

## **Consumers' decision to purchase online ecological personal care products: a moderated TPB model**

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### ***Abstract***

This study aims to examine the ability of an extended, with past behaviour, Theory of Planned Behaviour (TPB) model to explain Greek young consumers' (generation Y) intentions to purchase online ecological personal care products (EPCPs). In addition, an effort was made to examine the moderating role of health consciousness in the structural relationships of the extended TPB model. An electronic survey was conducted in the region of Central Macedonia, Greece and the quota sampling resulted in 1,676 usable questionnaires. The results indicate that perceived behavioural control has a stronger effect on consumers' intentions to purchase EPCPs, followed by past behaviour, subjective norms and attitudes. Moderation analysis revealed that Health Consciousness strengthens the structural relationship between attitudes and intentions while it weakens the structural relationship between subjective norms and intentions, explaining almost 20% more of the variance in consumers' intentions to purchase online ecological personal care products.

**Keywords:** ecological personal care products, online purchasing, tpb, past behaviour, health consciousness

## 1. Introduction

For more than three decades, the environmental awareness of consumers has been reflected in sustainable consumption behaviours (Quoquab et al., 2019). Today, more than ever, the green trend is evident worldwide and more consumers are turning to green products and avoiding those that damage the environment (Ghazali et al., 2017). Consumers seek to buy environmentally friendly products (Papista and Dimitriadis, 2019; Rahimah et al., 2018) for the benefit of future generations (Saari et al., 2021), while satisfying individual needs remains high in their purchasing motivation (Pathak et al., 2021; Yue et al., 2020; Chin et al., 2018; Lin et al., 2017). Further, there have been arguments that younger consumers (i.e. generation Y or Millennials born between 1980 and 1996) are more concerned about environmental destruction and more willing to adjust their consumption practices in favour of environmental protection (Allen and Spialek, 2018; Muralidharan et al., 2016) while they are technology literate as well (Khan et al., 2021; Moslehpour et al., 2021; Kadic-Maglajlic et al., 2019).

Over the past years, the research efforts have mainly focused on the investigation of consumer behaviour in regard to organic or ethical food (Karamani et al., 2020; Ghazali, 2017; Lin et al., 2017; Yadav & Pathak 2016; Chen, 2009). On the other hand, new ecological products or product categories have entered the market. In recent years, there has been a tendency towards the production and consumption of green and organic personal care products (Statista, 2022; Shimul et al., 2021; Amberg & Fogarassy, 2019). Nevertheless, the market share of natural and organic cosmetics only accounts for about 5% of the total market (CBI, 2022). There has been scant research on understanding consumers' decision-making with regard to choices of green personal care products (Jaini et al., 2020; Sun et al., 2019; Hsu et al., 2017; Liobikien & Bernatonien, 2017; Paul et al., 2016).

Recently, it has been reported that online shopping for personal care products is growing rapidly, especially during the COVID-19 pandemic (Cosmetics Europe, 2020). Based on International Trade Administration figures (ITA, 2021), there was an increase of 19% in worldwide e-commerce revenue between pre-and-post COVID-19 timeframes in 2020. Food and personal care products show higher growth, with a forecast increase of 26% of revenue as a result of the consumer transition to online sales channels. However, there is no evidence regarding online shopping for ecological personal care products. Until now very limited attention has been paid to online shopping behaviour in the context of ecological cosmetics (Matić et al., 2018). However, the literature indicates that Gen Y is the largest group of people who seek to purchase online products (Bathmanathan et al., 2019; Chaney et al., 2017). It has been suggested that this generation would prefer to purchase green products through online platforms because technology is part of their everyday life (Pajadurai et al., 2021).

With regards to the theoretical perspectives under which the research efforts have so far tried to explain consumers' pro-environmental behaviours in any product category, the most frequently used in the literature is Ajzen's (1991) Theory of Planned Behaviour/TPB (Shimul et al., 2021; Pop et al., 2020; Ghazali et al., 2017; Nguyen et al., 2016; Zhou et al., 2013; Kim & Chung, 2011). Many researchers have also tried to expand the TPB model by incorporating other direct or indirect determinants of behavioural intentions (Shimul et al., 2021; Ghazali et al., 2017; Nguyen et al., 2016; Zhou et al., 2013; Kim & Chung, 2011), among which past-behaviour has been found able to add to the explanatory power of TPB with regards to organic personal care products (Kim & Chung, 2011).

