants are above the average, price sensitivity prevents participation in green purchasing intention (Erdil, 2018). On the other hand, Laroche et al., (2001) reported that environmentally conscious consumers are willing to spend more for green products, and environmental concern will make a difference in their behavior, including consumers who do not want to spend extra for green products (Laroche et al., 2001).). Michaud et al., (2013) revealed that consumers are willing to pay more for environmental characteristics of non-food agricultural products. Chekima et al., (2016) revealed that price sensitivity does not have a moderator effect on green product preference and does not constitute a barrier to consumers' green product consumption, as reported by previous studies. While the above-mentioned studies have yielded important results to elucidate the effects of price sensitivity on green consumption intentions, most of them do not include consumers' environmental responsibility or its moderator role between environmental concerns and green consumption intentions.

When analyzing the consumer decision process, the price of the product is always considered as one of the key factors (Kumar et al., 2021). Green products are also generally price sensitive (Erdil, 2019). The excessive price sensitivity of consumers in green purchasing stands as an obstacle to environmental responsibility and environmental concern (Biswas and Roy, 2015). Therefore, the following hypotheses have been proposed:

H5: Price sensitivity plays a negative moderator role between environmental responsibility and green consumption intention.

H6: Price sensitivity plays a negative moderator role between environmental concern and green consumption intention.

The theoretical basis of this research, which was carried out to determine the effects of personal norms (environmental responsibility and environmental concern) on the green consumption intention of consumers in Turkey, is based on the theory of planned behavior and norm activation. Yue et al. (2020) data were analyzed based on the research model (Fig. 1).

