

THE INFLUENCE OF ENVIRONMENTAL ENGAGEMENT IN THE DECISION TO PURCHASE SUSTAINABLE COSMETICS: AN ANALYSIS USING THE THEORY OF PLANNED BEHAVIOR

A INFLUÊNCIA DO ENGAJAMENTO AMBIENTAL NA DECISÃO DE COMPRA DE COSMÉTICOS SUSTENTÁVEIS: UMA ANÁLISE À LUZ DA TEORIA DO COMPORTAMENTO PLANEJADO

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ABSTRACT

Purpose: This research aims to identify the influence of environmental engagement on the purchase intention for sustainable cosmetics by Brazilian consumers using the Theory of Planned Behavior.

Methodology: In the qualitative phase, the study conducted two in-depth interviews, aiming to build a survey considering the main behavioral, normative, and control consumer beliefs. In the quantitative phase, an online survey was conducted. We analyzed 114 responses from sustainable cosmetics consumers, using SEM.

Findings: The results revealed a correlation between purchase intention, consumer attitude, and perceived behavioral control. Although the perceived behavioral control was considered significant, it has a small influence when compared to the individual's attitude toward the behavior. This means that the stronger the advantages and benefits of using the product, the more likely the consumer is to buy and use it. Also, environmental engagement was proven to positively influence consumer behavioral and normative beliefs. It indicates that the more environmentally engaged the consumer, the greater the advantages the individual perceives in buying sustainable cosmetics.

Theoretical contributions: The study extends the theory by determining a model with a significant ability to explain the environmental engagement in sustainable cosmetics' purchase intention. Regarding consumer behavior, this research has shown that personal feelings are the main influencer of purchase.

Relevance/Originality: The increase in sustainable consumption has attracted the attention of the most diverse market segments. This study brings light to new propositions concerning purchase intention and environmental engagement by proposing, testing, and validating a model in the context of sustainable cosmetics.

Keywords: Environmental engagement; sustainable cosmetics; sustainable consumption; theory of planned behavior; consumer behavior

RESUMO

Objetivo: Esta pesquisa objetiva identificar a influência do engajamento ambiental na intenção de compra de cosméticos sustentáveis por consumidores brasileiros usando a Teoria do Comportamento Planejado.

Metodologia: Na fase qualitativa, foram aplicadas duas entrevistas em profundidade, desenvolvendo uma *survey* considerando as principais crenças comportamentais, normativas e de controle. Na fase quantitativa, uma *survey* online foi conduzida, obtendo 114 respostas de consumidores de cosméticos sustentáveis, analisadas usando MEE.

Resultados: Os achados demonstram uma correlação entre intenção de compra e atitude e controle comportamental percebido. Embora o controle comportamental percebido foi significativo, assume uma pequena influência quando comparado à atitude com relação ao comportamento do indivíduo. Isso significa que, quanto mais fortes os benefícios do uso do produto, maior a chance de o consumidor comprar e usar. Ainda, identificou-se que o engajamento ambiental influencia positivamente nas crenças comportamentais e normativas do consumidor. Isso indica que, quanto mais ambientalmente engajado o consumidor se encontra, maiores as vantagens que o indivíduo percebe ao comprar cosméticos sustentáveis.

Contribuições teóricas: O estudo estende a teoria ao determinar um modelo com habilidade significativa de explorar o engajamento ambiental na intenção de compra de cosméticos sustentáveis. Quanto ao comportamento do consumidor, a pesquisa demonstra que sentimentos pessoais são os principais influenciadores da compra.

Relevância/Originalidade: O aumento no consumo sustentável tem atraído a atenção de diversos segmentos de mercado. Este estudo destaca novas proposições com relação à intenção de compra e engajamento ambiental através de proposta, teste e validação de modelo no contexto dos cosméticos sustentáveis.

Palavra-chave: Engajamento ambiental; cosméticos sustentáveis; consumo sustentável; teoria do comportamento planejado; comportamento do consumidor.

1 INTRODUCTION

Consumers must make several decisions throughout the day. The consumption process involves simple and complex decisions that have gained attention since 1960, although studies on this issue date back to 1930. The first research works were concerned with understanding behavior alone, disregarding its impacts in the field of business management (Shaw & Jones, 2005).

The industrial revolution increased consumption within society. It also led to over-purchasing habits that disregarded the socioenvironmental impact of products. Over time, concerns with overconsumption originated movements of ‘conscious consumption’ seeking to reduce the impacts of purchasing behavior and improve modern lifestyle (Pagiaslis & Krontalis, 2014).

Research by the nonprofit organization Instituto Akatu (2018) showed a growth in the number of conscious consumers in Brazil from 32% to 38% within six years, pointing out a predominance of female consumers. The industry of personal hygiene, perfumery, and cosmetics is one of the most relevant for conscious consumers in the country, and the selling of skin care products increased by 21.9% in 2020, according to a report by the Brazilian Association of the Personal Hygiene, Perfumery, and Cosmetics Industry (ABIHPEC, 2021). Despite its economic importance, there is still space for research on the environmental impact associated with the consumption of these products (Juliano & Magrini, 2017). The concerns about the many impacts caused by the cosmetic industry on the environment led to a segment of sustainable or eco-friendly cosmetics, focused on conscious consumers.

Environmentally conscious consumers are more likely to buy sustainable products than regular consumers (Sánchez *et al.*, 2017; Yun & Lee, 2015). Behaviors are connected to a set of psychological factors, i.e., by observing beliefs and other individual motivations, it is possible to identify consumption intentions and predict sustainable behaviors (Deng *et al.*, 2017; Kaiser, Hubner,



& Bogue, 2005; Sánchez, *et al.*, 2017). Although much is said about healthy food and habits, few studies specifically address this issue when discussing the segment of cosmetics (Cervellon, Rinaldi, & Wernerfelt, 2011; Askadilla & Krisjanti, 2017; Furtado, 2020).

The research seeks theoretical support within the field of cognitive social research, adopting the theory of planned behavior (TPB). TPB is considered a good prediction tool for eco-friendly behaviors (Kim, Njite & Hancer, 2013; Chhetri *et al.*, 2021), and is widely discussed within the context of sustainability (Leeuw *et al.*, 2015; Ghazali *et al.*, 2017; Chin *et al.*, 2018; Furtado & Sampaio, 2020). It has good prediction indexes and can include new analysis variables (Sánchez *et al.*, 2017).