Further, in the examination of organic food and ecological cosmetics, there have been suggestions that health consciousness plays a significant role, which adds in the explanation of consumer behaviour (Jaini et al., 2020; Shahrin et al., 2020; Kim, & Chung, 2011; Kim & Seock, 2009). Kim & Seock (2009) claimed that there might be a shift in consumption patterns by health-conscious consumers, who believe that their consumption choices have a direct impact on their health. The rising health concerns have fuelled the demand for ecological products, such as personal care products (Shimul et al., 2021; Ghazali et al., 2017).

Nevertheless, there have been suggestions that there is a grid of inter-relationships among the predictors of intentions and behaviours (Riskos et al, 2022; Delistavrou et al. 2021; Gifford and Nilsson, 2014). In this direction, moderation analysis has been suggested to add to the understanding of those inter-relationships (Qu et al., 2019; Demming et al., 2017; Chatzidakis et al., 2016; 2007).

This study seeks to make a contribution to this specific area, given that it is the first study, to the best of our knowledge, to test the classic TPB model to understand Gen Y purchase intentions of ecological personal care products in an online context. More specifically, this study examines the ability of an expanded with past-behaviour TPB model to explain young consumers' (generation Y) intentions to purchase online ecological personal care products. An effort was made to add to the understanding of consumers' decision-making by the examination of the moderating role of Health Consciousness in the relationships between intentions and attitudes, subjective norms, perceived behavioural control and past behaviour.

## 2. THEORETICAL BACKGROUND AND REVIEW OF THE LITERATURE

### 2.1. Purchasing personal care products

Consumer behavior is a process that involves several steps or procedures in order for someone to fulfil his/her needs, wants and desires (Belch & Belch, 2004). This procedure is affected by several internal and external factors (Hirschman, 1985). There are two basic models found in the literature for explaining consumer behaviour: the Engel, Kollat, Blackwell model, and the Hawkins, Best, Coney model. Both of them take into account the important role of the emotions in driving purchase decisions as well as individual perceptions and individual preferences (Anslie, 1982). The influence of cognitive and affective procedures on consumers' decision making has to be studied and analysed (Hoch & Loewenstein, 1991).

Suelin (2010) claims that consumers make two kinds of purchases, planned and impulsive. The cognitive procedures are responsible for the planned purchases and the affective ones drive impulsive purchases. The balance between these two determines the degree of impulsiveness (Weinberg & Gottwald, 1982).

It is well known that socially driven expectations regarding someone's physical presentation dictate individuals' acceptance, happiness and success (Wolf, 2002). The "internal need" to be loved, appreciated and accepted leads to the desire to obtain the finer things in life and hence personal care products are purchased based both on societal reasons and psychological reasons related to the self.

Vergura et al. (2020) showed that the major driver of buying intentions of personal care products (PCP) is their utilitarian attitude, established by favourable perceptions of the effectiveness, helpfulness and functionality attributes of organic PCP. The effect of the hedonic attitude was also significant and positive. Results also showed that subjective knowledge of organic PCP determines the consumer's positive utilitarian and hedonic attitude towards these products. This reflects the fact that if consumers perceive themselves as having good familiarity and understanding of the features and benefits of organic PCP, they are more likely to generate positive attitudes, which in turn leads to a greater purchase intention.

### 2.2. Theory of Planned Behaviour (TPB) and Past Behaviour

Theory of Planned Behaviour/TPB (Ajzen, 1991) focuses on the examination of behavioural intentions as a prerequisite of actual behaviour. Within the TPB model, Ajzen (1991) argued that Attitudes (At), Subjective Norms (SN), and Perceived Behavioural Control (PBC) affect behavioural intention, which in turn affects actual behaviour. Attitudes refer to people's evaluative judgment of the behaviour under examination and it is claimed that those who hold a positive judgement of the behaviour will form a higher intention to perform the behaviour (Ajzen, 1991). Subjective Norms refer to an individual's perceptions about the expectations of his/her reference cycle regarding the examined behaviour (Ajzen, 1991). It is argued that individuals who perceive that people who are important to them expect them to behave in a certain manner will form their intentions accordingly (Ajzen, 1991). Perceived Behavioural Control refers to people's perceptions about the means and opportunities as well as their own ability to perform a behaviour (Ajzen, 1991). It is claimed that individuals who feel that they have the means and opportunities and the confidence to perform a behaviour will form stronger intentions to do so (Ajzen, 1991).

