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## Assessing Young Adult Consumers' Responses to Green Personal Care Products: Insights from Extended Theory of Planned Behavior

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### Abstract

The purpose of this study is to examine the role of intention and other predictors in predicting consumers' behaviour of purchasing green personal care products. This was a cross sectional study with 305 college students in the 2020-2021 academic year in completed a self-reported online survey. The findings revealed that three predictors as attitude, subjective norm, and perceived behavioral control have a significantly positive influence on green purchase intention of green personal care products among students. The analysis also showed that the additional of environmental concern and price to the standard TPB model has contributed to the increase in variance for the model. However, analysis of the mediation effect of intention for perceived behavioral control and behavior also shows insignificant. To academics, our findings indicate that future intervention should consider TPB constructs and additional constructs, price, and environmental concerns. It also provides insight to the green marketer in understanding young consumers' decision-making in relation to green personal care products. These findings can assist marketers in starting point for the conception of target group-specific strategies. This study offers valuable insight into current academic findings on young adult consumers and climate-friendly products research which further enhance the predicting of the TPB model.

**Keywords:** Young Adult Consumers, Extended Theory of Planned Behaviour, Green Personal Care Products, Attitude, Subjective Norms.

### Introduction

Personal care and cosmetic products are seen as one of the sources of microplastics (plastic polymers (LDPE) and polypropylene) pollution for Malaysia and worldwide (Praveena et al., 2018; Isobe, 2016). Personal care products such as toothpaste, facial scrubs and soaps are an important contributor of secondary microplastics, as referred to microbeads (Anderson, 2016; Lang et al., 2016). Even, the microplastics are not discovered in all particles reported in personal care products, but study shows that the particles in toothpaste and facial cleaner or

scrub were found between 3 and 145  $\mu\text{m}$ , and, between 10 and 178  $\mu\text{m}$  accordingly, which stipulating the presence of microplastics in products. There are expected around 0.199 trillion microplastics to be released annually to marine environment in Malaysia (Praveena et al., 2018). Wastewater Treatment Plants (WWTPs) have been identified as a source of the microplastics that are used in personal care products and emissions into the ocean (Praveena et al., 2018). Microplastics from personal care products are flushed down into the drain and sent to a WWTPs (Murphy et al., 2016). Despite their tiny size and abundance, continual microplastic loading from WWTP effluent will have a detrimental impact on the future of the ecosystem and aquatic life.

Furthermore, study shows that many of conventional personal care products have include chemical ingredients that have been linked to disrupting human endocrine and neurological systems, as well as contributing to infertility and poor birth outcomes (Chan et al., 2015). The cumulative effects of regular personal care product exposures may increase preconception health risks and contribute to chronic diseases. Since 2020, when the total trade of Malaysia for beauty and personal care products reached US\$2.64 billion, this industry has regularly had the highest consumer demand. With 70% of Malaysians now residing in cities, the demand for high-quality personal care products among both sexes, potentially introducing a huge quantity of the microplastics into wastewater and, as a result, into the ocean environment (Praveena et al., 2018).

Growing concern about these environmental problems has led to a considerable increase in number of personal care products marked as environmental friendly (Cinelli et al., 2019; Anderson et al., 2016). Rising level of education and improved access to information led consumer to be more concern on the impact of products consumption to the environment. Climate change and other environmental issues has created to more climate-friendly consumer (Anvar & Venter, 2014; Bang et al., 2000). These changes in consumerism and rising environmental consciousness have already increased the demand globally for living a healthier lifestyle and for consuming more natural and green products. In line with this, consumer markets for green personal care products have started to expand in Malaysia. To name a few, the Body Shop, Nature Republic, Olivella, and Himalaya Herbal Healthcare are some of the shops that provide green personal care products that utilize organic, biodegradable, natural, recyclable packaging and are created using procedures that cause little environmental impact (Che In & Ahmad, 2018). Study shows the green personal care products have a greater competitive potential for growth in the Asian market than non-green personal care products (Kline, 2019). The penetration of green personal care products in Malaysia has rose exponentially. Considering the substantial market volume and the significant growth potential, the market for green personal care products represents an important sector that required in-depth investigation. In particular, understanding Malaysian young adult consumers underlying decisions for the acceptance of green personal care products is worthwhile due to the recent trends and transition into a climate-friendly products market. Therefore, the current research uses the Theory of Planned Behavior to explore young adult consumer responses to green personal care products. Specifically, this study aims;

- a) To identify significant differences between gender in purchasing GPCP products.
- b) To examine the significant effects of attitudes, social norms, perceived behavioral control, price, and environmental concerns on consumer purchasing behavior of GPCP products.

c) To examine the role of intention in mediating the relationship between perceived behavioral control and consumer purchasing behavior of GPCP products.