Tamashiro *et al.* (2014) explain that consumers are not fully aware of ecologic cosmetics information and benefits, but behave with a high level of ecological affection and present ecological concerns. Understanding consumer behavior regarding sustainable products as well as the factors that influence the purchase of green cosmetics is important so that advances in the industry and the marketing field can be made (Furtado & Sampaio, 2020). By examining the influence of environmental engagement in purchase behaviors, our study seeks to answer the following research question: what is the influence of environmental engagement in the decision to purchase sustainable cosmetics?

This study aims to explore how consumers behave when it comes to purchasing sustainable cosmetics using TPB, bringing new insights to the field by analyzing beliefs and behaviors concerning sustainable cosmetics consumption. The main objective is to identify the influence of environmental engagement on the purchase intention for sustainable cosmetics by Brazilian consumers using the TPB. Three specific objectives are developed to guide the analysis. First, the research identifies the main behavioral, normative, and control beliefs involved in the decision to purchase sustainable cosmetics. Second, we analyze the influence of these beliefs on the behavior of purchasing sustainable cosmetics. Third, the study examines the influence of environmental engagement on such purchase behavior.

The data analyzed were collected in two phases. The first was a qualitative stage, consisting of two in-depth interviews with producers of sustainable cosmetics. The interviewees revealed the influences and beliefs that led them to manufacture such products, providing information to build a survey to collect information from consumers. In the second and quantitative phase, the survey was distributed online, obtaining 114 responses from consumers who use or have used sustainable cosmetics, shedding light on new directions in the field.

This article is divided into seven sections, including this introduction. Section two shows the context of *the* conscious consumption and sustainable cosmetics industry, as well as the theory of planned behavior perspective. Section three presents the research model and hypothesis. Sections four, five, and six discuss the method choices, results, and discussion. The seventh section presents the conclusion, highlighting the main contributions and limitations of the study.

2 LITERATURE REVIEW

2.1 *Conscious Consumption and Sustainable Cosmetics*

Conscious consumption is when a person bases the purchase, use, or disposal of products on a desire to minimize or eliminate harmful effects and maximize the long-term beneficial impact on society (Mohr, Webb, & Harris, 2001). Kim, Njite, and Hancer (2013) state that factors such as environmental concern, concern for the well-being of others, and effectiveness of green practices, motivate environmentally conscious behavior. A conscious consumer is concerned with the quality of goods and services and their ecologically positive impact (Askadilla & Krisjanti, 2017).



When environmental concerns became prominent in society, studies on conscious consumers gained space in marketing studies. However, these studies were not focused on consumption habits, but on demographic data, environmental concerns, social responsibility, and consumer attitudes (Song & Kim, 2018).

Sustainable products have gained strength within the beauty industry. Consumers look for cosmetics with natural elements, socially responsible approaches, and packaging that is less aggressive to the environment (Lin *et al.*, 2018). Sustainable products for personal care are connected to a healthy and eco-friendly lifestyle, therefore, these products are increasingly popular with female consumers (Pudaruth, Juwaheer, & Seewoo, 2015).

Beauty products are largely used all over the world, which implies ecological issues related to the substances released into the environment during their production and use (Juliano & Magrini, 2017). The recognition of environmental and ethical issues has motivated consumers to use sustainable cosmetics (Lin *et al.*, 2018; Chin *et al.*, 2018). In Brazil, the sector of organic products grew by around 20% and moved more than R\$ 3 billion in 2017, while that of vegetarian products grew by more than 40%, according to the Brazilian Vegetarian Society (Gama, 2018). However, few studies discuss the use of organic products in the Brazilian cosmetic market (Furtado, 2020).

Sustainable cosmetics are those that cause little or no damage to the environment during production. They are non-polluting and use non-renewable resources responsibly also presenting a formula based on natural ingredients that do not exploit animals (Lin *et al.*, 2018). In Brazil, there are no regulations to produce sustainable cosmetics (Higuchi & Dias, 2012; Lima *et al.*, 2021).

Many studies address the issue of consumption of sustainable cosmetics, designated “green” or “natural” cosmetics (Askadilla & Krisjanti, 2017; Chin *et al.*, 2018; Tamashiro *et al.*, 2014; Liobikienė & Bernatoniene, 2017). For Pudaruth, Juwaheer, and Seewoo (2014), although there is an increase in the consumption of sustainable cosmetics, some factors hinder the expansion of the market. Among these factors, Lin *et al.* (2018) point out the lack of regulation and dubious or misleading advertisements – which lead to diffidence toward the products. Although consumers perceive that sustainable cosmetics are healthier and have better quality (Pudaruth, Juwaheer, & Seewoo, 2015), the perception of industry, companies, and the media may influence their purchases. The lack of information and contradictory data, as well as the focus on the composition of the product instead of its benefits, may also hamper the purchase decision (Lin *et al.*, 2018).

2.2 Theory of Planned Behavior

The theory of planned behavior (TPB) was proposed in 1985 by Icek Ajzen, emerging as an evolution of the theory of reasoned action (TRA) developed by Fishbein and Ajzen (Ajzen, 1991). According to TPB, the individuals’ intention determines their behavior (Bissonnette & Contento, 2001; Kaiser, Hubner, & Bogue, 2005). The theory assumes that the consumer is a rational being who makes decisions after analyzing a variety of information (Ajzen, 1991).

The behavioral intention is the main and immediate predecessor of an action (Madden, Ellen, & Ajzen, 1992), and can be explained by three basic determinants; (1) attitude toward the behavior, (2) subjective norm, and (3) perceived behavioral control (Ajzen, 2005), which are distinguished in three kinds of “salient” beliefs: (1) behavioral beliefs, (2) normative beliefs, and (3) control beliefs. The individual’s intention to perform a certain behavior is directly linked to its basic determinants, i.e., the more favorable the attitude toward the behavior, the subjective norm, and the perceived control, the stronger the intention (Ajzen, 2006).

Behavioral beliefs are the sum of feelings, beliefs, and personal expectations that the individual attributes to an action (Bissonnette & Contento, 2001), generating a favorable or unfavorable



feeling toward the behavior (Kim, Njite, & Hancer, 2013). Attitude is formed of three dimensions (1) cognition – the individual’s knowledge of the product, (2) affection – feeling toward the product, and (3) behavior – behavioral opinions and intentions about the product (Silva, Lima Filho, & Freire, 2015). If the consumer believes that a specific behavior will be beneficial or positive in some way, they will show a positive attitude (Ajzen, 2005).

Normative beliefs present the perception of an object or action (Kim, Njite, & Hancer, 2013). Normative beliefs can originate from groups and people of importance, such as family, co-workers, bosses, or figures who have persuasive power over the individual’s choices (Ajzen, 2005). The sum of these beliefs forms the subjective norm, which can be defined as the product of social pressure, regarding whether to perform a behavior (Bissonnette & Contento, 2001).

