Factors Influencing Consumer Purchase Intentions of Medical Beauty Products

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Abstract

The aim of the study was to examine factors influencing consumer purchase intentions of medical beauty products using the Theory of Planned Behavior (TPB). Measures included knowledge, attitude towards use, subjective norm, perceived financial control, and purchase intention. Data (n = 307) were analyzed using IBM SPSS Statistics 26 and AMOS 24 software to evaluate the strength of relationship between the constructs. The findings of this study showed that perceived financial control was the most important variable affecting consumers' intention to purchase medical beauty products, followed by attitude and knowledge. This finding supports the use of TPB in predicting consumer purchase intentions for medical beauty products and suggest appropriate marketing strategies to encourage consumers to choose medical beauty products that contain permissible ingredients.

Introduction

In the cosmetics industry, medical beauty products are considered a breakthrough and advancement as they deliver high-quality advanced products that conform with regulation and comply to strict scientific guidelines. Medical beauty products demonstrate products that are sold to consumers through diverse methods to enhance the appearance of beauty. It also extends to treatment products used by medical practitioners using medical equipments such as injectable vitamin C treatments, removal of excess fat, dermal fillers, collagen, Botox containing poisonous ingredients and so on. The Working Group on Differentiation between Medical Procedures and Beauty Services in Hong Kong categorizes medical beauty products as 35 medical beauty procedures with possible safety risks. The report list medical devices and medical beauty procedures involve skin puncture, chemical exfoliation of the skin, and other procedures such as colon hydrotherapy, hyperbaric oxygen therapy, jet injector, dental

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bleaching and suction massage. Medical beauty products also include medical skincare that contain toxic substances commonly found that are listed in the Poison Act 1952 for example mercury, hydroquinone, tretinoin, and azelic acid, which, when used extensively and regularly, directly affect consumers.

Thousands of local and foreign businesses are driven by a favorable demand for medical beauty products and services to produce and sell beauty products, which they claim provide effective medical treatment. The abundance of beauty products boasting medicinal concepts confuse enthusiastic consumers. Consumers are confused by the complexity of the products and exaggerated marketing information. Furthermore, diffusion of fabricated news and pseudo-facts is becoming increasingly fast-paced and widespread in the health and beauty industry, making it more difficult for consumers to separate reliable information from misleading content (de Regt, Montecchi, & Ferguson, 2020). A common argument in previous research is that cosmetic consumers purchase benefits, not features. Therefore, they pay more attention to functions rather than detailed ingredients (Mason, 2012). Such problems are exacerbated when consumers do not correctly process information about safety and health risk (Mokhtar, Mokhlis, & Saadon, 2020). As a result, companies that wish to be ethically responsible in selling medical beauty products that meet a high standard of safety may face problems competing against companies that produce unsafe beauty products and sell these products at cheaper costs to attract price sensitive consumers. Even worse, the provisions of current laws are ineffective to prevent the dumping of sub-standard medical beauty products on the market by stakeholders (Mokhtar et al., 2020).

Despite the increasing prevalence of beauty products and its significant effect on marketers and consumers, the social and psychological factors which influence consumer purchase intention for medical beauty products have yet to be fully explored. To date, only a few studies have investigated consumer buying behavior towards medical cosmetics (e.g. Lee, Wu, Lin, & Lee, 2014; Kim & Han, 2018; Lee, You, & Li, 2019). There is paucity of theory-driven research on consumer purchase intention for medical beauty products. The purpose of this study is to explore factors influencing purchase intention for medical beauty products among a sample of Malaysian women. Applying the Theory of Planned Behavior (TPB) of Ajzen's (1985, 1991), it is hypothesized that knowledge and the three independent variables in TPB (attitude toward use, subjective norm, and perceived financial control) will exert significant influence on consumer purchase intention for medical beauty products. Theory-driven research promotes greater understanding of attitudinal and behavioral variables that affect a specific behavior, allows researchers to propose and test causal models of the behavior, and ultimately facilitates effective design and implementation of marketing programs that aim to promote the behavior (Alam & Sayuti, 2011).

