Purchasing Intention of Green Cosmetics Using the Theory of Planned Behavior: The Role of Perceived Quality and Environmental Consciousness

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The recent environmental issues the world has been experiencing recently have increased the awareness of consumers of the necessity of a sustainable consumption pattern to preserve the natural environment. Therefore, green consumption has increased, and companies needed to respond to the rising demand for green products by offering a wider selection of environment-friendly products for green consumers. This article aims to study the purchasing intention of green cosmetics in the case of female student consumers in Hungary. The paper extended the theory of planned behavior by including perceived quality and environmental concern as factors that influence the attitude of consumers towards green cosmetics. This research also takes into consideration the effect of subjective norms on the purchasing intention of green cosmetics. The study employs a quantitative study conducted in Hungary in December 2021 (n = 200). The data was analyzed using PLS-SEM to assess the proposed hypotheses. The results of the study were in line with the literature, with perceived quality and environmental concern having a positive influence over the attitude towards green cosmetics. Attitude and subjective norm also had a significant influence on the purchasing intention of green cosmetics. This research provides new insights into how managers can advance the consumption of green cosmetics, by enhancing the quality of their products and focusing their strategies on answering the concerns of consumers towards the environment.

Keywords: *Theory of Planned Behavior, perceived quality, environmental concern, green cosmetics, consumer behavior*

JEL Classification: *M31*

1. Introduction

The behavior of consumers changed in recent years as a result of the environmental changes the world has been experiencing. Consequently, the awareness of consumers increased and the demand for green products also increased (Ogiemwonyi and Harun, 2020). Indeed, the recent decades have witnessed a rapid rise in consumers preferring green products over conventional ones (Rana and Paul, 2017). One main

consequence of this increase in green consumerism is the orientations of companies towards the development and the production of products that are less harmful to the environment, and such companies have the choice between choosing to produce a fully green product portfolio or having a product line that mixes between green and conventional products (Dangelico and Vocalelli, 2017).

The green movement influenced various industries, including the food industry (Scherer, Emberger-Klein and Menrad, 2018) and the cosmetics industry (Dimitrova et al., 2009). Green cosmetics have various definitions. For instance, they were defined by (McEachern and McClean, 2002) as a set of multifaceted constructs, aiming to preserve the environment, in addition to the minimization of pollution, increasing the responsible use of non-renewable resources, and preserving the welfare of animal and species. Green cosmetics are also defined as natural cosmetics that are made out of natural resources, such as fruit-based ingredients, without using chemicals or additives, or any non-natural mixtures (Shimul et al., 2022). In this research, green cosmetics include cosmetic products that reflect both natural cosmetics, and products that enhance sustainability.

Various factors influence the purchasing intention of different green products, and the main drivers differ depending on the product type (Liobikienė and Bernatonienė, 2017). For instance, social, internal, and external factors need to be considered when studying personal care products and color cosmetics. Indeed, special attention needs to be extended to health consciousness when treating personal care products (Liobikienė and Bernatonienė, 2017).

Nevertheless, further attention needs to be focused of the study of more factors that influence the purchasing intention of consumers, notably the perceived quality and environmental concern of consumers, since few studies paid attention to the combination of these variables and the impact they can have on the intention to purchase green cosmetics. Therefore, this study aims to study the influence of perceived quality and environmental concerns of student female consumers in Hungary. The methodology used is quantitative, and it was enhanced by the theory of planned behavior (TPB). This theory has been extensively used in studying the purchasing intention of consumers (Ajzen, 1991). The TPB focuses on assessing the relationships between behavioral intentions and attitudes, in addition to subjective norms and perceived behavioral control. This model has also proved effective when it comes to the prediction of green consumer behavior (Qi and Ploeger, 2021).

This study extended the theory of planned behavior by adding two variables: perceived quality and environmental concern. These variables were proven to have an important role in influencing the purchasing intention of green cosmetics, but further investigation is required. The extending variables will be explained in the following section.

2. Literature Review

The article implements the theory of planned behavior (TPB), as the conceptual framework aimed to understand and explain the purchasing intention for green cosmetics. TPB is employed as a tool to understand behavior in different areas (Yang et al., 2018), notably in the area of green cosmetics (Askadilla and Krisjanti, 2017a). The existing studies aiming to explain the purchasing intention for cosmetic products successfully used this framework (Singhal and Malik, 2018, pp. 514-531; Sajinčič et al., 2021, p. 78; Shimul et al., 2022). Nevertheless, it is still crucial to determine the factors that influence the purchasing intention, to have a better understanding of the behavior of consumers towards green cosmetics (Kim and Chung, 2011; Akter and Islam, 2020).