Finally, control beliefs are related to certain factors’ capacity to facilitate or hinder a specific behavior (Kaiser, Hubner, & Bogne, 2005), which is nothing more than the subject’s perception of their ability to behave in a certain way (Bissonnette & Contento, 2001). The sum of control beliefs leads to behavioral control, which can be positive (indicating action) or negative (indicating non-action) (Ajzen, 2005).

Within the TPB is the extended theory of planned behavior, which is an adapted version that allows the inclusion of new variables of analysis (Sánchez *et al.*, 2017) and offers greater predictive power. The effectiveness of the theory has been proven in previous studies on the purchase of sustainable and organic products (Ghazali *et al.*, 2017; Soon & Wallace, 2018). In this research, therefore, we decided to adopt the extended TPB, adding the variable environmental engagement to verify whether the engagement in ecologically conscious behaviors would influence purchasing intentions. The behavioral intention can be affected by the individual’s life experiences, which contribute to changing attitudes, the subjective norm, and behavioral control (Ajzen, 2005).

Regular consumers make decisions based on personal benefits, while environmentally conscious consumers tend to assess the positive environmental and social impacts (Muralidharan & Sheehan, 2016; Xu, Prybutok, & Blankson, 2019). Consumers who purchase sustainable products are more likely to repeat such shopping behavior (Askadilla & Krisjanti, 2017). The greater the individual’s attitude toward the environment, the more likely they are to sustainable consumption (Radons, Battistella, & Grohmann, 2016; Silva, Lima Filho, & Freire, 2015).

In addition, the level of environmental awareness and engagement is directly connected to the information that the consumer has on the issue (Silva, Lima Filho, & Freire, 2015; Xu, Prybutok, & Blankson, 2019). Summing up, the environmental engagement variable seeks to observe whether the individual who presents a proactive behavior in environmental issues would be more willing to buy sustainable cosmetics than those who are not engaged.

3 RESEARCH MODEL AND HYPOTHESES

This research uses the theory of planned behavior to analyze consumer behaviors associated with the consumption of sustainable cosmetics. We developed six hypotheses in convergence with the objectives of this study, which were to identify the influence of environmental engagement on the purchase intention for sustainable cosmetics by Brazilian consumers using the TPB through three specific objectives: identify the main behavioral, normative, and control beliefs involved in the decision to purchase sustainable cosmetics; analyze the influence of these beliefs on the behavior of purchasing sustainable cosmetics (H1, H2, and H3); and examine the influence of environmental engagement on such purchase behavior (H3, H4, and H5).

After identifying the main beliefs related to decision-making concerning sustainable cosmetics in the literature, we then analyzed the influence of the behavioral, normative, and control beliefs in the purchasing process. Our first hypothesis states that the attitude regarding the goods has



a positive effect on customer purchase intentions. Bissonnette and Contento (2001) explained that behavioral beliefs are the sum of feelings, beliefs, and personal expectations that the individual attributes to a specification. This mechanism generates a favorable or unfavorable feeling toward the behavior (Kim, Njite, & Hancer, 2013). In other words, if the consumer believes that a behavior will be personally beneficial in some way, they will show a positive attitude toward the behavior (Ajzen, 2005). Also, according to Yun and Lee (2015), attitude can be seen as the first factor that influences sustainable behaviors. Therefore, we believe that:

H1: The attitude toward sustainable cosmetics positively affects purchase intention.

In addition, normative and behavioral beliefs also present the perception of an object or action. In this case, however, the perception does not come from the individual, but from people of importance to the person (Kim, Njite, & Hancer, 2013). The need for social approval and a sense of belonging suggests that subjective norm has a great weight in forming the behavioral intention, and it is a strong motivational factor, generating stimulus or discouragement for actions (Kaiser, Hubner, & Bogue, 2005). To assure and understand the impact of normative beliefs, we posit that:

H2: The subjective norm positively affects the intention to purchase sustainable cosmetics.

Control beliefs, in turn, are related to certain factors' capacity to facilitate or hinder a specific behavior (Kaiser, Hubner, & Bogue, 2005) and are the subject's perception of their ability to behave in a certain way (Bissonnette & Contento, 2001). Usually, people tend to have a certain behavior when they consider it positive for themselves or society, when they feel pressured by others, or because they believe they have the necessary resources to perform it (Ajzen, 2005). We believe that the performativity of control beliefs has a positive impact on consumers' decision-making in the sustainable cosmetics industry. For this reason, we posit that:

H3: The perceived behavioral control of purchasing sustainable cosmetics positively affects the purchase intention.

As a complement, the extended TPB was added to the model. It is an adapted version of TPB that allows the inclusion of new variables of analysis (Sánchez *et al.*, 2017) and offers greater predictive power. By considering this mechanism, we intended to analyze the effect of environmental engagement on consumers' beliefs. According to Ajzen (2005), behavioral intention can be affected by the individual's life experiences, which contribute to changing attitudes, the subjective norm, and behavioral control. In addition, when purchasing, regular consumers make decisions based on personal benefits, while environmentally conscious consumers tend to assess the positive environmental and social impacts (Muralidharan & Sheehan, 2016; Xu, Prybutok, & Blankson, 2019). In other words, people's intentions to buy are related to previous beliefs. In addition, consumers who purchase sustainable products in any sector are more likely to repeat such shopping behavior (Askadilla & Krisjanti, 2017). Also, the level of environmental awareness and engagement is straight linked to the consumer's information about the issue (Xu, Prybutok, & Blankson, 2019; Severo *et al.*, 2019), and it is unlikely that a consumer's environmental behavior is conscious when they are unaware of the problems and solutions regarding this matter (Gifford & Nilsson, 2014). Also, is essential that governments, companies, and policymakers understand the cultural and behavioral aspects such as willingness to pay for lifestyle models and eco-friendly intentions toward green products' consumption to encourage individuals to engage in pro-environmental behaviors (Vicente, Marques, & Reis, 2021; Punzo *et al.*, 2019).

All the efforts stated, from the customer's awareness to the company and government's intent to "educate" society, summarized the concept of environment engagement proposed by Sánchez *et al.* (2017). Considering the TPB beliefs previously stated - behavioral, normative, and control, as well as the characteristics that propel engagement to buyers, we believe that there is a positive relationship between them and environmental engagement. Thus, we posit that:



H4: Environmental engagement positively affects behavioral beliefs.

H5: Environmental engagement positively affects normative beliefs.

H6: Environmental engagement positively affects control beliefs.

The model with the hypotheses is shown in Figure 1.