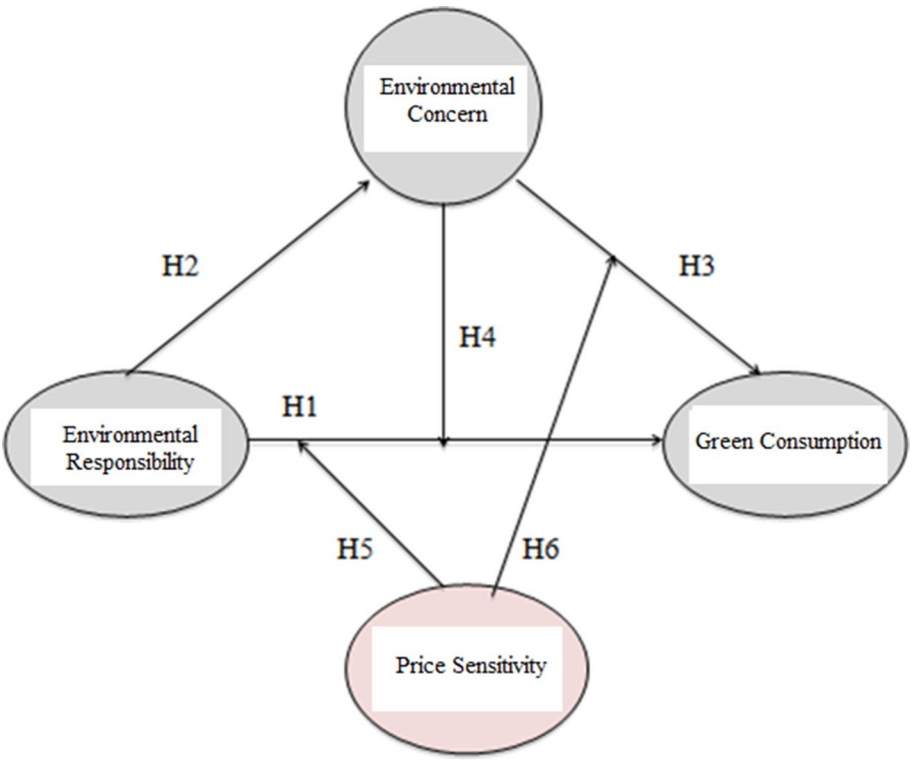

Fig. 1 Research model. Source: Own detailing

3 Research method

3.1 Data collection method

The scales of the structures used in the research were taken from previous academic studies. The scale used by Kim and Choi (2005) in their research was used to determine the environmental concern and green consumption intention of individuals living in Çorum. There are (5 statements) for environmental concern and (5 statements) for determining green consumption intention. Similarly, to determine the environmental responsibility and price sensitivity of individuals, Yue et al. (2020) used in their research, and the scales in question consist of one dimension. In these scales, there are (4 statements) for determining the environmental responsibility of individuals and (8 statements) for price sensitivity. In order to determine the demographic characteristics of the participants, four statements regarding gender, age, education and personal income were also included in the survey. The statements in the questionnaire were subjected to a 5-point Likert-type rating and were scored as 1 = Strongly Disagree 5 = Strongly Agree. To test the reliability of the scales, "Reliability Analysis," to test construct validity, "Explanatory Factor Analysis" and "Confirmatory Factor Analysis (CFA)" were performed using the Amos program.

3.2 Population and sample

The population of the research consists of individuals living in Çorum. According to the data of 2021, the central population of Çorum is 298,796 (TÜİK). The sample size to represent the research universe was determined as 385 people with a 95% confidence interval and 5% margin of error in social sciences (Krejcie and Morgan, 1970). As the data collection method, an online survey form prepared through Google Forms was used and the survey link was directed to the e-mail addresses and phones of 430 participants. The questionnaire was answered by 418 people and the analysis continued with this number.

3.3 Data analysis method

The data obtained in the research were analyzed using SPSS (Statistical Package for Social Sciences) for Windows 25.0 and AMOS (Analysis of Moment Structures) 23.0 program. To test the reliability of the scales, "Reliability Analysis," to test construct validity, "Explanatory Factor Analysis" and "Confirmatory Factor Analysis (CFA)" were performed using the Amos program. Path analysis, mediation role and moderator effect were analyzed in line with the established model. In order to perform SEM, the data set must provide a multivariate normal distribution (Byrne, 2001). In this context, multivariate extreme values were examined with Mahalanobis distance values. The Mahalanobis criterion based on the relationship between observations is recommended for the detection of outliers in multivariate and high-volume data sets with near-zero or negative-valued observations (Johnson & Wichern, 2002).

As outliers increase the value of error variance, they also affect the power of statistical tests. For this reason, outliers were examined before statistical tests and it was checked whether they were present in the data sets. The absence of outlier–outliers was determined by the Mahalanobis method and multiple normality criteria were met. The conformity of the data used to the normal distribution was tested. Compliance with the normal distribution can be examined with the Q-Q plot (Chan, 2003). In addition, the normal distribution

of the data used depends on the skewness and kurtosis values being between ± 3 (Shao, 2002).

4 Fındıngs

4.1 Findings on demographic structure

The data on the demographic characteristics of the participants, who constitute the sample of the research, are presented in Table 1.

It is seen that 55.5% of the participants are female and 44.5% are male. When the distribution of the participants by age is examined, it is seen that 51.7% of the participants are 20–29, 22.5% are 30–39, 16.5% are 40–49, and 9.3% are 50 and over. When the distribution of the participants according to their educational status is examined, it is seen that 1.5% of the participants are primary and/or secondary school, 21.5% are high school or equivalent, 59.1% are university, and 17.9% are postgraduate. When the distribution of the participants according to their income is analyzed, it is seen that 35.2% of them are 3000 TL and below, 21.8% are 3001–5000 TL, 21.5% are 5001–7000 TL, and 21.5% are 7001 TL and above..

4.2 Examining factor structures

4.2.1 Explanatory factor analysis

Factor analysis results are shown in Table 2.