### **Theory of Planned Behavior**

In this study, the constructs of the Theory of Planned Behavior (TPB) were studied in predicting the purchase behavior of youth in green personal care products (GPCP). According to this theory, human behaviour is guided by his or her intention to perform the behavior. Intention, in turn are determined by the person's attitude, subjective norm and perceived behavioral control. TPB has been applied to explain a variety of green behaviors, including organic food (Ahmad et al., 2010; Werf et al., 2019), green vegetable (Zhang et al., 2018), renewable energy (Bang et al., 2000), apparel ( Du & Han, 2012), cosmetic and skin care (Fauzi & Hashim, 2015), and general green products (Albayrak et al., 2013; Ali & Ahmad, 2012; Aman et al., 2012; Anvar & Venter, 2014; Awuni & Yiranbon, 2016; Michum & Parichatnon, 2016). Notably, the role of TPB in explaining green behaviour are evident in earlier studies.

Based on TPB, attitude is the reflection of a person's most important behavioural beliefs, which reflect the behaviour's expected outcomes (Ajzen, 1991). Kautish & Sharma (2019); Fauzi & Hashim, (2015); Kim & Chung (2011) concluded that attitude is one of crucial elements in predicting consumer intention to pay for environmentally friendly products. One's attitude has a vital role in deciding whether or not to accept a specific action (Maichum et al., 2016). Several studies have also explained that attitude positively influences green purchase intention (Maradesa et al., 2015; Maichum et al., 2016).

Ajzen (1991) refers subjective norm as a function of normative beliefs, representing perceptions of specific salient others' preferences about whether or not to participate in behaviour. Lee et al (2011) added that the subjective norm is an individual's opinion that influences others' decision-making. Several studies reported that the subjective norm has a positive correlation with green purchase intention (Kim & Chung, 2011; Wong & Aini, 2015; Maichum, 2016). Green products are more likely to be purchased when consumers perceive that other people believe the green products are good for the environment (Kim & Chung, 2011).

The perceived difficulty or ease with which a person performs a specific behaviour is called perceived behavioural control (Ajzen, 1991). One's beliefs concerning access to the resources needed and opportunities to effectively execute the behaviour. It is more likely to occur when a person has the capacity and drive to do a certain behaviour (Zhou et al., 2013). According to the TPB, developing perceived behavioural control is required before generating an intention. Support from literature said, perceived behavioural control is the degree of control over the execution of behaviour that an individual perceives (Chen, 2012). People who have higher levels of perceived behavioural control have a higher behavioural intention to carry out certain behaviors. When consumers have more resources, such as money, their perceived behavioral control increases, as a result, their behavioral intention rises, or they have a greater behavioral intention to a carry out certain action (Kim & Chung, 2011). Perceived behavioral control has been shown to have a positive relationship with green purchase intention in previous research (Kim & Chung, 2011; Maichum et al., 2016). Perceived behavioural control, in contrast to attitude and subjective norm, can predict a specific behaviour directly (Palat & Delhomme, 2012; Swaim et al., 2013). A study discovered that

perceived behavioral control was the most important determinant in teenage behaviour (Mullan et al., 2013). Also, previous research concluded that perceived behavioral control is a stronger predictor of food wasting behaviour than intention (Werf et al., 2019). Perceived behavioral control was found to have a significant and positive influence on purchase behaviour in two studies (Wang et al., 2014; Du & Han, 2012). However, Dilotsotlhe (2021) revealed that perceived behavioral control had no impact on predicting adoption behaviour.

### **Additional to TPB Constructs**

To further enhance the predictability of the TPB model, study have added consumers' concern and price constructs. It has been documented that, consumers' strong dedication to purchasing green products stems from their environmental concerns. Green customers are those who are aware of and concerned about environmental issues (Soonthonsmai, 2007). Sustainable consumption refers to a broad shift in consumer behaviour aimed at lowering consumption's environmental effect (Pinto de Moura et al., 2012). Sustainable consumption, according to Roman et al (2015), means "the use of goods and services that satisfy basic needs and enable a higher quality of life while also minimizing the consumption of natural resources, the generation of toxic materials, waste, and pollutants over a life cycle, so that future generations' needs can be met without difficulty". This concept are contradicting with materialism value with hold beliefs about the importance of possessions in one's life (Helm et al., 2019). It is necessary to foster a shared feeling of environmental responsibility among consumers, which will motivate them to purchase green products and reduce resource use. Consumers' emotional participation in environmental issues, as well as their understanding of and desire to solve those problems, may be defined as environmental concern (Alibeli & Johnson, 2009). Environmental concern has contribute significantly in the decision-making process for consumers (Diamantopoulos et al., 2003; Aman et al., 2012) and strong influence on green purchase intention (Vazifehdoust et al., 2013; Albayrak et al., 2013; Maichum et al., 2016). Consumers with a high degree of environmental concern are more likely to engage in environmentally conscious behaviour and indicate a readiness to pay extra for ecologically friendly items (Bang et al., 2000; Rajadurai et al., 2018: Agrawal & Karmakar, 2018: Zheng et al., 2020; Irawan and Darmayanti, 2012; Nizam et al., 2014).