In the field of green purchase behaviour, many authors have pointed out that attitude is one of the predictors with the greatest impact (Carrión Bóscuez & Arias-Bolzmann, 2021; Nosi et al., 2020). With regards to the specific product category of ecological personal care products (EPCPs), TPB has provided evidence of attitude's ability to explain and/or predict consumers' intentions (Shimul et al., 2021, green cosmetics, South Africa; Askadilla & Krisjanti, 2017, green cosmetic products, Indonesia; Ghazali et al., 2017, organic personal care products, Malaysia; Hsu et al., 2017, green skin care products, Taiwan; Kim & Chung, 2011, organic personal care products, the USA). In those studies, Attitudes were found to be the stronger predictor of behavioural intentions. Subjective norms were found to affect intentions to an extent in most cases (Shimul et al., 2021; Askadilla & Krisjanti, 2017; Hsu et al., 2017; Kim & Chung, 2011) while insignificant results were reported by Ghazali et al. (2017). Perceived Behavioural Control was found to have some impact in most studies (Askadilla & Krisjanti, 2017; Ghazali et al., 2017; Hsu et al., 2017; Kim & Chung, 2011), while in a more recent study the relevant relationship was insignificant (Shimul et al., 2021).

Based on the theoretical arguments of TPB and the review of the relevant literature, the following hypotheses were set:

*H<sub>1</sub>: Attitudes affect Intentions to Purchase online ecological personal care products*

*H<sub>2</sub>: Subjective Norms affect Intentions to Purchase online ecological personal care products*

*H<sub>3</sub>: Perceived Behavioural Control affects Intentions to Purchase online ecological personal care products*

Previous efforts to expand the TPB model by adding intentions' determinants or background factors i.e., determinants of At, SN and PBC, did not provide evidence of a clear factor that could add to our understanding of consumers' intentions to buy EPCPs. Shimul et al. (2021) tried to expand TPB with the addition of health consciousness, environmental motive and environmental knowledge but only the latter revealed a relationship with purchase intentions. However, they found that product involvement moderated the relationships between intentions and its determinants (Shimul et al., 2021). Ghazali et al. (2017) found very weak structural relationships between several constructs of values as well as product knowledge and attitudes. Hsu et al. (2017) conducted moderation analyses and found that place of origin and price sensitivity moderated the relationships of TPB and increased the explained variance in intentions to purchase green skin care products.

Ajzen (2011) acknowledged that measures of past behaviour had frequently been found to predict intentions "over and above attitudes, subjective norms and perceived behavioural control". Sommer (2011) pointed out that past behaviour appears in the literature with several terms, such as past experience or habits, and it is of particular importance. He indicated a considerable number of studies which have found encouraging results with respect to its influence on intentions or behaviour (Sommer, 2011). In the context of ecological personal care products, Kim & Chung (2011) found that USA consumers' past experiences added to the explanation of their intentions to buy organic shampoo or body lotion. Further, two of the above-reviewed studies investigated consumers who had purchased green cosmetics (Askadilla & Krisjanti, 2017) or organic personal care products (Ghazali et al., 2017) in the past, revealing the importance of previous purchases in the prediction of future behaviour. In accordance, as the context of this study is the online environment, it is expected that previous experience with online buying of EPCPs will positively affect intentions to perform the same behaviour in the future. Thus, the following hypothesis is proposed:

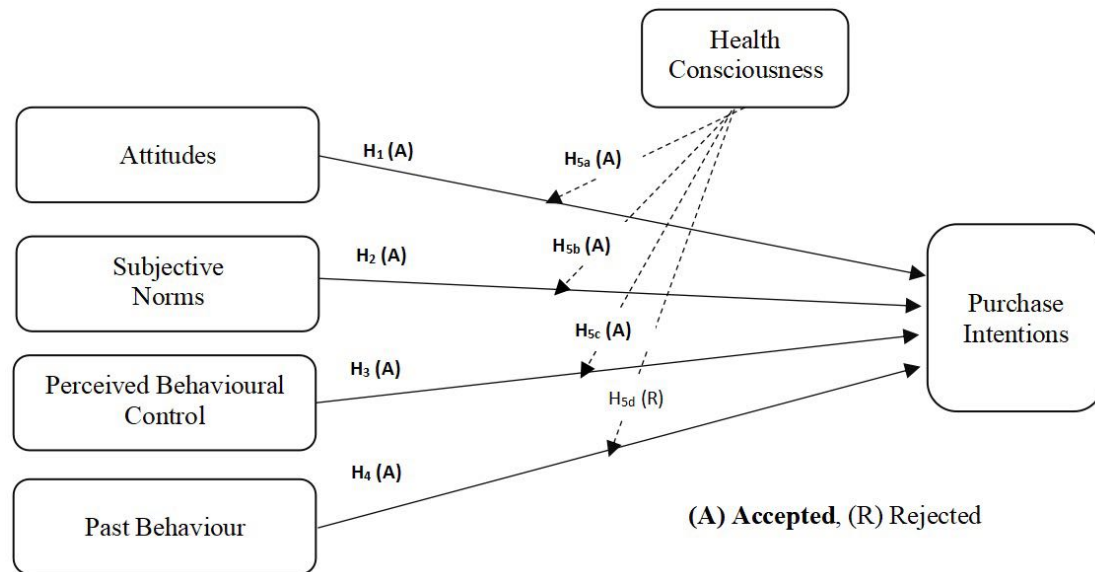
*H<sub>4</sub>: Past Behaviour affects Intentions to Purchase online ecological personal care products*