Before the exploratory factor analysis application, the Kaiser–Meyer–Olkin (KMO) test was applied to test whether the sample size was suitable for factor analysis. As a result of the analysis, it was determined that environmental responsibility scale KMO value was

Table 1 Distribution of Participants by Socio-Demographic Characteristics

Variables		n	%
Gender	Woman	232	55.5
	Male	186	44.5
Age	20–29	216	51.7
	30–39	94	22.5
	40–49	69	16.5
	50 and above	39	9.3
Educational status	Primary and/or secondary school	6	1.5
	High school and equivalent	90	21.5
	University	247	59.1
	graduate	75	17.9
Income	3000 TL and below	147	35.2
	3001–5000 TL	91	21.8
	5001–7000 TL	90	21.5
	7001 TL and above	90	21.5
Total		**418**	**100.0**

Table 2 Explanatory Factor Analysis Results of the Scales

Expressions	Factors F1	Total Item Correlation
Environmental responsibility		
ER 1. My actions affect environmental health	0.560	0.375
ER 2. I have the power to help protect the environment	0.834	0.626
ER 3.I can learn how to improve the environment	0.857	0.679
ER 4.I will work to make the environment a better place	0.869	0.674
Reliability	0.767	
Explained variance (%)	62.480	
KMO = 0.759; $\chi 2(6) = 586.080$; Bartlett test of sphericity (p) = 0.000		
Environmental concern		
EC1.I am extremely concerned about the state of the world's environment and what this will mean for my future	0.758	0.595
EC 2. Mankind is seriously misusing the environment	0.839	0.697
EC 3. When humans interfere with nature, it often has disastrous results	0.738	0.590
EC 4. The balance of nature is very delicate and easily upset	0.664	0.513
EC 5. Humans must live in harmony with nature in order to survive	0.849	0.718
Reliability	**0.822**	
Explained variance (%)	**59.710**	
KMO = 0.822; $\chi 2(10) = 770.550$; Bartlett test of sphericity (p) = 0.000		
Price sensitivity		
PS 1. When I choose a product, price is the most important factor	0.564	0.467
PS 2. I rely on price to decide the value of something I buy	0.467	0.375
PS 3. When I buy a product, I will choose the cheapest	0.640	0.546
PS 4. I always get the lowest price	0.633	0.536
PS 5. Before I make a buying decision, I'll go into multiple stores to compare prices to find a lower price	0.752	0.592
PS 6. I find it worthwhile to spend energy going around many stores to find low-priced items	0.775	0.628
PS 7. I think it's worth your time to go to a few stores looking for a low-cost item	0.765	0.614
PS 8. I think it's worth your time to go to a few stores looking for a low-cost item	0.694	0.544

Table 2 (continued)

Expressions	Factors F1	Total Item Correlation
Reliability	**0.818**	
Explained variance (%)	**44.742**	
KMO = 0.799; $\chi 2(28) = 1334.890$; Bartlett test of sphericity (p) = 0.000		
Green consumption intent		
GCI1. I make a special effort to purchase paper and plastic products made from recycled materials	0.757	0.624
GCI 2. I changed the products for ecological reasons	0.794	0.670
GCI 3. When I choose between two equal products, I choose the one that is less harmful to other people and the environment	0.828	0.713
GCI 4. I make a special effort to purchase environmentally friendly household chemicals such as detergents and cleaning solutions	0.813	0.695
YTN5. I avoid purchasing a product that has potentially harmful effects on the environment	0.825	0.710
Reliability	**0.863**	
Explained variance (%)	**64.627**	
KMO = 0.839; $\chi 2(10) = 930.240$; Bartlett test of sphericity (p) = 0.000		

0.759, environmental concern KMO value was 0.822, price sensitivity KMO value was 0.799, and green consumption intention scale KMO value was 0.839. In line with these results, it was concluded that the sample size was "adequate" for factor analysis. Values between 0.5 and 1.0 are considered acceptable as KMO values, while values below 0.5 indicate that factor analysis is not suitable for the data set in question (Altunışık et al., 2010:266). In addition, when the results of the Bartlett sphericity test are examined, it is seen that the obtained Chi-square value is on the environmental responsibility scale ($\chi 2(6) = 586.080$, $p < 0.05$), environmental concern scale ($\chi 2(10) = 770.550$, $p < 0.05$), price sensitivity scale ($\chi 2(28) = 1334.890$, $p < 0.05$) and green consumption intention scale ($\chi 2(10) = 930.240$, $p < 0.05$).