Green products are typically more expensive than traditional ones due to higher costs for superior raw materials and labelling verification. Based on the previous research, price is one of the significant influences of purchase behaviour (Herjanto & Amin, 2022; Rezai et al., 2011; Liobikiene et al., 2017; Dangelico et al., 2021; Mahmoud, 2018). Pricing in connection to behaviour in two aspects, customer willingness to pay and price perceptions (Oliver et al., 2011). Studies found that one of the most significant impediments to purchase green products is the price (Boztepe, 2012; Wheeler et al., 2013, Barber et al., 2014). Consumers are primarily influenced by the pricing of green products in order to generate prospective interest in green products (Ganeshan & Suresh, 2016). Result from previous studies seem contradicting when refer to price factor. Laroche et al. (2001) and D'Souza et al. (2007) found the seriousness of the environmental damage caused by ecological concerns has drives consumers to pay a greater premium for some green products. However, different finding from Anvar & Venter (2014) state lower consumers' willingness to pay for green products and services. Pricing was seen as a strategic marketing element that influences customer purchasing behaviour (Konuk, 2015; Ganeshan & Suresh, 2016; Sulaiman et al., 2017; Wong & Aini, 2017; Zhang et al., 2018). Previous research discovered that price discounts, rather

than premiums, resulted in increased purchasing intent among high-price conscious consumers (Palazon and Delgado, 2009). Based on previous research and their results, price is one of the main factors significantly influencing purchase intention.

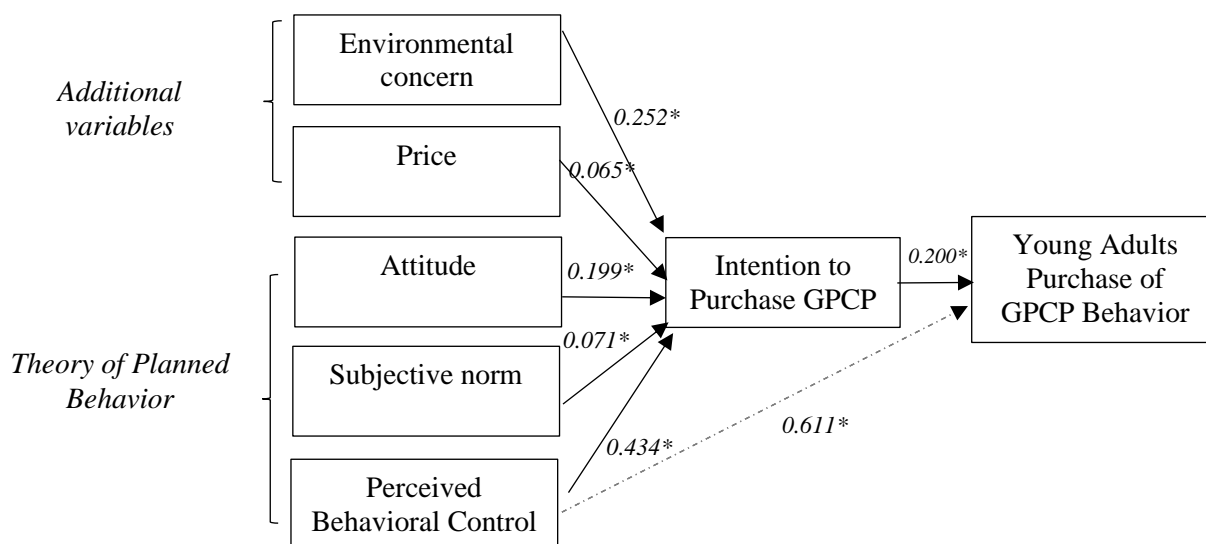


Figure 1: Proposed model based on the Theory of Planned Behavior (Ajzen, 1991)

Note: \*significant at  $p < 0.01$  (2 tailed).