Research Model and Hypotheses

The Theory of Reasoned Action was first introduced by Fishbein and Ajzen (1970), and elaborated by Ajzen (1985) to the current form of Theory of Planned Behavior (TPB). Since its inception, a plethora of research has been conducted in the area of TPB, with an aim of elaborating the TPB and applying the theory across numerous social behaviors. Three

psychological factors are included in the standard model of TPB, namely, attitude toward the behavior, subjective norm, and perceived behavioral control, all together leads to the formation of behavioral intention, which in turn affects behavior (Ajzen, 1991). TPB has been supported by empirical studies on social psychology and consumption-related research (Ajzen, 1991; Taylor & Todd, 1997). A meta-analytic study of Thompson, Hazins, and Alekas (1994) indicate that measures of attitude, subjective norm, and perceived behavioral control, explains 40-50 percent of the variance in intentions and that behavioral intentions explain between 19 and 38 percent of the variance in behavior. A more recent meta-analytic study on the theory's predictability reported the TPB accounts for 27% of behavior and 39% of intention (Armitage & Conner, 2001). However, the TPB is open for modification as Ajzen (1991) suggested that it could be deepened and broadened by adding new variables or altering the path of the existing variables.

The research model used in the study, shown in Figure 1, is based on the TPB. While we consider attitude and subjective norm as it is in the standard TPB, we replace perceived behavioral control by perceived financial control. On top of that, we expand the standard TPB in this study by introducing consumer knowledge as a fourth predictor of purchase intention. We postulate that extending the TPB through the inclusion of consumer knowledge construct is very significant in this study. This is because knowledge is needed to make truly informed decisions hence it is a critical antecedent for assessing the undertaking of any behavior, including purchasing medical beauty products. Inclusion of additional constructs has resulted in improving the predictive power of the TPB across different domains (Arvola et al., 2008).
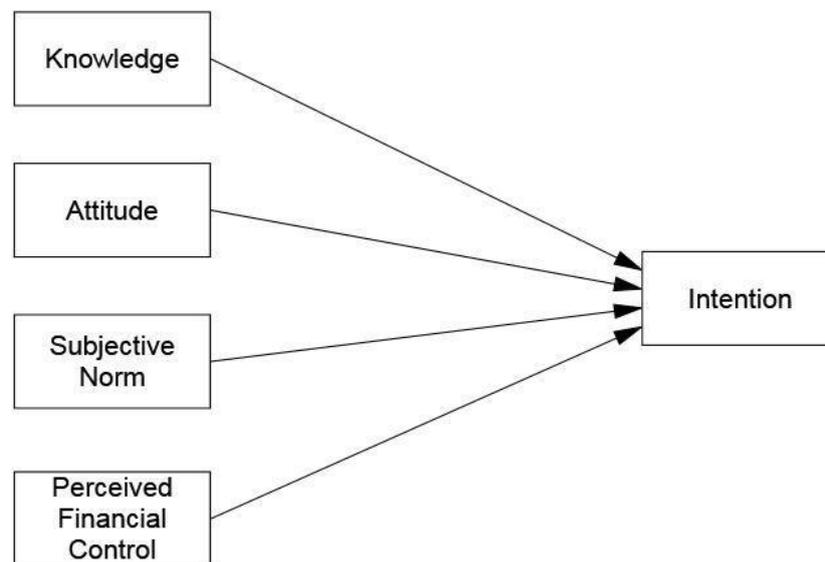

Figure 1: Research model.

Consumer knowledge is a key personal factor which can influence how information is gathered and organized by consumers, and ultimately, what products they purchase and how they use them. Consumers use their knowledge to process the product-related cues (Aertsens et al., 2011). High-knowledge consumers are able to analyze information more thoroughly and therefore are better able to articulate evaluations of products (de Bont & Schoormans, 1995).