### 2.3. Health Consciousness

Health Consciousness refers to consumers' concern about their own health, while health-conscious consumers feel responsible for their health and are excellent customers for health-related products and services (Hong, 2009). Previous research has shown that concern about health guides people to engage in healthy behaviours (Jaini et al., 2020; Kim & Seock, 2009). Health-conscious consumers care about the desired state of their well-being (Kim, & Chung, 2011) and they are often involved in certain health-conscious behaviours. Previous studies have indicated that consumers who are conscious of their health often prefer to purchase natural and healthy products (Iqbal et al., 2021; Shahrin et al., 2020; Lin et al., 2017). With regards to ecological cosmetics, Amin et al. (2020) have found a very low correlation between Health Consciousness (HC) and intentions to buy eco-friendly cosmetic products. In other TPB models, HC has been examined as a predictor of Attitudes (a background factor) but it failed to provide statistically significant results by Shimul et al. (2021) and Kim & Chung (2011). In this study, HC is viewed as a part of the individual self-consciousness, which, according to Ajzen (2005), is considered to be a moderator of the relationship between attitudes and behaviour. Self-consciousness is considered to be a trait that refers to a person's awareness of aspects of him/herself such as feelings, motives and values. High awareness of their internal state (self-consciousness) is expected to drive a person to behave more in accordance with his/her dispositions than a person with low self-consciousness (Ajzen, 2005). In addition, as noted in the introduction, it has been suggested that moderation analysis will add to the understanding of the grid of the inter-relationships among the predictors of intentions. Following these directions, in this study, it was hypothesised that the structural relationships of the expanded TPB will alter in terms of consumers' high or low self-consciousness about the state of their health. Accordingly, the following hypothesis is set:

*H<sub>5</sub>: Health Consciousness moderates the structural relationships between a) Attitudes, b) Subjective Norms, c) Perceived Behavioural Control, d) Past Behaviour and Intentions to Purchase online ecological personal care products.*

Figure 1. Conceptual model and hypotheses



### 3. RESEARCH DESIGN AND METHODS

#### 3.1. Sampling

An electronic survey was conducted in the region of Central Macedonia, Greece due to COVID-19 restrictions during December 2020-January 2021. The electronic structured questionnaires were distributed through emails by 25 marketing graduate students of the International Hellenic University, Thessaloniki, Greece. A non-probability, quota sampling technique was employed (Churchill & Iacobucci, 2005). Gender and age distributions of the 2011 census statistics (H.S.A., 2015) were used for the calculation of the proportional sample quotas. The population unit was an adult (18-35 years old) resident of the region of Central Macedonia, Greece. The population was 367,546 residents (EL.STAT., 2015) and the sample size was estimated to be 4‰, which is much higher than the usual 1.5‰ used in the Hellenic Statistical Authorities household surveys (EL.STAT., 2018). In total, 1,676 usable questionnaires were collected.

As expected, due to the research subject, more women (57.5%) than men (42.5%) responded to the survey. In the final sample, 16.3% of the respondents were 18-20 years old, 32.3% were 21-25 years old, 24.5% were 26-30 years old and 26.9% were 31-35 years old. 40.6% of the sample were secondary school graduates, 31.2% were university graduates, 17% had graduated from a vocational training institute and 9.4% held a master's or a PhD degree. Only 1% of the sample had finished just elementary school.