Based on the aforementioned literature, this study hypothesizes that:

H1 : Gender differences significant influence the intention to purchase GPCP.

H2 : Intention to purchase GPCP would directly influenced by attitude, subjective norms, perceived behavioral control, price and environmental concern.

H2a : Attitude strongly influences the purchase intention of GPCP products.

H2b : Subjective norms strongly influences the purchase intention of GPCP.

H2c : Perceived behavioral control strongly influences the purchase intention of GPCP.

H2d : Price strongly influences the purchase intention of GPCP

H2e : Environmental concern strongly influences the purchase intention of GPCP

H3 : Young adults purchase behavior of GPCP would be directly influenced by intention and perceived behavioral control.

H3a : Intention strongly influences the purchase intention of GPCP

H3b : Perceived behavioral control strongly influences the purchase intention of GPCP.

H4 : Intention mediates the relationship between perceived behavioral control and behavior of purchase GPCP.

## Methods

This cross-sectional study involved an online self-report survey. Online platform had been chosen as a survey method for this research since this study has been conducted during covid-19 pandemic as conventional survey methods are not feasible. A sample of 303 students who are affiliated with University Putra Malaysia and enrolled in the 2020-2021 academic year. Participants were students aged 18 years and above.

### ***Questionnaire and Measurements***

The web-based questionnaire was designed into sections to address the study questions and the postulated hypothesis. It included sections on participants' demographics (such as gender, faculty, and education level), intention and behavior of purchase GPCP as well as attitude, subjective norm, perceived behavioral control, environmental concern and price. Basic knowledge on green personal care products and consumption pattern were asked in the second section after demographic information. The next section on study's variables was developed based on Ajzen's theory of Planned Behavior and Maichum et al (2016) which previously tested questionnaire. Study measured all predictors and dependent variable by using 5-point Likert scale items with responses ranging from strongly disagree (1) to strongly agree (5). This reproduction of the questionnaire was important to allow comparability of study findings with other literature, and therefore determine the specific characteristics that are related to the Malaysian people. The questionnaire was reviewed by two experts in the field of consumer and environmental studies, and the Malay translation was also revised and piloted to ensure ease of understanding and comparability. The reliability of the questionnaire was further tested as described in the data analysis section.

### ***Statistical Analysis***

All analyses were conducted using Statistical Package for the Social Sciences (SPSS) software, version 26, except for the mediation analysis, which was conducted using AMOS version 24. An independent sample t-test was performed to compare the green purchase intention of male and female students towards green personal care products. For this hypothesis 1, the independent sample t-test was used to analyse the p-value. Next, this study uses Cronbach's alpha and Pearson Correlation reliability coefficients to identify and access any correlation between study variables. Before hierarchical regression, the study examines the relationship between the independent variables for collinearity. In the first model, the study tested the ability of the TPB model to predict students' intention to purchase GPCP, using intention as the dependent variable in the regression model. In the second model, the study adds price and environmental concerns to the original TPB model. Next in the third model, the study uses behavior to purchase GPCP as a dependent variable in testing the influence of intention and perceived behavioral control. Finally, the indirect relationship between perceived behavioral control on behavior was assessed using latent mediation analysis.

## **Results**

### ***Descriptive findings***

The total sample consisted of female (73.1%) with 51.1% are Malay, 36.1% (Chinese) and 10.2% (Indian) and 82% of the respondents are degree program. Table 1 details the demographic information of the sample. In all, participants reported that they are using personal care products more than 5 time per week except for conditioner (2-5 times per week) and lip balm (less than once per week). On average, once a month participants make purchasing for shampoo, body soaps, toothpaste and hand soaps and sanitizers. The frequency become lesser on buying other personal care like face lotions and creams, conditioner and lip balm which reported less than once per month. More than 70% (72.8%) participants reported they know about green personal care products. Nearly 90% (88.5%) participants agree that green personal care products have better quality than conventional personal care products in market. About 97.7% participants agree with the statement 'chemical free and environmental friendly' for green personal care products. There is a good

sign with 50.5% of respondents are willing to pay between 5% to 20% more for green personal care products as compared to conventional products.