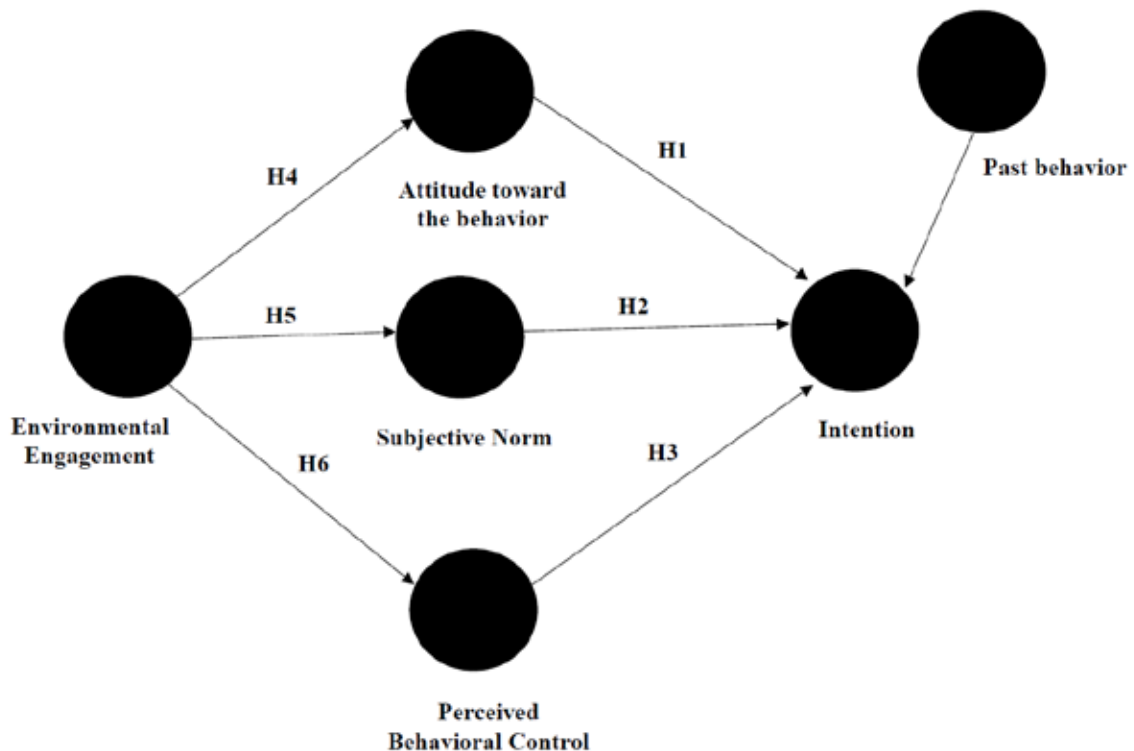


Figure 1. Research Framework

Source: Elaborated by the authors.

4 METHOD

This study is classified as exploratory and descriptive. The methodological choices were divided into two approaches: qualitative and quantitative. These phases are explained below.

4.1 Qualitative Phase

The first phase aimed to expand the knowledge about the consumers' behavior concerning sustainable cosmetics. Searching Facebook communities related to the study's topic, five reliable members with a matching profile were identified, of which two accepted to share data for the research. Thus, the qualitative phase consisted of two in-depth interviews with business owners, consumers, and entrepreneurs in the industry of sustainable cosmetics, both women. By conducting interviews with field experts, this research meets the recommendation provided by Hair Jr. *et al.* (2019). The inputs from the interviews helped to build an instrument to collect quantitative data in the next phase. The interview script was developed by adapting the questionnaire of the theory of planned behavior (Ajzen, 2006), transforming the original questionnaire into open questions approaching the theme of consumption of sustainable cosmetics.

The answers obtained in the in-depth interviews were recorded and later transcribed. The analysis of qualitative data was carried out through an interpretive view, which is understood to extract meaning from data (Creswell, 2014), aiming to better understand elements present in the production and consumption of sustainable cosmetics. The textual analysis followed thematic and open coding procedures proposed by Flick (2009), with the thematic codes in this study referring to the TPB dimensions' (Ajzen, 2006). When asked about their environmental behavior, both stated that, like their customers, they would already have an ecological conscience before consuming sustainable cosmetics. Considering these statements, the concern with environmental impact and sustainable consumption habits were added to the survey (Freire *et al.*, 2013).

Regarding the main reasons for consumption, the most latent belief was behavioral, demonstrating a positive attitude towards consumption. Also, it was clear that the belief that sustainable cosmetics would be a healthier choice is strong in the interviewees' statements, bringing insights to include additional questions to the survey. Statements about good feelings and beliefs that sustainable cosmetics have higher quality than ordinary ones were considered valid and relevant to this study as well, being included in the model.

The perceived behavioral control was also analyzed in the interviewees' speech. When asked about the difficulties in the consumption of cosmetics, one of the factors mentioned by the interviewees was overpricing of resources and manufacturing in this industry. The lack of laws and a supervisory body that proves the legitimacy of sustainable products are identified as a serious difficulty for production and consumption. The lack of clear information leaves the consumer confused and the lack of certificates ends up allowing the wrong product nomenclature.

In addition, the lack of regulations and certificates was also mentioned in the interviews. This gap makes it more difficult to trust brands that call themselves natural, and the lack of information from consumers themselves at the time of purchase makes it difficult to differentiate between sustainable and ordinary products. These issues were addressed as questions in the survey that compose the next phase of the research.

4.2 Quantitative Phase

This phase consisted of a survey, built based on the model by Ajzen (2006), as well as using the inputs obtained from the two interviews of the qualitative phase, and complemented by adapted questions used in previous studies regarding TPB such as Wu *et al.* (2017). The instrument was made available online, and it was divided into six constructs. The first five were: (1) attitude, (2) subjective norm, (3) perceived control, (4) intention to behave, and (5) past experiences. The participants answered using a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The sixth construct, environmental engagement, comes from the extended theory.

Then, the respondents answered ten questions developed based on the ecologically conscious consumer behavior (ECCB) scale developed by Roberts (1996) and complementary research from Freire *et al.* (2013) and Tilikidou *et al.* (2002). This part of the survey used a 7-point Likert scale, in which the respondents marked 1 for "never" and 7 for "always," referring to the frequency they acted (Table 1). It was used to measure consumers' level of environmental awareness since pro-environmental behavior is a direct result of it (Freire *et al.*, 2013). At the end of the instrument, additional questions were included to collect socioeconomic data, considering that, according to Deng *et al.* (2017), characteristics such as age and sex, and elements such as occupation and school-level influence the beliefs of the TPB model.