#### 3.2. Questionnaire Construction

According to the TACT terminology (Ajzen & Fishbein, 1977), the four elements of a behavioural measure are the *target* at which the action is directed, the *action* involved, the *context* in which it occurs and the *time* of its occurrence. In this study, the target is the ecological personal care products, the action is purchasing, the context is the online environment and the time was determined to be the next six months. Following the principle of compatibility (Ajzen, 1991), all measures of the theoretical model which were found in the literature were adapted according to this study's TACT. The final questionnaire included the following latent variables, all measured on 7-point interval scales, which, according to Hair *et al.* (2010, p. 673), are able to provide a measurement of continuous variables (see Table 1):

Purchase Intentions (PI) consisted of three items measured on a Likert scale from 1=Strongly disagree to 7=Strongly agree. Following Tilikidou & Delistavrou (2015), the items were phrased in a Guttman-type style. The verb used in each item expressed a stronger intention than the one that preceded it (Table 1). Attitudes (At) consisted of six items measured on a semantic differential scale using bipolar adjectives from 1=Very negative adjective to 7= Very positive adjective. The adjectives incorporated evaluative judgments (Bad-Good, Foolish-Wise, etc.) as well as effective judgments (Undesirable-Desirable, Unpleasant-Pleasant, etc.) referring to consumers' judgements about the online purchasing of ecological personal care products. Subjective Norms (SN) included four items and

Perceived Behavioural Control (PBC) contained six items, both measured on Likert scales from 1=Strongly disagree to 7=Strongly agree.

Past Behaviour (PB) was measured with one question asking how many times the respondents had purchased online ecological personal care products during the past 12 months. The Health Consciousness (HC) scale was adopted from Michailidou & Hassan (2008) and contained six items measured on a Likert scale from 1=Strongly disagree to 7=Strongly agree.

The variables, although they were adopted from the relevant literature, were also tested to avoid con-linearity and cohesion. Exploratory Factor Analysis by the utilization of Principal Component Analysis was conducted. The Bartlett's Test of Sphericity was found to be statistically significant at  $p < 0.001$  and the KMO was found to be 0.927, which is an adequate level. All items had sufficient loadings (greater than 0.6) to their theoretical respective latent variables (SN, AT, PBC, PI, HC) and the variance of all constructs described almost 67% of the total variance.

## 4. RESULTS

### 4.1. Data examination

The Mahalanobis  $D^2/df$  measure (Hair *et al.*, 2010, p. 65) was used to detect possible outliers, and the results limited the sample size to 1,663 respondents (16 outliers).

### 4.2. Measurement Model

Confirmatory Factor Analysis (CFA) was conducted to verify the measurement model developed. CFA was performed using covariances and the Maximum Likelihood Estimation (MLE) method via AMOS v20. All measured variables were entered into the analysis.

Validity was assessed with acceptable values in Goodness of Fit (GOF) measures and evidence of construct validity. The GOF values obtained ( $\chi^2=836.865$ ,  $p < 0.001$ ,  $df=257$ ,  $\chi^2/df=3.256$ ,  $TLI=0.976$ ,  $CFI=0.980$ ,  $RMSEA=0.037$ ) indicated that the measurement model fits the data very well.

Construct validity is comprised of four components: convergent, discriminant, nomological, and face validity (Hair *et al.*, 2010, p. 679). Convergence validity was assessed by the examination of a) the factor loadings, b) the Average Variance Extracted (AVE), and c) the construct reliability (Hair *et al.*, 2010, p. 679). The great majority of the factor loadings were  $>0.70$ , and just four items obtained factor loadings  $>0.60$  (Table 1). Construct reliability was calculated for each construct (Table 1), and all values were  $>0.70$ , indicating that all constructs demonstrate good reliability (Hair *et al.*, 2010, p. 680; Bagozzi and Yi, 1988).