Table 1

*Demographic Information (n=305)*

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	82	26.9
Female	223	73.1
<b>Race</b>		
Malay	156	51.1
Chinese	110	36.1
Indian	31	10.2
Other	8	2.6
<b>Faculty</b>		
School of Business and Economics	49	16.1
Faculty of Forestry and Environment	43	14.1
Faculty of Educational Studies	48	15.7
Faculty of Human Ecology	69	22.6
Faculty of Food Science and Technology	36	11.8
Faculty of Modern Languages and Communication	60	19.7
<b>Academic level</b>		
Foundation	12	3.9
Degree / Bachelor	250	82.0
Master	26	8.5
Doctor of Philosophy (PhD)	17	5.6

Table 2 show the average frequency of respondents using personal care products in a week. For shampoo, most respondents reported as used shampoo more than 5 times per week at 48.9% while the least of 1.3% of respondents only used shampoo less than once per week. Similarly, 92.1%, 79.7%, 69.2% and 57.4% of respondents use toothpaste, body soap, hand soap and sanitizer, and face lotions and creams more than 5 times per week respectively. As for conditioner, most of the respondents use conditioner only 2 to 5 times per week (30.5%) and only a small number of respondents only use conditioner once (17.4%) per week. For the lip balm majority of respondents only uses lip balm less than once per week (39.7%) while a small group of respondents only use lip balm once (11.1%) per week. Table 2 also reported of the average frequency of respondents purchase products are more on once per month for shampoo (52.1%), toothpaste (52.5%), body soaps (48.5%) and hand soaps and sanitizers (41.3%. Findings also shows for other products like face lotion and cream, conditioner and lip balm are less than once per month.



Table 2

*Frequency of Using Personal Care Products in a Week and Frequency of Purchasing Personal Care Products in a Month (n=305)*

Personal Care Products	Frequency of Using Personal Care Products in a Week		Frequency of Purchasing Personal Care Products in a Month	
	Frequency	Percentage	Frequency	Percentage
<b>Shampoo</b>				
Less than once	4	1.3	99	32.5
Once	19	6.2	159	52.1
2-5 times	133	43.6	35	11.5
More than 5 times	149	48.9	12	3.9
<b>Body soaps</b>				
Less than once	16	5.2	100	32.8
Once	6	2.0	148	48.5
2-5 times	40	13.1	44	14.4
More than 5 times	243	79.7	13	4.3
<b>Face lotions and creams</b>				
Less than once	41	13.4	156	51.1
Once	18	5.9	110	36.1
2-5 times	71	23.3	33	10.8
More than 5 times	175	57.4	6	2.0
<b>Toothpaste</b>				
Less than once	2	0.7	91	29.8
Once	1	0.3	160	52.5
2-5 times	21	6.9	40	13.1
More than 5 times	281	92.1	14	4.6
<b>Hand soaps and sanitizers</b>				
Less than once	15	4.9	125	41.0
Once	11	3.6	126	41.3
2-5 times	68	22.3	41	13.4
More than 5 times	211	69.2	13	4.3
<b>Conditioner</b>				
Less than once	81	26.6	184	60.3
Once	53	17.4	94	30.8
2-5 times	93	30.5	17	5.6
More than 5 times	78	25.6	10	3.3
<b>Lip balm</b>				
Less than once	121	39.7	212	69.5
Once	34	11.1	73	23.9
2-5 times	67	22.0	14	4.6
More than 5 times	83	27.2	6	2.0

As for knowledge, most of the respondents (72.8%) know about green personal care products. The majority (88.5%) of respondents believed that green personal care products have higher quality than conventional personal care products. The overwhelming majority (97.7%) of respondents believed that green personal care products are chemical-free and

environmentally friendly products while only small number (2.3%) of respondents do not agree with the statement. About half of the respondents (50.5%) were willing to pay 5% to 20% more than non-green shampoo while only a small minority (6.2%) willing to pay more than 20% to own green shampoo products. The details on respondents knowledge are stated in Table 3.

Table 3

*Knowledge and Willingness to Pay for Green Personal Care Products (n=305)*

Questions	Frequency	Percentage
Do you know about green personal care products?		
Yes	222	72.8
No	83	27.2
Do you think that green personal care products have better quality than conventional personal care products?		
Yes	270	88.5
No	35	11.5
Green personal care product is a chemical-free and environmentally friendly product.		
Yes	298	97.7
No	7	2.3
Are you willing to pay MORE for green personal care products?		
Yes	245	80.3
No	60	19.7
If the price of normal shampoo is RM5.00, are you willing to pay MORE for green shampoo products?		
Will NOT PAY MORE.	24	7.9
Will pay NOT MORE THAN 5% the price of normal shampoo price.	108	35.4
Will pay MORE within 5% - 20% the price of normal shampoo price.	154	50.5
Will pay MORE THAN 20% the price of normal shampoo price.	19	6.2

**Correlation and T-test Analysis**

As shown in Table 4, the Cronbach's alpha coefficients for all study variables exceeded Nunnally's (1978) criterion of 0.70, suggesting that all self-reported measures demonstrated acceptable internal reliability. In table above, descriptive statistics and the bivariate correlations for the study variables are also reported. In general, students displayed good attitude, subjective norm, perceived behavioral control, price, and environmental concern as all mean scores of those variables were above the midpoint (i.e., 4.07 (attitude), 3.77 (subjective norm), 3.93 (perceived behavioral control), 3.91 (price), 4.09 (environmental concern)). Also, students reported high levels of intention and purchase behavior of GPCP. The correlation analyses revealed that all variables were significantly and positively related to each other ( $r = 0.84$ ,  $p < 0.05$ ).