They tend to rely on intrinsic product characteristics to judge product quality and function. On the other hand, low-knowledge consumers tend to evaluate the product based on its extrinsic cues such as price and brand as these cues provide a quick information regarding the product (Rao & Monroe, 1989). Eze, Tan, and Yeo (2012) demonstrated a significant influence of product knowledge on consumers' purchase intention for cosmetic products. Parallel to this finding, Lee, Wu, Lin, and Lee (2014) observed that consumers with a high level of knowledge relating to medical cosmetics have a much more intent to buy the product. Consistent with literature, this study postulates that:

H1.   Knowledge has a significant positive influence on consumer intention to purchase medical beauty products.

In TPB, attitude refers to the degree of favorable or unfavorable evaluation toward a specific behavior (e.g. purchasing a product), which is developed from the belief that the performance of that behavior is likely to lead to a positive or negative outcome (Ajzen, 1991). A favorable attitude is formed when the result of a behavior is predicted positively, and it strengthens the intention to perform the behavior (Teng, 2009). However, if consumers believed or perceived products not to be fulfilling their own or their needs, they are less likely to purchase the products. Previous studies have shown that attitude has a positive influence on consumers' purchase intention for cosmetic products (e.g. Nguyen, Phan, & Le, 2017; Rahman, Asrarhaghighi, & Rahman, 2015; Haro, 2018). Accordingly, this study posits that:

H2.   Attitude has a significant positive influence on consumer intention to purchase medical beauty products.

Subjective norms are the influence of others who are close and important to the person such as family, close friends and colleagues (Hee, 2000). Subjective norm reflects an individual's perception that most people who are important to him or her think that the behavior in question should or should not be carried out (Fishbein & Ajzen, 1975). The input of any given referent's opinion (e.g. person) is weighted by the motivation that an individual has to comply with the wishes of that referent (e.g. person) and can represent social pressure in a broad sense. Nguyen et al. (2017) examined the consumer intention to buy organic cosmetics and found that the subjective norm had a significant influence on consumer intention. In addition, Haro (2018) demonstrated the positive effect of the subjective norm on consumer intention to buy halal cosmetics. Thus, the following hypothesis has been predicted:

H3.   Subjective norm has a significant positive influence on consumer intention to purchase medical beauty products.

Perceived behavioral control in the TPB refers to a person's perception of how easy or difficult it would be to perform a certain behavior and the amount of control one has over the attainment of the goals from said behavior (Ajzen, 1991). Actual and perceived personal inadequacies and external obstacles may interfere with the ability to perform a particular behavior, and ultimately with the sense of control that one has over the action and outcomes of the behavior. Madden,

Ellen, and Ajzen (1992) suggest that control is accomplished through relevant resources and opportunities for performing a given behavior. Therefore, the more resources and opportunities individuals think they possess, the greater their perceived control over the behavior. For some behaviors, even if a person has a positive attitude and feels social pressure, he/she cannot possess a behavioral intention without sufficient money or knowledge. Thus, when predicting purchase, problems of behavioral control are most likely to be problems of financial control (Sahni, 1994). This is possible since perceived financial control has motivational consequences for consumer intentions (Ajzen & Madden, 1986). The more a person believes she possesses the requisite financial resources to purchase, the more she is likely to form strong intentions to purchase. In a study of Sahni (1994), perceptions of financial control were found to contribute to the prediction of intentions for both the inexpensive and the relatively expensive scenarios. Based on the preceding literature, the following can be hypothesized:

H4.   Perceived financial control has a positive significant influence on consumer intention to purchase medical beauty products.

Methodology

The research uses cross-sectional design approach. Data for this study was collected using a structured questionnaire. The questionnaire was divided into two sections of which one section is on demographic information and the other consists of 18 Likert-scaled items measuring knowledge, attitude toward medical beauty products, subjective norm, perceived financial control, and intention to purchase medical beauty products. The design of the questionnaire was such that it allowed for the measurement of those constructs contained within the Ajzen and Fishbein (1980) framework. Table 1 presents the sample statements for each construct in the questionnaire.

Table 1: Construct and sample statement

Construct	No. of item	Sample statement
Knowledge	5	I know the difference between permissible and forbidden ingredients for medical beauty products.
Attitude	3	Authentic medical beauty products are important.
Subjective norm	3	People who are important to me think I should buy less quality medical beauty products.
Perceived financial control	3	I could likely afford to pay such a price for purchasing medical beauty products.
Purchase intention	4	I will make effort to buy medical beauty products in the next 6 months.