**Table 1. Measurement Model**

		<b>Factor Loadings</b>	<b>Mean</b>	<b>Cronbach's alpha</b>	<b>Construct Reliability</b>
<b>Attitudes</b>			32.40	0.866	0.871
AT1	Bad ...Good	0.707			
AT2	Unbeneficial ... Beneficial	0.756			
AT3	Undesirable.... Desirable	0.794			
AT4	Foolish...Wise	0.756			
AT5	Unpleasant...Pleasant	0.771			
AT6	Forced...Desired	0.567			
<b>Subjective Norms</b>			17.27	0.835	0.848
SN1	People who influence my decisions would approve of me purchasing online ecological personal care products (Kim & Chung 2011)	0.732			
SN2	People who are important to me think that I should purchase online ecological personal care products (Ghazali et al., 2017)	0.869			
SN3	People who are important to me purchase online ecological personal care products	0.763			
SN4	Specialists (doctors and beauty consultants) recommend that I use ecological personal care products (Pop et al., 2020)	0.681			
<b>Perceived Behavioural Control</b>			29.25	0.870	0.878
PBC1	I have the appropriate means to purchase online ecological cosmetics (Giovanis et al., 2019)	0.737			
PBC2	I have the appropriate knowledge to purchase online ecological cosmetics (Giovanis et al., 2019)	0.759			
PBC3	When I need help while purchasing online ecological cosmetics, I usually find the available online customer support assistant to help me (Giovanis et al., 2019)	0.645			
PBC4	I feel capable of purchasing online ecological cosmetics (Giovanis et al., 2019)	0.873			
PBC5	I don't face difficulties when I surf the net while searching to purchase online ecological cosmetics (Giovanis et al., 2019)	0.779			
PBC6	I am not afraid that I can not try the ecological cosmetics I purchase online (Giovanis et al., 2019)	0.621			
<b>Purchase Intentions</b>			13.20	0.832	0.935
PI1	I might purchase online ecological cosmetics in the next six months	0.913			
PI2	I seriously intend to purchase online ecological cosmetics in the next six months	0.955			
PI3	I will definitely purchase online ecological cosmetics in the next six months	0.858			

The AVE values (Table 2) calculated for each construct were all >0.50, which indicates adequate convergence (Hair *et al.*, 2010, p. 680; Fornell and Larcker, 1981). Discriminant validity was assessed as the AVE values of all two constructs combinations were greater than each combination's respective squared correlations (Table 2) (Hair *et al.*, 2010, p. 680). Face validity was established prior to the administration of the questionnaire by four marketing academics. Finally, evidence of nomological validity was found to be statistically significant, and positive (as expected) correlations were found for all pairs of constructs (Table 2). In conclusion, the measurement model was judged to be valid, and the structural model examination followed.

**Table 2. Correlations (squared correlations)**

	<i>Attitudes</i>	<i>Subjective Norms</i>	<i>Perceived Beh. Control</i>	<i>Purchase Intention</i>
<i>Attitudes</i>	<b>0.638</b>			
<i>Subjective Norms</i>	0.475 (0.226)	<b>0.779</b>		
<i>Perceived Beh. Control</i>	0.446 (0.199)	0.532 (0.283)	<b>0.548</b>	
<i>Purchase Intention</i>	0.527 (0.278)	0.570 (0.325)	0.588 (0.346)	<b>0.827</b>
<i>Past Behaviour</i>	0.411 (0.169)	0.340 (0.116)	0.292 (0.085)	0.502 (0.252)

Bold numbers in the diagonal present the Average Variance Extracted

4.3. Structural Model

The structural model was tested in two stages. In the first stage, the variables of the expanded TPB model were entered into the analysis. The GOF values (Table 3) indicated that the structural model fits the data well.

In Table 3, the standardised regression weights (standardised *betas*) indicate that there are statistically significant ( $p < 0.001$ ) and positive paths between Purchase Intentions and each one of Attitudes ( $\beta = 0.168$ ), Subjective Norms ( $\beta = 0.236$ ), Perceived Behavioural Control ( $\beta = 0.311$ ), and Past Behaviour ( $\beta = 0.262$ ). The *beta* values indicate that PBC has a stronger effect on PI while PB, SN, and At have lower effects. These results support H<sub>1</sub>, H<sub>2</sub>, H<sub>3</sub>, and H<sub>4</sub>, which can be accepted. The squared multiple correlations found in PI ( $R^2 = 0.537$ ) indicated that 53.7% of the variance in PI is explained by the interactive effect of At, SN, PBC, and PB.

**Table 3. Structural Model**

Goodness of Fit	Values
$\chi^2$	609.621**
df	157
$\chi^2 / df$	3.883
CFI	0.976
TLI	0.971
RMSEA	0.042
Structural relationships	$\beta$
Attitudes → Purchase Intentions	0.168**
Subjective Norms → Purchase Intentions	0.236**
Perceived Beh. Control → Purchase Intentions	0.311**
Past Behaviour → Purchase Intentions	0.262**
<b>R<sup>2</sup></b>	<b>0.537**</b>

\*\*  $p < 0.001$ ,  $\beta =$  standardized regression weights

4.4. Moderation Effects

In the second stage, the moderating role of Health Consciousness on the causal relationships of the expanded TPB model was examined by “group comparison analysis” of SEM via AMOS v20. The sample was grouped into those respondents who obtained below the Mean scores (588 respondents, 35.4%) and those who obtained above the Mean scores (1075 respondents, 64.6%) in Health Consciousness.