Table 1 - Measurement items

Constructs and (sources)	Items	Details
Attitude toward the behavior (Ajzen, 2006; Matos, 2013; interviews)	AT1	Sustainable cosmetics are better than normal cosmetics (synthetic)
	AT2	Sustainable cosmetics are healthier than normal cosmetics (synthetic)
	AT3	Sustainable cosmetics substitute normal cosmetics (synthetic)
	AT4	Sustainable cosmetics are less aggressive to the environment compared to normal cosmetics
	AT5	Concern over the environment is the main reason I would buy sustainable cosmetics
	AT6	I feel better (with myself) buying sustainable cosmetics over normal cosmetics (synthetic)
Subjective norm (Ajzen, 2006; Matos, 2013)	SN1	My family thinks I should buy sustainable cosmetics
	SN2	My friends think I should buy sustainable cosmetics
	SN3	In my work (or study) environment, my colleagues think I should buy sustainable cosmetics
	SN4	People who are important to me use sustainable cosmetics
	SN5	My friends will think highly of me if I buy sustainable cosmetics
	SN6	Buying sustainable cosmetics in my daily life means status (social recognition)
Perceived behavioral control (Ajzen, 2006; Matos, 2013; interviews)	BC1	Buying sustainable cosmetics only depends on me
	BC2	It is easy for me to continue using sustainable cosmetics
	BC3	In general, it is easy to find sustainable cosmetics in stores
	BC4	The price of sustainable cosmetics is accessible for me
	BC5	I can easily differentiate which cosmetics are sustainable when purchasing them
Intention (Ajzen, 2006; Matos, 2013; Wu <i>et al.</i> , 2017; interviews)	INT1	I intend to buy sustainable cosmetics
	INT2	Buying sustainable cosmetics is the first thing that comes to mind when I need cosmetics
	INT3	My goal is only to use sustainable cosmetics
	INT4	I would like to buy sustainable cosmetics in the next 12 months
	INT5	I will buy sustainable cosmetics in the next 12 months
Past behavior (Ajzen, 2006)	PB1	I bought sustainable cosmetics in the last 12 months
	PB2	The sustainable cosmetics I have already used met my needs
	PB3	I have had good experiences using sustainable cosmetics
	PB4	I always buy sustainable cosmetics if I can
Environmental Engagement (Roberts, 1996; Tilikidou <i>et al.</i> , 2002; Freire <i>et al.</i> , 2013, interviews)	EE1	I am concerned about electricity consumption
	EE2	I save water
	EE3	At my house, I separate recyclables
	EE4	I prefer consuming organic food and seasonal fruit and vegetables
	EE5	I buy products made from recycled materials
	EE6	I use public or alternative transport (bike, skates, bus) or I walk
	EE7	I avoid buying new products if I can still use or repair mine
	EE8	I participate in environmental action groups or movements, campaigns, or networks
	EE9	I try to encourage and disseminate, to as many people as possible, information about the impact of companies and products on the environment
	EE10	Before purchasing a product or service, I research the company to know if they treat their employees, society, and the environment well.

Source: Elaborated by the authors.

4.2.1 Study Participants

The research adopted non-probability convenience sampling. The survey was made available online, and the sample was formed of respondents over 18 years old and who declared to use or have used sustainable cosmetics, totaling 114 participants.

4.2.2 Data analysis

The analysis was carried out in two stages. First, we tested the adequacy of the constructs through exploratory factor analysis, using the software R to verify the variables' validity and explanatory capacity. Second, we confirmed the model and tested the hypotheses using SmartPLS.

5 RESULTS

5.1 Sample profile

As for the profile of the sample, 92.1% of respondents were female, 85% were between 21 and 40 years old, 49.12% were in capital cities, and 48.25% lived in Brazilian urban areas. A large part of the respondents (96.49%) was completing or completed higher education. Of this group, 50% attended, are attending, or completed a post-degree program. Most respondents were business owners or freelancers (27.19%), students/interns (20.18%), private sector employees (26.32%), or civil servants (16.67%). High-income subjects counted for 81.58% of the sample.

5.2 Measurement Model

Exploratory factor analysis was performed to identify the number of common factors that can represent the relationship among variables. In this stage, variables with factor loading greater than 0.30 were considered adequate.

For the construct attitude toward the behavior, the variables ATT3 and ATT1 were excluded. In constructs perceived behavioral control, subjective norm, past behavior, and behavioral intention, the statistics were satisfactory, and the variables were maintained. For the construct environmental engagement, developed based on the ECCB adapted scale outputs, four variables were excluded (EE3, EE4, EE6, and EE7). Questions EE4, EE6, and EE7 may have been inappropriate for the model because they do not exclusively measure environmental engagement, involving financial issues and consumption habits. EE3 may have been affected due to the geographic location of the respondents since recyclable waste collection is present in a few Brazilian municipalities (Plautz, Silva, & Plautz, 2018). Table 2 shows that all constructs have composite reliability values greater than 0.8, indicating the adequacy of the measurement model.

Table 2 - Values of the model's goodness of fit

	<i>Cronbach Alpha</i>	<i>CR</i>	<i>AVE</i>
Attitude	0.762	0.846	0.579
Past behavior	0.856	0.899	0.690
Perceived behavioral control	0.788	0.845	0.527
Environmental engagement	0.813	0.864	0.516
Intention	0.883	0.914	0.680
Subjective norm	0.857	0.892	0.586

Note: reference numbers for Cronbach Alpha > 0.7; CR > 0.7; AVE>05.

Source: Authors' calculations based on survey data.



5.2.1 Fitted Model (PLS-SEM)

The structural model tested was used to analyze the hypotheses. This model is composed of 30 variables divided into six constructs.