Table 4

*Descriptive statistics, Internal Reliability, and correlations among variables (n=305)*

Variables	1	2	3	4	5	6	7	
1. Attitudes	<b>0.88</b>							
2. Subjective norm	0.81*	<b>0.85</b>						
3. Perceived behaviour control	0.90*	0.84*	<b>0.86</b>					
4. Price	0.89*	0.84*	0.92*	<b>0.82</b>				
5. Environmental concern	0.88*	0.81*	0.89*	0.90*	<b>0.90</b>			
6. Intention	0.91*	0.84*	0.94*	0.91*	0.92*	<b>0.87</b>		
7. Behavior	0.84*	0.85*	0.90*	0.89*	0.86*	0.91*	<b>0.80</b>	
	<i>M</i>	4.07	3.77	3.93	3.91	4.09	3.98	3.89
	<i>SD</i>	0.84	0.93	0.86	0.86	0.82	0.86	0.91

Notes: Cronbach's alpha coefficients are provided along the top diagonal in bold, *M* = mean; *SD* = standard deviation. \*significant at  $p < 0.01$  (2 tailed).

Based on independent sample *T*-test (Table 5), the result shows that there is no significant differences in green purchase intention between male and female students. The mean for green purchase intention of males ( $M = 19.4512$ ,  $SD = 3.71900$ ,  $19.4512 \pm 3.71900$ ) and females ( $M = 20.0493$ ,  $SD = 3.43830$ ,  $20.0493 \pm 3.43830$ ) are not significantly different at  $p$ -value = 0.189,  $t(303) = -1.317$ . Even though the mean green purchase intention of males is lower than females, the difference was -0.5981 ( $19.4512 - 20.0493$ ) only. Therefore,  $H1$  is not supported and the result support previous study which shows that the differences between males and females were not significant contributes to green behavior (Finisterra do Paço et al., 2009).

Table 5

*Independent Sample T-test (Gender and green purchase intention)*

Gender	<i>N</i>	Mean	Std. Deviation	Std. Error Mean
Male	82	19.4512	3.71900	0.41069
Female	223	20.0493	3.43830	0.23025

Levene's Test for Equality of Variances					
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>df</i>	<i>Sig. (2-tailed)</i>
Equal variances assumed	1.442	0.231	-1.317	303	0.189
Equal variances not assumed			-1.270	135.051	0.206

### **Hierarchical multiple regression analysis predicting Young Adults Behavioral to purchase GPCP**

Table 6 depicts the result of two hierarchical regression analyses to determine the effect of TPB constructs in predicting intention to purchase GPCP. The three variables of TPB (attitude, subjective norm and perceived behavioral control) were entered into the model in the first step. Additional variables, price and environmental concern were entered in the second model. Result in the first standard TPB model shows that the combination of attitude, subjective norm and perceived behavioral control accounted for more than 90% of the variance in intention to purchase GPCP. The additional of factor price and environmental concern accounted for an additional and significant 92.6% of the variance. The regression equation showed that attitude ( $\beta=0.199$ ,  $p<0.01$ ), subjective norm ( $\beta=0.071$ ,  $p<0.01$ ), perceived behavioral control ( $\beta=0.434$ ,  $p<0.01$ ), price ( $\beta=0.065$ ,  $p<0.01$ ) and environmental concern ( $\beta=0.252$ ,  $p<0.01$ ) were significant determinants of intention to purchase GPCP. Then  $H2a$ ,  $H2b$ ,  $H2c$ ,  $H2d$  and  $H2e$  are supported. Result in model 2 confirmed the dominant of perceived behavioral control and environmental concern as the two most important factors in influencing students' intention to purchase GPCP. In model 3 shows both variables, perceived behavioral control ( $\beta=0.390$ ,  $p<0.01$ ) and intention ( $\beta=0.517$ ,  $p<0.01$ ) as a significant predictors to students' behavior of purchase GPCP with 83.8% variance explained in this model. Therefore,  $H3a$  and  $H3b$  are also supported.