According to the literature, intention refers to the plan, commitment, or the decision of a person to execute an action (Madden et al., 1992, pp. 3-9). It is also considered as the antecedent and direct determinant of future behaviors (Ajzen, 1991). Thus, the dependent variable in this study is the purchasing intention, which can be defined as the determination to operate in a specific way as a means to purchase. Purchasing intention is marked by the willingness of individuals to complete a behavior, where the intention itself is the direct determinant of the actual purchasing behavior (Ajzen, 1991).

2.1. The Influence of Attitude on the Purchasing Intention

Attitude portrays what consumers like or dislike, through a process of evaluation that can be either positive or negative (Amoako et al., 2020). Attitude is considered one of the strongest determinants of behavior towards green products, and the stronger the attitude, the stronger the purchasing intention will be (Liu et al., 2020; Shah *et al.*, 2021). Various studies confirmed the role of attitude in enhancing the purchasing intention for green cosmetics, and it was found that attitude was one of the most prominent predictors of intention (Amin et al., 2020; Pop et al., 2020; Sajinčič *et al.*, 2021). Thus, the first hypothesis of the research is as follows:

H1: The attitude of consumers towards green cosmetics has a positive influence on their purchasing intention.

2.2. The Effect of Subjective Norm on The Purchasing Intention

Subjective norm is one of the main constructs of the theory of planned behavior, and it refers to the perception of how individuals perceive how their peers would assess an action (Hameed et al., 2019). Therefore, the performance of certain behaviors is influenced by the individual's perception of social pressures (Teixeira et al., 2021). Consumers often buy products because of the influence of their peers, or to maintain their social relationships, or to achieve other social functions (Vermeir and Verbeke, 2006). Thus, individuals form beliefs regarding how their reference groups will perceive them if they are involved in certain behaviors, and such perceptions have a significant influence over their purchasing intention of green cosmetics. The extant literature demonstrates the positive influence of subjective norms over the purchasing intention of green cosmetics (Askadilla and Krisjanti, 2017b; Sajinčič et al., 2021; Sharma et al., 2021; Shimul et al., 2022). Therefore, based on existing literature and the theory of planned behavior, the following hypothesis is proposed:

H2: Subjective norm has a positive influence over the purchasing intention of green cosmetics.

2.3. The Environmental Concern of Consumers

Environmental concern concentrates on the protection of the environment without considering any benefits for oneself (Ebreo et al., 2002, pp. 219-244). Environmental concern was proven to be one of the main constructs that exhibit an influence over the attitudes of consumers, and they were surpassed in explaining attitudes and intentions by health and product quality (Singh and Verma, 2017, pp. 473-483). Thus, various studies proved that environmental concerns can positively influence attitudes towards green products. For instance, (Thøgersen, 2011, pp. 1052-1076) and (Zou and Chan, 2019, pp. 113-127) proved that consumers showcase their pro-environmental behavior and their concern for the environment through purchasing organic food and green products. The same results were emphasized by Wojciechowska-Solis and Barska (2021, p. 138) who also found that consumers prove their pro-environmental behavior through purchasing organic and green products. Ahmed et al. (2020, pp. 796-833) also concluded that environmental concern is important when it comes to explaining the purchasing intention of organic food in the case of young consumers, who are also environmentally conscious. In the perspective of green cosmetics, Kim and Chung (2011, pp. 40-47) found that the environmental consciousness of consumers has a positive influence over the attitude towards purchasing organic personal care products, and it was considered an important predictor of the intention to purchase green cosmetics. Consequently, based on these arguments, we hypothesize that:

H3: Environmental concern has a significant influence over the attitude towards green cosmetics.

2.4. Perceived Quality

Perceived quality is defined as the overall quality judgment of products and services (Navitha Sulthana and Vasantha, 2021, pp. 1-5). It also refers to the quality of a product or a service perceived, which has the potential to influence the purchasing decisions of consumers (Wang et al., 2020, p. 108). Perceived quality was considered in various studies a factor that affects the decision of consumers. Indeed, the perceived quality of organic food, in addition to the taste, freshness, and health aspects, display a positive influence over the attitudes of consumers when it comes to purchasing organic food (Jánská et al., 2020, pp. 81-94). Also, various authors (Gil et al., 2000, pp. 207-226; Fleseriu et al., 2020, pp. 1-21) proved that consumers pay great attention to whether the food they are consuming is safe or not, therefore, their purchasing intention is influenced by

food safety, and they believe that organic food is safer than conventional food, which increases their purchasing intention of organic food. Thus, based on these arguments, we hypothesize that:

H4: perceived quality exhibits a positive influence on the attitude towards green cosmetics.