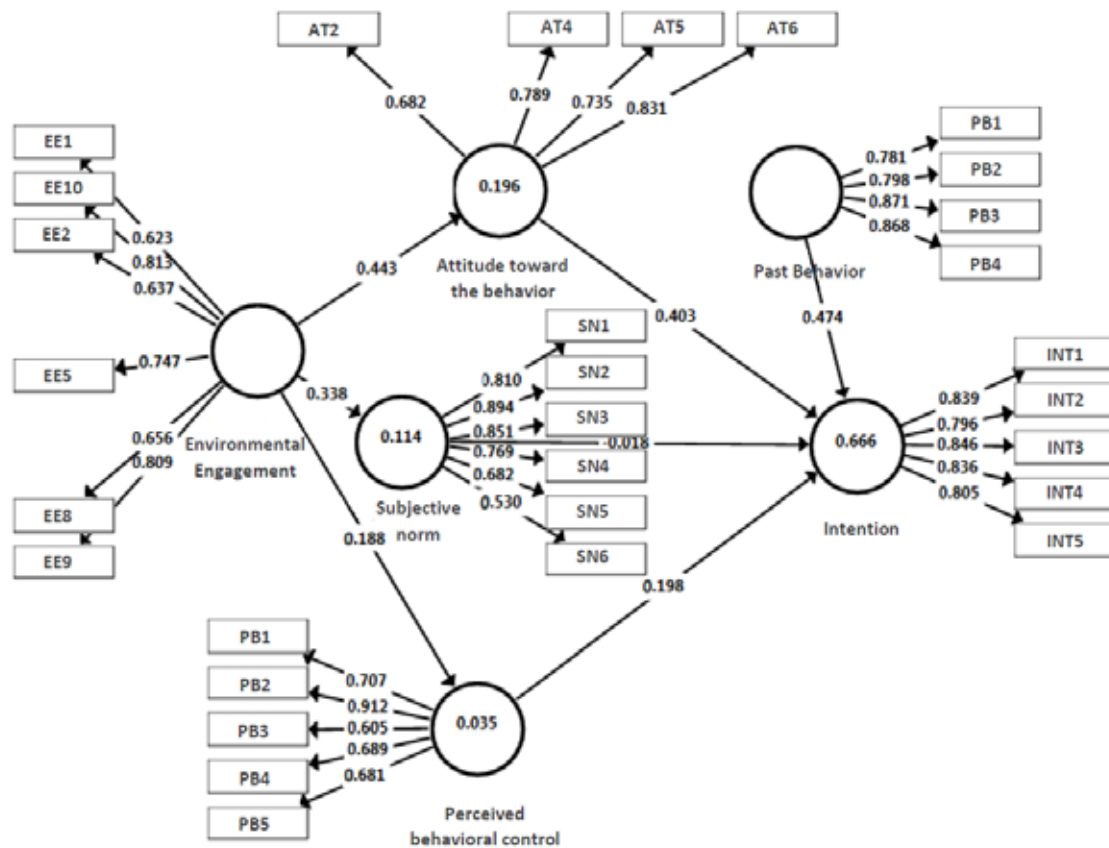


Figure 2. Factor loading

Source: Image obtained from SmartPLS.

Models using TPB have been tested in previous studies (Askadilla & Krisjanti, 2017), but due to the adaptations and additions to the theory considered in this research, they had to be validated. This process was conducted through tests to assess the reliability and validity of the variables. The constructs were validated first by observing their convergent variables through the average variance extracted (AVE).

The AVE is the portion of data explained by the constructs. According to Fornell and Larcker (1981), their values must be greater than 0.50, considering the convergence of the construct satisfactory. By running PLS algorithm analysis, the values of the model's goodness of fit were considered satisfactory. The AVE presented values above 0.50 in all constructs: attitude toward the behavior (0.579), past behavior (0.690), perceived behavioral control (0.527), environmental engagement (0.516), intention (0.680), and subjective norm (0.586). Then, the internal consistency values were analyzed using Cronbach's alpha coefficient. The lowest alpha value found was 0.762 for attitude. As values above the threshold of 0.70 are considered adequate (Ringle, Silve, & Bido, 2014), all constructs were satisfactory. The same was observed for the composite reliability indicator (CR). All constructs were higher than the threshold of 0.70 and considered satisfactory.

Two tests were performed to assess the independence of the latent variables, thus checking the discriminant validity of the model, the cross-loading analysis, and the criterion of Fornell and Larcker (1981). At the first, the factor loading of each variable must be greater in their respective constructs than in the others, proving the independence of the latent variables. Table 3 shows that all variables present greater loading within their constructs.

Table 3 - Cross-Loading

	Attitude	Past behavior	Perc. behavioral control	Environm. engagement	Intention	Su
Attitude	0.761					
Past behavior	0.334	0.830				
Perc. behavioral control	0.190	0.467	0.726			
Environm. engagement	0.443	0.385	0.188	0.719		
Intention	0.594	0.700	0.493	0.462	0.825	
Subjective norm	0.278	0.067	0.182	0.343	0.161	0.8

Source: Authors' calculations based on survey data.



The Fornell and Larcker criterion (1981) compares the square roots of the constructs' AVE with the Pearson correlation, and "the square roots of the AVE must be higher than the correlations among the constructs" (Ringle, Silva, & Bido, 2014, p. 65). Table 4 shows the independence of the latent variables, corroborating the discriminant validity.

Table 4 - Fornell and Larcker criterion (1981)

	Attitude	Past behavior	Perc. behavioral control	Environm. engagement	Intention	Subjective norm
Attitude	0.761					
Past behavior	0.334	0.830				
Perc. behavioral control	0.190	0.467	0.726			
Environm. engagement	0.443	0.385	0.188	0.719		
Intention	0.594	0.700	0.493	0.462	0.825	
Subjective norm	0.278	0.067	0.182	0.343	0.161	0.807

Source: Authors' calculations based on survey data.

The variance of endogenous variables explained by the model is shown by the Pearson R^2 coefficients of determination, demonstrating the model's goodness of fit (Table 5). For social and behavioral sciences, effects are considered weak, medium, and large when their values are equal to or greater than 2%, 13%, and 26%, respectively (Cohen, 1988; Hair *et al.*, 2016).

Table 5 - Pearson (R^2)

Variable	R^2	%
Attitude toward the behavior	0.196	19.6
Subjective norm	0.114	11.4
Perceived behavioral control	0.035	3.5
Intention	0.666	66.6

Source: Authors' calculations based on survey data.

The results demonstrate strong effects on intention (0.666), showing that the model was able to explain 66.6% of the purchase intention, revealing a substantial coefficient of determination. In addition, the results show that, of the three constructs, the attitude was the one with the greatest effect on intention. The model showed that Attitude had a medium effect and could explain 19.6% of the model. Subjective norm and behavioral control, in turn, had weak effects. The value of the model's coefficient of determination was adequate and could be considered strong.

Blindfolding with an omission distance equal to 7 with a maximum of 300 interactions and a stop criterion 7 was used to obtain the Cohen index values. The Cross-validated Communalities (F^2) or Cohen's indicator shows the predictive relevance of the model, considered small, medium, and large for values 0.02, 0.15, and 0.35, respectively (Ringle, Silva, & Bido, 2014). The effect size shows that the latent variables' attitude toward the behavior (0.305), perceived behavioral control (0.314), and environmental engagement (0.328) have medium predictive relevance. In contrast, the others demonstrate a greater contribution to the model fitness (Table 6).