The population of interest for this study included women consumers who have experienced purchasing medical beauty products. However, due to the lack of reliable sampling frame, convenience sampling technique was utilized to facilitate timely completion of the research. Although this convenience sample undoubtedly limits generalization, the purpose of the study was to test the theoretical relationships proposed. Calder, Phillips and Tybout (1981) argued that as long as the study is not intended to provide interval estimates of the mean scores on the scales, a conveniently selected sample is appropriate for theory testing purposes. The survey was conducted for two weeks in May 2020. A total of 400 questionnaires were distributed, this yielded 307 valid surveys, for a response rate of 76.8 per cent. Majority of respondents hold undergraduate degree (61.6%) or postgraduate degree (7.9%). Majority of the respondents belong to the age between 20 and 29 years old (79.2%) while 15.3% of them belong to the age between 30 and 39 years old.

Analysis and Results

IBM SPSS Statistics ver. 26 was used for data analysis. Frequencies and percentages were used for description of the data. To test our proposed research model and directional hypotheses, Structural Equation Modeling (SEM) was undertaken utilizing the Analysis of Moment Structures (AMOS) ver. 24 software, with using maximum likelihood as the estimation method. SEM was preferred to use in this study as it enables testing of hypothesized relationships between multiple variables simultaneously, allowing for both latent and observed variables to be analysed at the same time (Gefen, Straub, & Boudreau, 2000). SEM is also able to take into account measurement errors of the observed variables to be analysed as an integral part of the model (Gefen et al., 2000; Hair, Black, Babin, & Anderson, 2019).

Because maximum likelihood estimation procedures were used in this study, the normality assumption could not be severely violated (Curran, West, & Finch, 1996). Following the guidelines for severe non-normality (i.e., absolute value of skewness > 3; absolute value of kurtosis > 10) suggested by Kline (2005), all of the items of this research model fell well within the guidelines and could be regarded as fairly normal for purposes of further analysis.

Prior to SEM, CFA was performed to test the validity of each construct in the model. Since the model is not too complicated, this study decided to validate all constructs at once through the pooled CFA procedure. According to Awang (2014), three aspects that need to be observed in the process of determining reliability are the internal reliability determined using the Cronbach's alpha value should be greater than 0.70, the composite reliability (CR) should exceed 0.60, and the average variance extracted (AVE) should exceed 0.50. Table 2 summarizes the results of the pooled CFA procedure. Each of the standardized loading items is greater than 0.60 on their expected factor. The CR for all the constructs was also above the threshold value of 0.60, indicating a relatively high level of constructs reliability. The AVE of

latent constructs, range from 0.554 to 0.728, exceeding the recommended threshold value of 0.50. Hence, the current data have a good convergent validity.

Table 2: Result of pooled CFA for measurement model

Construct	Item	Loading	Cronbach's Alpha	CR	AVE
Knowledge	KN1	0.66	0.828	0.831	0.554
	KN2	0.66			
	KN4	0.79			
	KN5	0.85			
Attitude	ATT1	0.64	0.823	0.834	0.631
	ATT2	0.89			
	ATT3	0.83			
Subjective Norm	SN1	0.79	0.873	0.874	0.698
	SN2	0.85			
	SN3	0.86			
Financial Control	FC1	0.76	0.844	0.846	0.647
	FC2	0.82			
	FC3	0.83			
Intention	INT2	0.85	0.888	0.889	0.728
	INT3	0.90			
	INT4	0.80			

Note: Two items (KN3 and INT1) were removed due to low factor loading (< 0.60).

Next, discriminant validity was checked by comparing the shared variances between factors with the square root of AVE for each construct. Table 3 depicted that all shared variances of the construct with other constructs were lower than the square roots of AVE of the individual factors, confirming discriminant validity. Hence, each construct was statistically different from the others. In summary, the measurement model demonstrated adequate reliability, convergent validity, and discriminant validity.