In the explanatory factor analysis, 4 items were collected in a single factor in accordance with the literature on the environmental responsibility scale. This factor explains 62.480% of the total variance. In single-factor designs, it is considered sufficient if the explained variance is over 40% (Büyüköztürk, 2007; Tavsancil, 2005). Similarly, in accordance with the literature, 5 items of the environmental anxiety scale were collected in a single factor and this factor explains 59.710% of the total variance. In the explanatory factor analysis, 8 items of the price sensitivity scale were collected in one dimension. This factor explains 44.742% of the total variance. Again, the result of the explanatory factor analysis of the green consumption intention scale, in accordance with the literature, 8 items were collected in one dimension and this factor explains 44.742% of the total variance. When the reliability of the scales was evaluated, it was found that environmental responsibility was 0.767, environmental concern was 0.822, price sensitivity was 0.818, and green consumption intention was 0.863, and it was found to have good reliability. A Cronbach's alpha value greater than 0.6 indicates that the scales used are reliable. This shows that the internal consistency of the scale used in the study is good.

4.2.2 Confirmatory factor analysis

After the exploratory factor analysis, confirmatory factor analysis was applied to the scales and the factor analysis results are shown in Table 3.

The reliability of the measurement model was tested by looking at the mean explained variance (AVE) and composite reliability (CR) values for each factor separately. The composite reliability value of the latent variables in the measurement model should be higher than 0.70 and the mean explained variance value should be higher than 0.40. As seen in Table 3, although the environmental responsibility CR values are above the threshold value of 0.70, the AVE value of the factors in the measurement model is above the threshold value of 0.40. Likewise, while the CR values of the environmental concern, price sensitivity and green consumption intention scale are above the threshold value of 0.70, as seen in Table 3, the AVE value of the factors in the measurement model is above the threshold value of 0.40. When the correlations between the variables are examined, it is seen that the factor loads of the items are above 0.30 and all correlation relations are significant.

According to the confirmatory factor analysis, it was determined that the structural equation modeling results of the scale were significant at the $p = 0.000$ level, and the only sub-dimension of the 4 items constituting the environmental responsibility scale was related to the scale structure (Table 4). It is shown in the table that the accepted values for the fit indices are provided in the fit index calculations. Likewise, it was determined that the single sub-dimension of the 5 items constituting the environmental

Table 3 Confirmatory Factor Analysis Results Regarding the Measurement Model of the Scales

Factors	Expressions	Factor loads	Standard error	*t* values	*p* values	AVE	CR
Environmental responsibility	ER 1	0.402	–	–	–	0.52	0.81
	ER 2	0.768	0.191	7.696	***		
	ER 3	0.788	0.186	7.743	***		
	ER 4	0.852	0.201	7.840	***		
Environmental concern	EC 1	0.690	–	–	–	0.51	0.83
	EC 2	0.832	0.081	14.335	***		
	EC 3	0.612	0.090	11.122	***		
	EC 4	0.508	0.094	9.316	***		
	EC 5	0.830	0.083	14.316	***		
Price sensitivity	PS 1	0.366	–	–	–	0.41	0.88
	PS 2	0.306	0.142	5.152	***		
	PS 3	0.391	0.141	6.533	***		
	PS 4	0.370	0.157	5.744	***		
	PS 5	0.813	0.312	6.530	***		
	PS 6	0.841	0.326	6.631	***		
	PS 7	0.833	0.300	6.740	***		
	PS 8	0.712	0.258	6.822	***		
Green consumption intent	GCI 1	0.613	–	–	–	0.55	0.86
	GCI 2	0.672	0.079	13.270	***		
	GCI 3	0.812	0.115	12.342	***		
	GCI 4	0.755	0.112	11.831	***		
	GCI 5	0.818	0.111	12.391	***		