Table 6 - Values of predictive relevance (f^2)

Variable	f^2
Attitude toward the behavior	0.305
Perceived behavioral control	0.314
Subjective norm	0.414
Past behavior	0.460
Environmental engagement	0.328
Intention	0.493

Source: Authors' calculations based on survey data.

5.2.2 Hypotheses test

Bootstrapping, and path weighting scheme analysis was performed to assess whether the relationships were significant. As calculation criteria, we adopted the significance value of 0.05, 500 sub-samples, a maximum of 300 interactions, and the stop criterion (7).

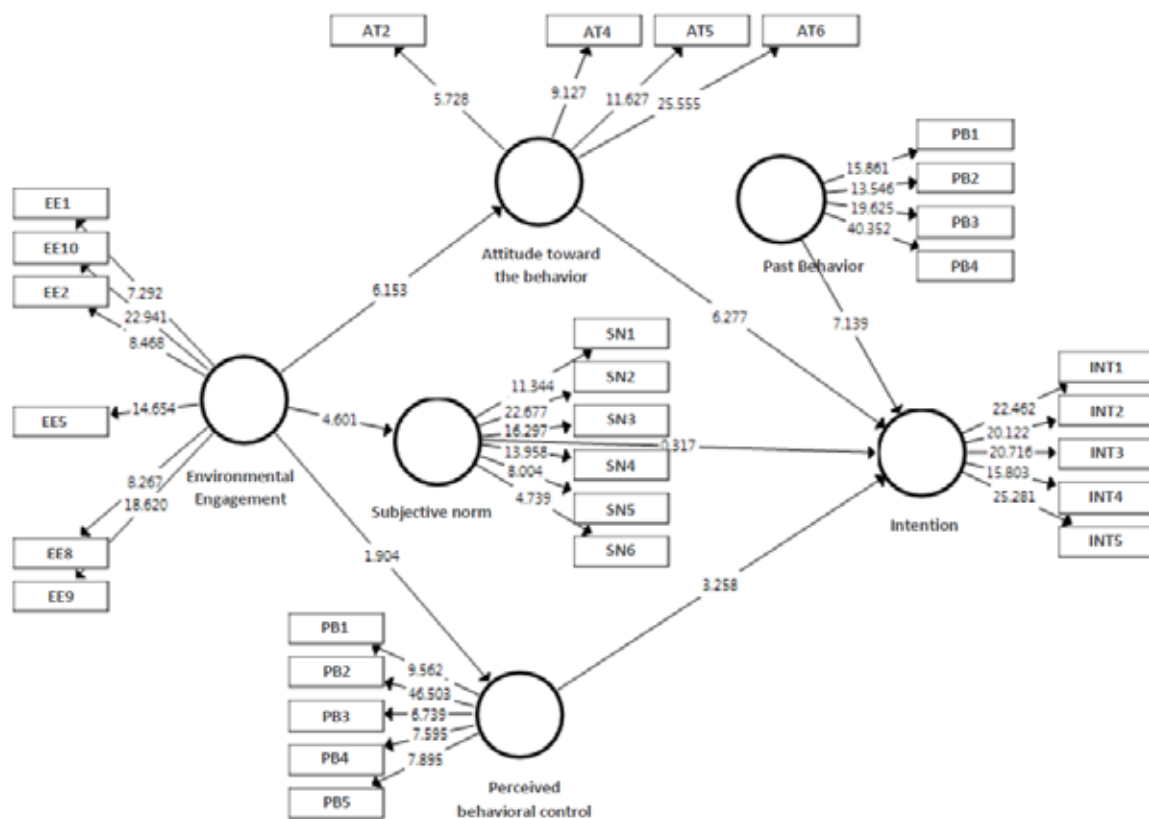


Figure 3. Student's t-test

Source: Image obtained from SmartPLS.

According to the Student T evaluation criterion, the values presented between the paths must be greater than 1.96 or less than -1.96 to prove the correlation among the constructs (Ringle, Silva, & Bido, 2014). Figure 3 shows that the correlation between environmental engagement and perceived behavioral control (1,904) and between subjective norms and intention (0.317) is not sig-

nificant. Hypotheses H2 ($p = 0.752$) and H6 ($p = 0.058$) were rejected, at a significance level of 95%. The hypotheses H1, H3, H4, and H5, were confirmed.

6 DISCUSSIONS

The results present the main beliefs of TPB related to the decision to purchase sustainable cosmetics. Of the three beliefs analyzed, two had significant influence: behavioral beliefs and control beliefs, the former having a greater influence on the purchase intention than the latter. The analysis showed that attitude (0.403 , $p < 0.001$) has a positive and significant effect on the intention, thus confirming hypothesis 1. This means that the more positive the individual's feelings about sustainable cosmetics, the greater the purchase intention, and the greater the chances of action (Ajzen, 2005; 2006, Askadilla & Krisjanti, 2017; Bissonnette & Contento, 2001; Deng *et al.*, 2017).

When comparing the loadings of beliefs, attitude has the greatest correlation factor, suggesting that consumers are more affected by their perceptions and internal influences (Hawkins & Mothersbaugh, 2019) than by external factors. This result corroborates the theory, as of Cervellon, Rinaldi, and Wernerfelt (2011), who observed that concern for health, product quality, and the environment are the main reasons to purchase organic cosmetics; and Askadilla and Krisjanti (2017), who confirmed that attitude positively influences purchase intentions.

For the Subjective Norm, the results show a negative and non-significant relationship (-0.018 , $p = 0.752$), rejecting hypothesis 2 and opposing the findings of Askadilla and Krisjanti (2017) and Ajzen (1991), who confirmed a similar hypothesis. The results show that external agents of influence such as family, friends, and reference groups, do not influence the decision to purchase sustainable cosmetics, counterintuitively to the theory (Hawkins & Mothersbaugh, 2019).

Question SN6 verified whether social recognition was linked to the purchase of sustainable cosmetics. This question demonstrated the highest percentage of disagreement among the survey items. To this end, 78.94% disagreed that the purchase of sustainable cosmetics brings social status, revealing that the purchase intention is not affected by social pressure. Perceived behavior control had a low correlation (0.198 , $p = 0.001$) and was considered significant. This demonstrates that an individual's perception of their ability to perform a given action influences real behavior, corroborating the theories supporting this study (Ajzen, 2005; Kaiser, Hubner, & Bogue, 2005).