Table 3: Assessment of discriminant validity

	Knowledge	Attitude	Subjective norm	Financial control	Intention
Knowledge	**0.74**				
Attitude	0.34	**0.79**			
Subjective norm	-0.03	-0.15	**0.84**		
Financial control	0.37	0.36	0.22	**0.80**	
Intention	0.39	0.42	-0.04	0.45	**0.85**

Note: Diagonal elements are the square roots of the AVE of each construct in the structural model while the other entries represent the correlations.

The structural model was estimated by means of maximum likelihood estimate. Because there is no single universally accepted fit index, a variety of indices were used to assess the model's overall goodness-of-fit (Table 4). The normed chi square was 2.68 which was lower than 3 (Bagozzi & Yi, 1988). The root mean square error of approximation (RMSEA) (0.074) was lower than 0.08 (Browne & Cudeck, 1993). The goodness-of-fit index (GFI) (0.908) and the adjusted goodness-of-fit index (AGFI) (0.866) exceeded the recommended cut-off level of 0.80 (Chau & Hu, 2001). Moreover, the normed fit index (NFI) (0.905), the comparative fit index (CFI) (0.938) and Tucker-Lewis index (TLI) (0.92) all registered values greater than the 0.90 cut-off value as suggested by Bagozzi and Yi (1988). On the basis of the above results, it can be inferred that the structural model exhibited a good data fit.

Table 4: Goodness-of-fit measures for structural model

	Fit Indices	Benchmark	Model Value
Absolute fit	RMSEA	< 0.08	0.074
	GFI	> 0.90	0.908
Incremental fit	AGFI	> 0.80	0.866
	CFI	> 0.90	0.938
	TLI	> 0.90	0.920
	NFI	> 0.90	0.905
Parsimonious fit	Chisq/df	< 3.00	2.680

Table 5 shows the results of the hypothesis test. A total of 32 percent of variance in consumer intention to purchase was explained by the four predictors. The first hypothesis (H1) predicted that knowledge positively influences behavioral intention and was supported ($\beta = 0.198$, $p < 0.01$). Attitude was also expected to positively influence behavioral intention (H2) and this hypothesis was supported ($\beta = 0.239$, $p < 0.001$). H3 predicted that subjective norm would positively influence behavioral intention. However, the results did not support this hypothesis ($\beta = -0.06$, $p > 0.05$). Finally, perceived financial control was also expected to have a positive influence on behavioral intention (H4). This hypothesis was supported ($\beta = 0.303$, $p < 0.001$). Thus, only H1, H2 and H4 were supported while H3 was not. Perceived financial control was the strongest predictor of behavioral intention followed by attitude and knowledge of the individual. Figure 2 displays the estimated standardized path coefficients of the structural model under investigation.

Table 5: Hypotheses testing

Path	Estimate	Critical Ratio (CR)	p-value	Decision
Knowledge → intention	0.148	3.027	0.002	Supported
Attitude → intention	0.235	3.575	0.000	Supported

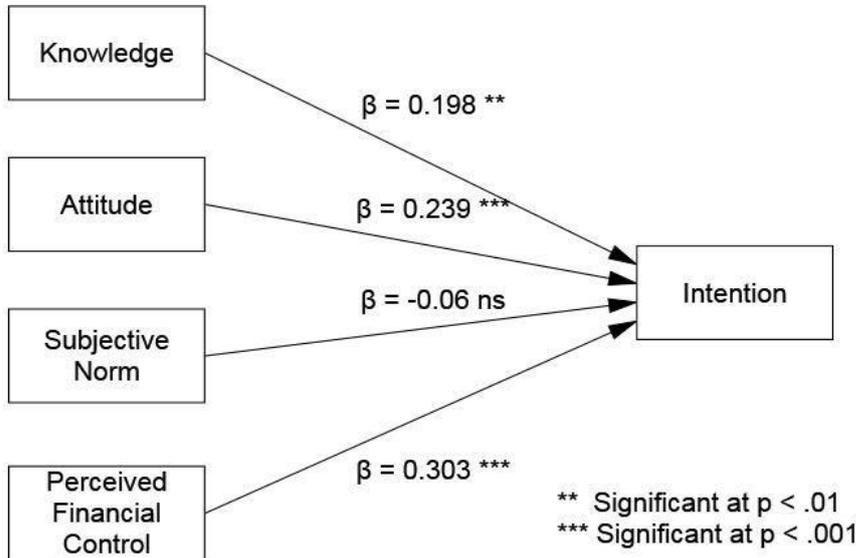|				
Subjective norm → intention	-0.046	-0.990	0.322	Not supported
Perceived financial control → intention	0.240	4.221	0.000	Supported