$^{***}p < 0.05$

Table 4 Confirmatory Factor Analysis Goodness-of-Fit Values of the Scales

Index	CMIN/DF	RMSEA	GFI	AGFI	CFI	TLI	IFI	NFI	SRMR
Recommended values	≤5	≤0.08	≥0.80	≥0.80	≥0.80	≥0.80	≥0.80	≥0.80	≤0.10
Environmental Responsibility	3.478	0.077	0.992	0.958	0.992	0.975	0.992	0.988	0.021
Environmental concern	2.707	0.064	0.990	0.962	0.991	0.978	0.991	0.986	0.019
Price sensitivity	2.632	0.063	0.958	0.899	0.914	0.840	0.918	0.874	0.071
Green consumption intent	4.270	0.078	0.984	0.939	0.986	0.965	0.986	0.982	0.024

Table 5 The relationship between the scales used in the study

Scale and dimensions		1	2	3	4
1- Environmental responsibility	r	1.000	0.605	0.247	0.333
	p	–	0.000*	0.000*	0.000*
2- Environmental concern	r		1.000	0.301	0.335
	p		–	0.000*	0.000*
3- Price sensitivity	r			1.000	0.177
	p			–	0.000*
4- Green consumption intent	r				1.000
	p				–

*$p < 0.05$

concern scale, the 8 items constituting the price sensitivity scale and the single sub-dimensions of the 5 items constituting the green consumption intention were related to the scale structure.

4.2.3 Correlation analysis

Pearson correlation was applied to test the relationship between the scales used in the study. (Table 5).

As a result of the Pearson correlation test, there was a statistically significant difference between environmental responsibility and environmental concern ($r = 0.605$, $p < 0.05$), between price sensitivity ($r = 0.247$, $p < 0.05$) and green consumption intention ($r = 0.333$, $p < 0.05$). There appears to be a positive relationship.

It is seen that there is a statistically significant and positive relationship between environmental concern and price sensitivity ($r = 0.301$, $p < 0.05$) and green consumption intention ($r = 0.335$, $p < 0.05$). It is seen that there is a statistically significant and positive relationship between price sensitivity and green consumption intention ($r = 0.177$, $p < 0.05$).

Table 6 Impact Analysis Results Regarding the Research Model

Effect	Prediction	Standard error	*t*	*p*	Conclusion
H1 Environmental responsibilityGreen consumption intent	0.442	0.051	7.110	***	Confirmation
Compliance values: CMIN/DF: 2.189, RMSEA: 0.053, GFI: 0.972, AGFI: 0.950, CFI: 0.981, TLI: 0.973, IFI: 0.981, NFI: 0.966, SRMR: 0.037					
H2 Environmental responsibilityEnvironmental concern	0.702	0.051	11.431	***	Confirmation
Compliance values: CMIN/DF: 4.573, RMSEA: 0.073, GFI: 0.941, AGFI: 0.894, CFI: 0.944, TLI: 0.920, IFI: 0.945, NFI: 0.930, SRMR: 0.049					
H3 Environmental concern Green consumption intention	0.364	0.054	6.007	***	Confirmation
Compliance values: CMIN/DF: 3.189, RMSEA: 0.072, GFI: 0.953, AGFI: 0.922, CFI: 0.959, TLI: 0.944, IFI: 0.960, NFI: 0.942, SRMR: 0.050					

***$p < 0.05$

4.3 Hypothesis tests

4.3.1 Impact analysis

Impact analysis results of the research model are shown in Table 6.