Regarding perceived behavioral control, two questions showed a greater degree of disagreement than agreement, regarding the ease of finding sustainable cosmetics and affordability. The respondents considered that prices of sustainable cosmetics are not affordable, and the research could not assess whether they would be willing to pay more for them. However, theory shows that consumers are willing to pay 40% more for products containing 10-50% organic composition and 60% or more for products containing 70-99% (Cervellon, Rinaldi, & Wernerfelt, 2011).

As proposed in previous studies (Kim, Njite, & Hancer, 2013; Sánchez *et al.*, 2017; Soon & Wallace, 2018; Xu, Prybutok, & Blankson, 2019), an extension of TPB was used to analyze whether there is an influence of environmental engagement on the intention to purchase sustainable cosmetics. The results showed that the latent variable environmental engagement has a significant correlation with attitude (0.443 , $p < 0.001$), confirming hypothesis 4. The model's R^2 value showed that 19.6% of 'attitude' can be explained by environmental engagement. Therefore, the greater the individual's pro-environmental attitude, the greater their intention to purchase sustainable products according to Radons, Battistella, and Grohmann (2016) and Silva, Lima, and Freire (2015).

The influence of environmental engagement on subjective norm, although presenting a small effect, obtained a significant correlation (0.338 , $p < 0.001$), confirming hypothesis 5. This finding means that individuals with pro-environmental behaviors (Muralidharan & Sheehan, 2016) –



tend to make assessments of their behaviors, considering environmental and social impacts (Askadilla & Krisjanti, 2017; Xu, Prybutok, & Blankson, 2019). The relationship between environmental engagement and perceived behavioral control did not show satisfactory correlation values (0.188, $p = 0.058$), rejecting hypothesis 6. The result suggests that pro-environmental behavior is not enough to change how capable people feel to behave in a certain way.

The latent variable past behavior was maintained in the adapted model. The importance of past experiences in decision-making pointed out by Ajzen (2005) was confirmed in this study. This variable was, among the constructs of the model, the one that showed the highest correlation value with intention (0.474), indicating that consumers who have already bought sustainable cosmetics in the past are more likely to repeat the behavior (Ajzen, 2005; Askadilla & Krisjanti, 2017).

7 CONCLUSIONS

This research adopted TPB to analyze the consumers' behaviors associated with purchasing sustainable cosmetics. Three specific objectives guided this study. The first one aimed to identify the main beliefs involved in sustainable cosmetics purchase, showing that behavioral and control beliefs stood out. The second objective, analyzing the influence of these beliefs on the behavior of purchasing sustainable cosmetics, presented that behavior has more influence than control beliefs on the purchase intention. Finally, the third objective examined the influence of environmental engagement on purchase behavior, and showed that an individual's engagement in environmental issues has a medium effect on the behavior. In contrast, normative beliefs have a weak effect, and control beliefs have no effect. Thus, the study managed to successfully explore how consumers behave when it comes to purchasing sustainable cosmetics.

As for the academic implications, the study proved the validity of TPB in identifying the beliefs affecting the purchasing process, with the model measuring more than 66% of the purchase intention. Regarding consumer behavior theory, the study has shown that personal feelings influence purchases. This finding showed that, unlike other studies that tested the influence of beliefs on pro-environmental behaviors (Askadilla & Krisjanti, 2017; Kim, Njite, & Hancer, 2013), normative beliefs have a negative impact and are not significant in the intention to purchase sustainable goods. Therefore, these consumers are influenced by internal factors and personal judgment and not by the opinion of others, as expected (Ajzen, 1991). These findings showed a counterintuitive result that extends the theory of consumption in the cosmetics industry.

Also, although the perceived behavioral control was considered significant, it has a small influence when compared to the individual's attitude toward the behavior. This means that the stronger the advantages and benefits of using the product, the more likely the consumer is to buy and use it. Environmental engagement has proven to positively influence consumer behavioral and normative beliefs. This result indicates that the more environmentally engaged the consumer, the greater the advantages the individual perceives in buying sustainable cosmetics. Control beliefs, however, were not significantly influenced by environmental engagement, indicating that, even with strong pro-environmental behavior, consumers' perception of behavior remains similar.

The findings of this research may contribute to managerial areas. The sample profile was formed of women, aged 21 to 40 years, with a higher education level and belonging to the higher social classes. These results may be used to develop sustainable cosmetics and brand strategies for the public with this social profile, as in communication campaigns with high-income women participation to generate identification by this segmented consumer concerning the product. Marketing professionals should also highlight products' benefits, since increasing the consumer's attitude has proven to be the main element influencing the purchase. Managers should monitor price and place



strategies as well. The survey items that claimed it was easy to find sustainable cosmetics in the market and those related to affordable prices were the ones that had the highest rates of disagreement. Also, considering the environmental engagement factor, companies should increase efforts in consumers' education regarding pro-environmental behavior. This strategy seeks to amplify consumers' environmental engagement and intensify their overall knowledge.

The results showed that understanding the effects of environmental engagement on the purchase intention of sustainable cosmetics can help companies in this segment to better relate to their target audience. One of the outputs of this research is on brand and product development actions, including brand and packaging management, for example. By considering the influence of past behavior beliefs on the purchase intention of sustainable cosmetics, managers can improve relationship programs with current clients. Also, it is possible to develop communication campaigns to emphasize a positive experience with sustainable products.

As with every other study, our research has limitations. First of all, information regarding sustainable products has been increasingly disseminated, but the knowledge concerning this matter still seems to be shallow in Brazil. This could be influencing our results since environmental engagement tends to be directly linked to previous information that the consumer has (Xu, Prybutok, & Blankson, 2019). Assuming that sustainable cosmetics are not available or affordable for the masses could have caused bias in our sample. We also understand that the sample profile highlighted a specific public, as in females with high income. Essentially, this profile mirrors the consumer preferences and characteristics of a small group. As a suggestion, we propose to researchers to develop new studies portraying people with different characteristics, such as men and low-income buyers. In addition, future studies may research the motivations to purchase sustainable cosmetics related to factors such as product effectiveness, packaging, and consumers' willingness to pay. Also, future research could compare sustainable cosmetic brands, as purchase motivations may vary according to brand perception (Askadilla & Krisjanti, 2017).

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1. Definition of research problem	√	√		
2. Development of hypotheses or research questions (empirical studies)	√	√		
3. Development of theoretical propositions (theoretical work)				
4. Theoretical foundation / Literature re-view	√	√	√	
5. Definition of methodological procedures	√	√		√
6. Data collection	√	√		
7. Statistical analysis	√	√		√
8. Analysis and interpretation of data	√	√	√	√
9. Critical revision of the manuscript		√	√	
10. Manuscript writing	√	√	√	
11. Other (please specify)				

Conflict of Interest

The authors have stated that there is no conflict of interest.

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