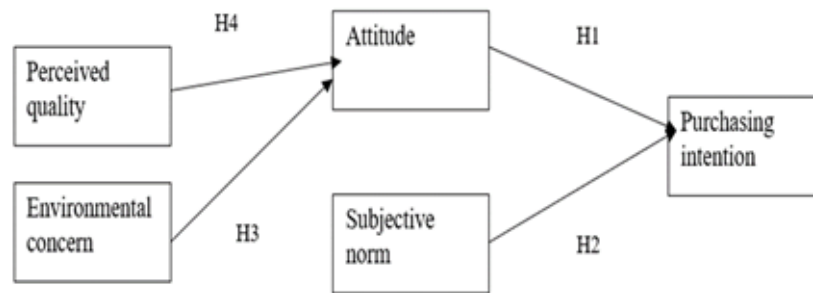The hypotheses of the study are summarized in figure 1.

Figure 1. Conceptual model

3. Research Methodology

In order to analyze our extended model, structural equation modeling was used. SEM is a method that has been used in various fields of research (Berki-Kiss and Menrad, 2022, pp. 79-89). Structural equation modeling (SEM) helps in clarifying interrelationships among multiple variables (Sahoo, 2019, pp. 269-276). The application of this method can be done either through the covariance-based approach (CB-SEM) or the variance-based approach (PLS-SEM) (Hair et al., 2014, pp. 139-152). PLS-SEM handles problematic modeling issues occurring customarily, such as unusual data characteristics and highly complex models (Hair et al., 2014, pp. 139-152). The PLS-SEM was applied in this study, using SmartPLS 3 due to the small size of the sample (Hair et al., 2014, pp. 139-152). It is recommended the usage of two-stage analytical procedures, by firstly evaluating the measurement model and then assessing the structural model, to test the hypothesized relationship (Anderson and Gerbing, 1988, pp. 411-423). To test the significance of the path coefficients, a bootstrapping method was used (Hair et al., 2014, pp. 139-152).

3.1. Participants and Data Collection Techniques

The study was based on data collected online via a survey that was distributed from the 1st of December 2021 until the 1st of January 2022. The population of interest included international students in Hungary. The study sample consists of 204 international students living and studying currently in Hungary (n = 204).

The data were collected online through a structured questionnaire, that was developed after a deep review of the available literature. The questionnaire reported on the variables highlighted in the study model, including environmental concern and perceived quality. Grounded on recommendations made by (Ajzen, 1985, pp. 11-39), scales including multiple items were developed to measure the variables emphasized by the study. A 7-point Likert scale to denote the extent to which they agreed or disagreed with an ensemble of statements measuring the variables of our study (1= strongly disagree to 7= strongly agree). Statements from previous studies were used to measure the constructs of the current study. Table 1 shows the survey statements contained in the questionnaire. A pilot study of 50 participants was conducted to check the validity and reliability of the questionnaire. Furthermore, the Cronbach alpha demonstrated reliability considered to be good-to-excellent, ranging from 0.736 to 1 (Table 2).

Table 1. Questionnaire statements

Construct	Statements	Source
Perceived quality	Green cosmetics have superior quality Green cosmetics are reliable Green cosmetics are effective	(Petrick, 2017, pp. 119-134)
Environmental concern	Humans must maintain the balance with nature to survive The interference of humans with the environment creates disastrous consequences Humans are abusing the environment I focus on environmentally friendly cosmetics while purchasing cosmetic products	(Teixeira et al., 2021, p. 242)
Subjective norm	Most people who are important to me think I should buy green cosmetics	(Teixeira et al., 2021, p. 242)
Attitude towards green cosmetics	Buying green cosmetics is a good idea Buying green cosmetics is a wise choice Buying green cosmetics would be pleasant I like the idea of buying green cosmetics	(Teixeira et al., 2021, p. 242)
Purchasing intention of green cosmetics	I am willing to purchase green cosmetics while shopping I will try to purchase green cosmetics in the near future I intend to purchase green cosmetics in the near future	(Teixeira et al., 2021, p. 242)

4. Results

4.1. Profile of respondents

The sample used in the study is composed of international female students, who are living and studying in Hungary. When it comes to the educational level, 50% of respondents are continuing their bachelor's degree, 38.2% are pursuing their master's degree, and 11.8% are currently pursuing their Ph.D. degree.