Table 6

#### **Multiple Regression Analysis Predicting Students' Behavioral to purchase GPCP**

Variables	Model 1	Model 2	Model 3	Model 4
	INT	INT	BEH	PBC-INT-BEH
	$\beta$	$\beta$	$\beta$	$\beta$
PRI	-	0.065*	-	
ENV	-	0.252*	-	
ATT	0.317*	0.199*	-	
SNORM	0.111*	0.071*	-	
PBC	0.578*	0.434*	0.390*	
INT	-	-	0.517*	
→ PBC	INT			0.611*
→ INT	BEH			0.200*
$R^2$	0.913	0.926	0.838	

Note: PRI = Price; ENV = Environmental concern; ATT = Attitude; SNORM = Subjective Norm; PBC = Perceived Behavior Control; INT = Intention to Purchase; and BEH = Behavior of GPCP purchase.

### **Mediating analysis of young adults intention on the relationship between perceived behavioral control and Purchase Behavior of GPCP**

To assess the indirect relationship of perceived behavioral control on behaviour to purchase green personal care products (GPCP), a latent mediation analysis of intention as the mediator of the relationship was tested. All path coefficients were standardized using variance of the continues latent variables, as well as the variances of the outcome variables. The structural model includes the regression paths of intention on attitude, subjective norm, price and environmental awareness; as well as the indirect path of behaviour to purchase GPCP on perceived behavioral control, mediated by intention. Based on Table 6, the beta value for the

relationship perceived behavioral control and intention was not significant ( $\beta=0.315$ ). However, both relationship between intention and behavior, and perceived behavioral control and behavior were significant at ( $\beta=200, p<0.01$ ) and ( $\beta=0.611, p<0.01$ ) respectively. According to Hayes (2009); Mackinnon et al (2007) two steps approach, if one path is not significant, there is no mediation and further investigation is deemed unnecessarily. Hence, it can be concluded that intention did not mediate the relationship between perceived behavioral control and purchase behavior of GPCP, and the study concludes that *H4* is not supported.

## Discussion

Findings confirm the value of key constructs in the Theory of Planned Behavior (TPB) in understanding and predicting GPCP purchases in a study sample of university students. TPB constructs appear to be good predictors of students' intentions to purchase GPCP. The hypothesized model has a good fit to the study data. However, the indirect effect of perceived behavioral control on behavior through intention was insignificant and supported. A direct model using standard TPB predictors showed the importance of perceived behavioral control in predicting student purchase intentions. This is followed by attitudes and subjective norms, providing support for hypotheses *2a*, *2b* and *2c*. Similar findings have been reported elsewhere (Maichum et al., 2016; Awuni et al., 2016; Kim & Chung, 2011; Ahmad et al., 2010; Ali & Ahmad, 2012). The overall variance explained by the model is 91 percent.

Research hypotheses *H2d* and *H2e* are also supported. Specifically, both price and environmental concern were able to predict intention with variance increased to 93 percent, which indicated the importance of environmental concern after perceived behavioral control. The significant effect of environmental concerns on behavioral intentions is also supported by previous studies (Khuzaimah et al., 2020; Aman et al., 2012; Albayrak et al., 2013; Maichum et al., 2016; Han et al., 2010). These findings reinforce the important contribution of environmental concerns to green purchasing behavior. The overall variance in the purchasing behavior of GPCP students is explained by the hypothesis in model 3. The data show that both predictors, intentions and perceived behavioral control significantly influence the variance in the purchasing behavior of GPCP. Intention is the most important predictor of behavior followed by perceived behavioral control. PBC showed an important role for both models in predicting intentions and behavior. Those who rate themselves as having higher behavioral control will have higher intention to purchase the product and also behavior to purchase GPCP. Previous research has also shown that perceived behavioral control has a positive relationship with green purchase intention in previous research (Kim & Chung, 2011; Maichum et al., 2016). When consumers have more resources, such as money, their perceived behavioral control increases, as a result, their behavioral intentions increase, or they have greater behavioral intentions to perform certain actions (Fenisterra et al., 2009; Kim & Chung, 2011; Jog & Singhal, 2019).