The GOF values (Table 4) indicate that the structural model fits the data well. Moderation was assessed by examining the “critical ratios for differences” of AMOS output, which are z-test values for the differences between the parameters across the two groups. The z-test values that exceed  $\pm 1.96$  indicate statistical significance at  $p < 0.05$  differences in the relevant path coefficients (*beta* values) across groups. The z-test results (see Table 4) indicated statistically significant differences (critical ratios/z-test values  $> \pm 1.96$ ) in the relationships between Purchase Intentions and the three original TPB determinants (At, SN, PBC) but not PB. These results support H<sub>5a</sub>, H<sub>5b</sub>, and H<sub>5c</sub>, which can be accepted but not H<sub>5d</sub>, which should be rejected (Figure 1).

Specifically, the statistically significantly different path coefficients indicate that Health Consciousness (HC) strengthens the structural relationship between At and PI ( $\beta$  not significant at



below the Mean in HC and  $\beta=0.241$  at above the Mean in HC) while it weakens the structural relationship between SN and PI ( $\beta=0.377$  at below the Mean in HC and  $\beta=0.168$  at above the Mean in HC). Further, the  $R^2$  increases considerably in the group of those respondents who obtained scores in HC above the Mean, indicating that the expanded TPB explains almost 20% more variance in PI when HC is high than when HC is not examined as a moderator (0.712 vs 0.537).

**Table 4. Moderation analysis results**

GOF	Values	
$\chi^2$	856.791**	
df	314	
$\chi^2/df$	2.729	
CFI	0.969	
TLI	0.962	
RMSEA	0.032	
<b>Structural relationships</b>	<b>Group 1</b> Below the Mean HC	<b>Group 2</b> Above the Mean HC
Att→PI ( $\beta$ )	0.049	0.241**
<b>Critical ratio</b>	<b>4.174</b>	
SN→PI ( $\beta$ )	0.377**	0.168**
<b>Critical ratio</b>	<b>3.819</b>	
PBC→PI ( $\beta$ )	0.255**	0.279**
<b>Critical ratio</b>	<b>2.094</b>	
PB→PI ( $\beta$ )	0.251**	0.279**
<b>Critical ratio</b>	<b>-0.019</b>	
<b>R<sup>2</sup></b>	0.460	0.712

\*  $p < 0.05$ , \*\*  $p < 0.001$ , ( $\beta$ ) = standardized regression weights

## 5. DISCUSSION AND CONCLUSIONS

This study has successfully filled the gap in understanding the Greek young consumers' (generation Y) intentions to purchase online ecological personal care products (EPCPs) by the utilisation of a classic theoretical model (TPB) and verified the ability of the expanded with Past Behaviour TPB model to explain the relevant intentions. In addition, the effort to examine the moderating role of Health Consciousness added to the explanation of variance in intentions to purchase online EPCPs.

The results of this study revealed that perceived behavioural control obtained a slightly higher impact than the other predictors of intentions, which is to an extent in contrast to the results found by Shimul et al. (2021). They found that the South Africans' intentions are not affected by perceived control over buying green cosmetics. The difference in the results might be attributed to this study's different context, which was online purchasing. Consumers, when deciding to purchase online EPCPs, need to be confident that they have the means and the capabilities to do so. In this study, attitudes demonstrated the weakest effect, which is, to an extent, in contrast to previous research results, which yield a stronger effect of attitudes on intentions to buy similar products (Shimul et al., 2021; Askadilla & Krisjanti, 2017; Ghazali et al., 2017; Hsu et al., 2017; Kim & Chung, 2011). It might be claimed that the intentions to buy online are more based on perceived control than on evaluative judgments towards online purchasing of EPCPs. Previous results indicated the opposite with regards to purchasing via other channels, as the formulation of intentions was found to be more affected by consumers' attitudes than by perceived control (Shimul et al., 2021; Askadilla & Krisjanti, 2017; Ghazali et al., 2017; Hsu et al., 2017; Kim & Chung, 2011). Subjective norms were found able to influence intentions to purchase online EPCPs, in line with the results found in most studies (Shimul et al., 2021; Askadilla & Krisjanti, 2017; Hsu et al., 2017; Kim & Chung, 2011), but in contrast to results found by Ghazali et al. (2017). Past behaviour was shown to be an additional predictor of intentions, which is in line with claims made by Ajzen (2005) and Sommer (2011) as well as the results found in the USA by Kim & Chung (2011). It can be concluded that Greek young consumers' decision to purchase online EPCPs is mainly influenced by their perceived ability to perform the action and their previous experiences of online buying of EPCPs than by their perceived social pressure and attitudes.