The results of the research model are given in Table 6. The relationship between environmental responsibility, environmental concern and green consumption intention was analyzed using the AMOS (Analysis of Moment Structures) 23.0 program. Accepted H1 ($\beta = 0.442$, $p < 0.05$) shows that the effect of environmental responsibility on green consumption intention is statistically significant and positive. In addition, environmental responsibility had a significant and positive effect on H2 ($\beta = 0.702$, $p < 0.05$) environmental anxiety. When the effect of environmental anxiety on green consumption intention is examined, it is seen that it has a statistically significant and positive effect H3 ($\beta = 0.364$, $p < 0.05$).

4.3.2 Mediation analysis

The analysis results regarding the mediation model are shown in Table 7.

Before examining the mediating role in the model created according to Table 7, it was examined whether the independent variable had an effect on the dependent variable. It was observed that environmental responsibility had a statistically significant effect on green consumption intention ($\beta = 0.442$, $p < 0.05$). While the effect of the independent variable on the dependent variable was significant, it was examined whether there was a mediator role in this effect. According to the results of the model obtained, the values in the 95% confidence interval include 0, which indicates that there is no mediator role in the model. (−0.103, 0.219).

4.3.3 Moderator analysis

The results of the analysis regarding the moderator role of the structural model are shown in Table 8.

The effects of the independent variable (X), moderator (W) and interaction (X*W), which is the model of the research, on the dependent variable (Y), which is the outcome variable, are given. It is understood that this effect is significant because the p value in the table is less than 0.05. While the effect of the independent variable on the dependent variable is significant, it is seen that price sensitivity has a moderator role in this effect ($p < 0.05$). The accepted H5 revealed that price sensitivity has a moderator effect on the relationship between environmental responsibility and green consumption intention. Similarly, H6 predicts the moderating effect of price sensitivity in the relationship between environmental concern and green consumption intention.

5 Discussion and conclusions

As environmental problems grow and become a global concern, green consumption maintains its importance as a priority activity in the marketing literature in the context of environmental protection (Garg et al., 2021). While Carson (1962) evaluated

Table 7 Analysis Results Regarding the Mediation Model

Mediator		Prediction	Standard error	*t*	*p*	Situation
H4 Environmental responsibility Green consumption intent	Effect	0.442	0.051	7.110	***	Confirmation
Environmental responsibility Environmental ConcernGreen consumption intention	Direct impact	0.359	0.074	4.061	***	Confirmation
	Indirect effect	0.083	Confidence interval (-0.103, 0.219)			Rejection
Compliance values: CMIN/DF: 3.155, RMSEA: 0.072, GFI: 0.927, AGFI: 0.895, CFI: 0.940, TLI: 0.926, IFI: 0.941, NFI: 0.916, SRMR: 0.052						

$^{*}p < 0.05$

Table 8 Analysis Results on the Moderator Role of the Structural Model

Regulator	β	Standard error	t	p
H5 Environmental responsibility (X)	0.4866	0.0699	6.9570	0.0000*
Price sensitivity (W)	0.0852	0.0370	2.3020	0.0218*
Interaction (X*W)	0.0195	0.0081	2.4030	0.0167*
H6 Environmental concern (X)	0.4389	0.0642	6.8363	0.0000*
Price sensitivity (W)	0.0727	0.0377	1.9293	0.0544
Interaction (X*W)	0.0153	0.0067	2.2897	0.0225*

*$p < 0.05$

environmental degradation as a result of developing economic activities, Fisk (1973) defined environmental degradation as a consumption problem in the marketing literature (Kilbourne & Pickett, 2008).