Based on previous studies and their results, price is one of the main factors that significantly influence purchase intention (Hansen & Sorensen, 1993; Ganeshan & Suresh, 2016; Sulaiman et al., 2017; Wong & Aini, 2017; Zhang et al., 2018). Consumers are primarily influenced by the pricing of green products in order to generate prospective interest in green products (Ganeshan & Suresh, 2016). Pricing is seen as a strategic marketing element that influences customer purchasing behavior (Konuk, 2015). Previous research has found that price

discounts, rather than premiums, result in increased purchase intentions among highly price-conscious consumers (Palazon and Delgado, 2009). In conclusion, the results of this study support previous studies that said price is a predictor of green purchase intention. The findings also show the importance of attitude in predicting intention to purchase GPCP. This finding supports previous literature that confirms that attitude is one of the more important elements in predicting consumers' intention to pay for environmentally friendly products (Tsen et al., 2006). A person's attitude has an important role in deciding whether or not to accept a certain action (Maichum et al., 2016). Several studies have explained that attitudes positively influence the intention to buy green products (Maradesa et al., 2015; Fauzi & Hashim, 2015; Kim & Chung, 2011; Maichum et al., 2016).

The results of this study are also consistent with previous studies which found that there is a significant relationship between subjective norms and the intention to buy green products (Maichum, 2016). Green products are more likely to be purchased when consumers perceive that other people believe the green products are good for the environment (Kim & Chung, 2011). According to a study, Thai consumers' purchasing intentions for green products are influenced by subjective norms (Maichum, 2016). As a result, to prove that this result is plausible. Students as young adult consumers are more likely to be influenced by people who are important to them such as family members or friends. Table 6 (model 4) shows the results of the mediation effect. The results suggest that the effect of perceived behavioral control on behavior is not mediated by intention. This implies that the intention does not contribute to the significant of GPCP purchase behavior.

### **Conclusion, Limitation and Future Study**

Efforts to combat climate change require action at all levels. Changing consumer behavior is essential for a rapid transition to a zero-carbon future. Personal care products are used by the vast majority of people on a daily basis and have a high environmental impact during their product life cycle due to the ingredients and materials used and the entire manufacturing process. The study findings suggest that future interventions should consider TPB constructs and additional constructs, price and environmental concerns. The factor of perceived behavioral control has the greatest effect on purchase intention and behavior. To sum up, the findings are a promising starting point for the conception of target group-specific strategies. The establishment of a strong product positioning as well as the use of effective marketing activities, which include a deep understanding of consumers and focus on the promotion of the central factors influencing their acceptance of green personal care products. As refer to Ajzen (1991) which defined perceived behavioral control as focused on one's belief concerning access to the resources needed, therefore marketers should communicate the advantages of green personal care products compared to conventional products. Increase public knowledge and awareness on the products seem to be very important in order to induce public perceived behavioral control. Since the findings of this study show subjective norms as one of the predictors of purchase intention, marketers should use many platforms to provide more information about green personal care products in society. To increase public environmental concerns, public awareness campaigns can be used to inform the public about specific features of green personal care products in more detail, for example, using samples to induce trials. It is also advisable to place green personal care products more visible and provide consumers with more specific information about where they can purchase products and the possible contribution to environmental protection.

The use of green personal care products is one of climate-friendly behaviors. Green products made from natural raw materials, grown without the use of pesticides, synthetic fertilizers, genetically modified organisms, and unused solid plastic particles. The findings may also inform behavioral interventions aimed at increasing public concern and awareness about the benefits of using GPCP or the risks associated with brown personal care products to humans and the environment. Insights from the findings are important to behavioral change studies that can be useful in helping make change happen in our homes and communities.

This study like any other, has several limitations. It is based on self-reported data, which due to the situation of the COVID-19 pandemic, there is no way to give face-to-face questionnaires for this study to analyze the data, so it is impossible to ensure that each response meets the criteria and requirements of this study. It is likely that some of the respondents are not the subject of this study, which might be skewed by social desirability bias. In order to reduce the scope of the problem, the questionnaire used in this study was made from various sources from the literature. It was also confirmed that the respondents had no preconceived notions about whether a response was right or wrong. Future studies may use multi-method techniques to obtain data or conduct objective assessments of these variables. The findings of this study focused on young adults which cannot be applied to other sectors of the population or to other age groups. This study takes into account the effects of the Theory of Planned Behaviour, with additional predictors being environmental concern, and price. Future studies may look at the effects of various exposures to environmental messaging from certain media such as whats-app, twitter etc. on the green purchasing behavior of undergraduate and postgraduate students. Additionally, future studies may look at the effects of additional variables not covered in this study such as knowledge, promotion, and lifestyle on the green purchasing behavior of undergraduate and postgraduate students. In addition, future studies may conduct in-depth research on GPCP in relation to existing policies on the protection and conservation of the environment and natural resources. For example, Sustainable Development Goal 14, which focuses on life under water, researchers can find more solutions in research to solve the problem of marine pollution (especially related to the issue of microplastics), and ways to better remind people about the awareness of protecting marine life in the future.

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