4.2. Assessment of the measurement model

As part of assessing the measurement model, three items were removed (ATT2, EC2, and EC3) from the analysis since their factor loadings were lower than 0.600) (Gefen and Straub, 2005). To test constructs' reliability, the study employed Cronbach's alpha and composite reliability (CR). All the CRs were superior to the advised value of 0.700 (Hair et al., 2014, pp. 139-152). Cronbach's alpha of each construct was larger than the 0.700 thresholds. Convergent validity was also accepted since the average variance extracted (AVE) was higher than 0.500. The results for reliability and validity and the factor loadings for the items are described in Table 2. Discriminant validity was evaluated by the Fornell-larker criterion. The table demonstrates that the square root of AVE for the construct was greater than the inter-construct correlations (Table 3). Discriminant validity was assessed by the Heterotrait-monotrait ratio of correlations (Henseler et al., 2015, pp. 115-135), with values below the threshold of 0.90. Consequently, discriminant validity is established (see Table 4).

Table 2. Loadings, Reliability, and Validity

	Loadings	Cronbach's Alpha	Composite reliability	AVE
ATT1	0.810	0.736	0.848	0.650
ATT3	0.821			
ATT4	0.788			
EC1	0.942	0.873	0.940	0.888
EC4	0.942			
PI1	0.816	0.777	0.870	0.690
PI2	0.809			
PI3	0.866			
PQ1	0.848	0.792	0.878	0.706
PQ2	0.865			
PQ3	0.807			
SN1	1.000	1.000	1.000	1.000

Note: ATT refers to attitude, EC refers to environmental consciousness, PQ refers to perceived quality, SN refers to subjective norm, and PI refers to purchasing intention.

Table 3. Fornell-Larker Criterion

	ATT	EC	PI	PQ	SN
ATT	0.807*				
EC	0.557	0.942*			
PI	0.665	0.391	0.831*		
PQ	0.393	0.275	0.409	0.840*	
SN	0.544	0.496	0.269	0.351	1.000*

Source: * Square-root of AVE.

Table 4. HTMT ration

	ATT	EC	PI	PQ	SN
ATT					
EC	0.698				
PI	0.837	0.472			
PQ	0.500	0.332	0.515		
SN	0.651	0.531	0.302	0.395	

4.3. Assessment of Structural Model

The structural model represents the paths assumed in the research background. A structural model is evaluated based on the R^2, Q^2, and paths' significance. 37.2% change in attitude can be attributed to perceived quality and environmental concern. 45.4% change in purchasing intention of green cosmetics is attributed to the perceived quality, environmental concern, attitude towards green cosmetics, and subjective norm. Both of the R^2 values are greater than 0.1 (Falk and Miller, 1992, p. 80). Thus, predictive capability is founded. Q^2 for attitude towards green cosmetics and the purchasing intention of green cosmetics is superior to 0, which implies that the model has predictive relevance. The value of SRMR was 0.081, which is lower than the required value of 0.20, suggesting an acceptable model fit (Hair et al., 2017, p. 165).

To further assess the goodness of fit, hypotheses were tested to confirm the significance of the relationship. H1 estimates whether ATT has a positive influence on the PI. The results showed that ATT does actually exhibit a significant influence on PI ($\beta = 0.736$, t = 15.144, p < .05). Therefore, H1 was accepted. H2 studies whether SN has a meaningful influence on the PI. The results showed that SN has a positive impact on PI ($\beta = -0.131$, t = 1.971, p < .05). Consequently, H2 was accepted. H3 studies if EC has a significant impact on ATT. The results showed that EC does indeed have a positive influence on ATT ($\beta = 0.485$, t = 8.650, p < .05). Therefore, H3 was accepted. H4 studies whether PQ has a significant influence on the ATT. The results demonstrated that PQ has a positive impact on ATT ($\beta = 0.260$, t = 4.343p < .05). Hence, H5 was accepted. The 5000 resamples of the study generated 95% confidence intervals as shown in Table 5. A confidence interval different from zero indicates a significant relationship. The results from hypothesis testing are summarized in Table 5.

Table 5. Hypothesis testing results

	β	STDEV	T Statistics	P Values	2.5%	97.5%
ATT -> PI	0.736	0.049	15.144	0.000	0.633	0.824
EC -> ATT	0.485	0.056	8.650	0.000	0.371	0.578
PQ -> ATT	0.260	0.060	4.343	0.000	0.145	0.380
SN -> PI	-0.131	0.066	1.971	0.049	-0.258	-0.007
	R^2	Q^2				
ATT	0.372	0.233				
PI	0.454	0.299				

5. Discussion

The actual study assesses the influence of perceived quality, environmental concern, subjective norms, and the attitude toward green cosmetics on the purchasing intention of green cosmetics. The contribution of this study to the literature lies in the examination and enhancing the effects of the TPB variables on the purchasing intention of green cosmetics and exploring the effects of perceived quality and environmental concern on green attitude.