The effort to examine the moderating role of health consciousness was successful. It was found that health consciousness strengthens the impact of attitudes while weakening the effect of perceived social pressure on intentions to purchase online EPCPs. Therefore, it can be concluded that highly

health-conscious consumers' intentions to purchase online EPCPs are more influenced by their attitudes and less by the perceived expectations of their reference cycle.

## 6. THEORETICAL AND PRACTICAL IMPLICATIONS

This study expanded the TPB model with the incorporation of Past Behaviour as a direct determinant of intentions. It has successfully predicted more than 50% of the variance in consumers' intentions to purchase online EPCPs in the next six months. In the context of EPCPs, it was verified that experience with online purchasing of ecological products can determine consumers' intentions to do so in the future, in addition to the original TPB determinants. Further, this study conceptualised consumers' Health Consciousness as an aspect of self-consciousness, which was deemed (Ajzen, 2005) to moderate the relationship between Attitudes and Intentions. Indeed, this study, overcoming the failure of previous research to establish causality between HC and Attitudes (Shimul et al., 2021; Kim & Chung, 2011), verified the above conceptualisation as HC was found to significantly moderate all the original TPB relationships between Purchase Intentions and each one of Att, SN and PBC.

It can be inferred that the incorporation of Past Behaviour as an additional direct predictor of intentions and the conceptualisation of HC as a moderator of the relationships between attitudes, norms and perceptions of control is a promising direction for future studies on consumers' intentions to purchase online ecological personal care products.

The results of this study might be found helpful to companies that deliver their ecological personal care products online. These companies need to realise that consumers' decision to purchase online EPCPs is a cognitive process. Future EPCP online buyers are influenced mainly by their perceptions of facilitating conditions, their sense of self-efficacy to do so, and their previous experiences. Online sellers of EPCPs should provide all the appropriate conditions for prospective buyers to purchase their products. The online shops should be built so that buyers do not face any problems, difficulties or obstacles to purchasing EPCPs. In this way, prospective buyers can feel capable, safe, and effective when purchasing online ecological products. It is of great importance for the transaction to be easy and effective as the experience with previous purchases will motivate repeated purchases. Consumers are also influenced by their close referents' views and behaviours and their perceived positive outcomes of buying online EPCPs. Companies delivering online EPCPs should build a communication strategy that exploits satisfied customers by using their testimonials and experiences in the communication messages. These messages might also motivate happy customers to spread their satisfaction to people close to them. Promotional campaigns could build on the satisfaction of their customers by delivering them coupons or sales codes for repeated purchases and enabling them to spread the promotion codes or coupons to their friends and relatives.

Online providers of EPCPs may also use the results concerning the moderating role of Health Consciousness. Therefore, health-conscious consumers should be convinced that online buying of EPCPs is good, wise, beneficial, desirable, and pleasant, besides being assured of the ease of online purchasing.

## 7. LIMITATIONS AND FUTURE RESEARCH SUGGESTIONS

There have been some limitations in this study, which might be viewed as guidance for further research suggestions. For example, the usual self-report issue, in combination with the nature of purchasing ecological products, raises problems of socially desirable responses. No control for social desirability was attempted in this study; this should be taken care of in future research efforts. Furthermore, the results cannot be generalised to the whole population as they are based on a conveniently selected sample. A national-scale probability sample of adequate size in future studies could imply generalisations.

This study tried to add to our understanding of consumers' purchase intention of ecological products. However, due to the context of the study (the online environment), other factors related to the digital consumer behaviour might add to the predictive power of TPB, such as Davis' (1989) Technology Acceptance Model. Therefore, combining the two theoretical models might better serve our understanding of the online consumer behaviour in relation to ecological personal care products. In addition, investigation of the ability of personality variables to moderate the TPB relationships could be pursued in future studies. Finally, future research efforts might also try to measure the actual behaviour and subsequently evaluate the impact of intentions on it.

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