To summarize the research findings, Turkish consumers are environmentally responsible and concerned about environmental degradation. Environmental responsibility and environmental concern have a significant relationship with green consumption intention. The findings predicted that environmental responsibility directly affects green consumption intention. This result supports previous research that revealed a significant relationship between environmental responsibility and green consumption intention (Jaiswal & Bihari, 2020; Kumar & Ghodeswar, 2015; Musova et al., 2021). Another important finding of this research is that environmental responsibility affects consumers' environmental concerns. This finding enriches existing green consumption research. Consumers' environmental responsibilities become a major concern, as stated by Garg et al., (2021). This result, which reveals an important relationship, supports the research of (Yue et al., 2020). Another important finding of the study is that environmental concern as a determinant of green consumption intention supports previous findings (Fraj & Martinez, 2007; Joshi & Rahman, 2015; Khare, 2015; Kim & Choi, 2005; Kumar et al., 2021; Maichum et al., 2016). The remarkable finding of the study is that environmental concern does not have a mediating role in the relationship between environmental responsibility, environmental concern and green consumption intention. This finding did not support the research result of Yue et al., (2020). In summary, the findings suggest that consumers' environmental responsibility can increase environmental concern and have a positive effect on their green consumption intentions. In addition, environmental concerns also positively affected green consumption intention.

The results of the research so far have revealed that environmental responsibility and environmental concern are important predictors of green consumption intention, independent of price sensitivity, while on the other hand, the moderator role of price sensitivity has revealed the tendency of consumers not to consume partially high-priced green products. As Erdil (2018) stated, despite the changing reactions of consumers to environmental problems, price sensitivity remains a criterion affecting green consumption decisions, especially in developing economies. While this result supports most research findings in the literature (Hartono et al., 2020; Saleki et al., 2019; Zinoubi, 2020), it did not support some research findings (Chekima et al., 2016; Laroche et al., 2001; Michaud et al., 2013).

5.1 Theoretical Contributions

Anderson (1996) stated that price sensitivity is the degree to which an individual accepts price increases for a particular product in terms of economic and psychological gains (Hsu et al., 2017). From this point of view, environmental responsibility, which is a psychosocial variable, stands as an indicator that consumers are psychologically ready to contribute to the solution of environmental problems individually. A positive change in the relatively high prices of green products is promising for the environment, as an indication that consumers in Turkey may prefer their personal interests to environmental social interests. As a matter of fact, the fact that environmental responsibility affects environmental concern and green consumption intention is seen as proof of this. Therefore, this research makes an important theoretical contribution to understanding the environmental responsibility of consumers and the impact process of environmental concern on green consumption intention.

5.2 Implications for practice

As expressed in the conceptual framework of the research, environmental behavior is a very complex phenomenon both in terms of causal influencers on behavior and in terms of its diversity. Therefore, the findings of this research also contribute to businesses to better understand the complex background of the green consumption process. It is thought to provide useful information in terms of better predicting consumers' intentions toward green products and responding better to their environmental responsibilities and concerns, as well as to price sensitivities. However, businesses can encourage the use of green products with campaigns that will encourage price-sensitive consumers to buy. Therefore, businesses can encourage consumers to pay more for green consumption by emphasizing their environmental responsibility and environmental concerns. On the other hand, public policy makers, universities and non-governmental organizations working for the benefit of society can increase the environmental responsibility and environmental anxiety levels of consumers by drawing attention to environmental problems with short educational messages such as public service announcements.

5.3 Limitation and recommendations

As in every research, the most important limitation of this research is that it was conducted only in Çorum. It can be repeated with larger study universe. The research findings were tested by focusing on a general green product category only in Turkey. In terms of generalizability of the findings, it can be replicated in other countries. In addition, this research focused on environmental responsibility and tested the variables of environmental concern and price sensitivity in determining green consumption intention. Environmental knowledge and availability of green products can be included in future research.

Author contribution YD was involved in investigation; project administration; supervision; review & editing; conceptualization; resources. LA helped in formal analysis; writing—original draft; normal analysis; writing—original draft; validation; methodology.

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Declarations

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