Based on empirical evidence, the study found a significant relationship between the attitude towards green cosmetics and the purchasing intention of green cosmetics. These findings are in line with the extant

literature, that identified the important role of attitude in influencing the intention of consumers to purchase green cosmetics (Singhal and Malik, 2018, pp. 514-531; Pop et al., 2020, p. 447; Shimul et al., 2022). Thus, when consumers build a positive attitude towards green cosmetics, they will exhibit a positive intention towards purchasing such products. Nevertheless, the study also showed that building a positive attitude towards green cosmetics was encouraged by the perceived quality and environmental concern. Indeed, both perceived quality and environmental concern displayed a positive influence on the attitude towards green cosmetics. These results are in line with the existing literature regarding green products (Rana and Paul, 2017, pp. 157-165; Singh and Verma, 2017, pp. 473-283; Zou and Chan, 2019, pp. 113-127; Wojciechowska-Solis and Barska, 2021, p. 138).

Therefore, when consumers display a high concern for the environment, their attitude becomes more oriented towards green products. Indeed, this is the case of green cosmetics in our study, where consumers are concerned for the environment and they display this concern through a positive attitude towards green cosmetics, leading to a positive purchasing intention towards such products. Perceived quality also impacts the attitude of consumers towards green products, which was also the case of green cosmetics. Consumers who perceive that green cosmetics are superior quality-wise to conventional cosmetics, exhibit a positive attitude towards green cosmetics.

Consumers evaluate the quality of products based on various characteristics such as the brand image, the performance of the product, the design of containers and their components, and the marketing stimuli (Kim and Lee, 2016, pp. 15-22). Thus, when consumers recognize green cosmetics' superior quality through these components, in addition to the existence of natural components that guarantee their safety and the safety of the environment, they choose to opt for such products rather than the conventional ones. The study also found a significant impact of subjective norms on the purchasing intention of green cosmetics. These results are in line with the existing literature (Ghazali *et al.*, 2017, pp. 154-163; Shimul et al., 2022). The purchasing intention of consumers can be influenced by the need to comply with the expectations of others, notably friends and family. Therefore, our results portray that the intention to purchase organic products is influenced by social influence.

6. Conclusion

This paper attempted to assess the influence of the perceived quality, environmental concern, attitude towards green cosmetics, and subjective norms on the purchasing intention of green cosmetics. This research adds to the literature of the TPB by proving that consumers who are concerned about the environment, and who prioritize quality display a positive intention to purchase green cosmetics. The data have been analyzed using PLS-SEM. The empirical findings of the study prove that perceived quality has a positive influence over the attitude towards green cosmetics, and the same results were found in the case of environmental concern. Thus, when consumers build a positive attitude towards green cosmetics, their purchasing intention of such products is also influenced in a significant manner. Furthermore, the subjective norm was also found to display a positive influence over the purchasing intention of green cosmetics. Hence, consumers who want to comply with social norms opt for such products.

This research has several significant implications. Theory-wise, the study was capable of proving the influence of PQ, EC, ATT, and SN on the purchasing intention of consumers. The results can also help marketers tailor their strategy to the stream of consumers who give great importance to perceived quality and are concerned about the environment, by focusing their efforts, by highlighting the superior quality of green cosmetics, in addition to their contribution to the protection of the environment, by emphasizing their green qualities.

6.1. Implications for Managers

The findings of this study are valuable for both marketers and managers, since they provide information about the intention of consumers to purchase green cosmetics, while taking into consideration perceived quality and environmental consciousness. The results of this study can help marketers in coming up with a marketing strategy designed especially for the stream of consumers who have high environmental consciousness, and who place the environment in the middle of their purchasing decisions. The results of our study can also help marketers target a new segment of consumers, more precisely consumers who care the

most about the quality of cosmetics they use. Efforts of marketers can be focused on the high quality of their products, and their contribution to the protection of the environment.

6.2. Limitations of the Study

The sample used includes students who live and study in Hungary. Future studies could compare between samples collected from different countries, to highlight the influence of cultural differences on the purchasing intention of green cosmetics, to also help marketers in differentiating the green strategies. The study also considered only two variables, notably environmental consciousness, and perceived quality, and how they influence the purchasing intention of consumers. Future studies can consider different set of variables and highlight how they influence the purchasing intention of green cosmetics. Future studies can also examine the actual purchasing behavior of green cosmetics.

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