Figure 2: Results of the SEM procedure.

Conclusion

This study aims to examine factors influencing consumer purchase intentions of medical beauty products. Using the TPB as a research model, perceived financial control emerged as the most significant determinant of consumers' purchase intention. The relationship is in a positive direction which means that the greater impact of financial control in explaining variability in behavior is expected for high priced items such as medical beauty products. The study also depicted that attitude has a significant and positive effect on purchase intention for medical beauty products. Attitude is an important factor in influencing consumer intention in purchasing medical beauty products because those with high positive attitudes appeared to have greater intentions to purchase the products.

Further, the findings have also supported the inclusion of additional construct, i.e. knowledge in TPB as inclusion of this construct has improved the predictive power of the theoretical framework in determining the consumers' purchase intention. However, contrary to expectation, subjective norm was not reported to have any significant impact on consumers' purchase intention which similar to the findings of Ghazali, Soon, Mutum and Nguyen (2017) and Christine, Kempa and Vincēviča-Gaile (2020). It was possible that subjective norm alone was not enough to motivate consumers to purchase medical beauty products. Overall, the four predictors contributed about 32 percent of the variance in intention to purchase. Previous studies have also successfully used the TPB as a theoretical framework from which to examine the purchase intention (Alam & Sayuti, 2011; Ghazali et al., 2017; Haro, 2018; Christine et al., 2020).

This study enables industry practitioners to have a clearer understanding of consumer purchase intention in order to capitalize on the growing interest in medical beauty products. Based on the findings, firms can develop more effective marketing activities focusing on the key influences. A summary of suggestions to improve industry practitioners' marketing activities based on our research findings is shown in Table 6.

Table 6: Summary of findings and recommendations

Accepted Hypotheses	Recommended Actions
H1: Knowledge has a significant positive influence on consumer intention to purchase medical beauty products.	• Expand reach for marketing communication and public relations. Advertising message should promote product knowledge of medical beauty products. • Disseminate comprehensive information about the harmful effects of unregulated medical beauty products through mass media (specialized magazine, radio and television programs) as well as health recommendations by healthcare experts. • Leverage word of mouth through use of spokespeople. • Set up website to disseminate information.
H2: Attitude has a significant positive influence on consumer intention to purchase medical beauty products.	• Marketing efforts to reach wider consumer base, expand educational focus. • Emphasize product safety to satisfy the values of potential consumers. • Reduce physical and psychological costs by utilizing miniature samples as a marketing tool to induce trials.
H4: Perceived financial control has a positive significant influence on consumer intention to purchase medical beauty products.	Attribute higher prices to: • Product quality • Prestigious brand image • Updated product information • Product attributes

This study has proved the usefulness and applicability of TPB in determining the consumers' intention towards purchasing medical beauty products in the Malaysian context. However, the findings of this study must be tempered by several limitations. First, the study is limited to measuring the purchase intention of medical beauty products among female consumers in Malaysia; there is no measurement of their actual buying behavior. Although previous findings have confirmed that intention to act is positively associated with actual

behavior, there is a need in future studies to incorporate actual buying behavior along with the intention. Second, although this study indicates that the TPB is reasonably efficient in predicting the behavioral intention to purchase medical beauty products, it should be a concern for future research to identify additional constructs for inclusion to further enhance the predictive power of the model. Third, the study is limited to female consumers of a selected region. Future studies should be carried out using nationwide samples that are more widely representative in terms of both age and income groups than was the relatively limited sample.

Acknowledgment

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