

TRANSFORMING ENVIRONMENTAL CONCERN INTO ATTITUDE: THE MEDIATING ROLE OF ENVIRONMENTAL KNOWLEDGE

NÁGELA BIANCA DO PRADO

COSTA SYNODINOS

GUSTAVO HERMÍNIO SALATI MARCONDES DE MORAES

Introdução

Green, or eco-friendly products, are popular nowadays. They aim to prevent environmental pollution, since its production tries to minimize the negative environmental impacts and have alignment with sustainable development [2]. As consumers are becoming more aware about what they consume, demand for these products are increasing worldwide [4]. The Covid-19 pandemic significantly contributed to the consumers' attitudes toward using green products, including the beauty sector [1]. Indeed, the beauty sector had to reinvent itself to respond quickly to the new market demands [3].

Problema de Pesquisa e Objetivo

Although studies around sustainable consumption have increased in the last decades, a particular focus has been given to understand the factors that influence consumers to make green decisions. Thus, this article aims to analyze the antecedents of environmental attitude amongst green beauty products consumers in a developing country. More specifically, we aim to investigate the influence of environmental concern and environmental knowledge on environmental attitude, as well as the mediation role of environmental knowledge in the relationship of environmental concern and environmental attitude.

Fundamentação Teórica

This research is anchored in three main assumptions that based our hypotheses. Firstly, we approached the green products' category, focusing on the beauty segment, in which we suppose awareness and trust influences environmental concern. Secondly, we contextualize green consumers and its ethicality perception and self-transcendence also as drivers of environmental concern. Thirdly, environmental behavior theory emphasized environmental concern and knowledge as antecedents of environmental attitude.

Metodologia

This study used a descriptive research design following a cross-sectional analysis. Data analysis was conducted by Partial Least Squares Structural Equation Modelling (PLS-SEM). The primary data sample was collected in 2023 by a specialist company (IPSOS – Global Market Research and Public Opinion Specialist), that implemented their FastFacts data capturing system to collect the required data. The final sample included 500 consumers from South Africa.

Análise dos Resultados

The PLS-SEM results confirmed the positive influence of consumer perceived ethicality and self-transcendence on environmental concern. Results are also positive regarding the influence of environmental concern on environmental knowledge and attitude. Environmental knowledge, in turn, has positive and direct effects on environmental attitude, while it also partially mediates the relationship between environmental concern and environmental attitude. However, green beauty product awareness and trust do not influence environmental concern.

Conclusão

Results provide three main contributions. First, theoretically, the research provides further evidence on the factors that influence environmental attitudes, by the consumerism of green beauty products. Second, on a managerial perspective, our findings invite marketers to provide effective information to higher the level of awareness and trust on these products, as well as on consumers' perceived ethicality. Third, policymakers can promote environmental programs to further emphasize the role of society in performing the objective of behavioral change and achieving sustainable development.

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Palavras Chave

Green Beauty Products, Environmental Behavior, Developing Country

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1 INTRODUCTION

Over the years, human activities have caused a terrific degradation of natural resources. As a consequence, contemporary society has spent efforts to overcome this situation and discussions about environmental responsibility have gained ever-greater relevance (Paço & Lavrador, 2017). This has resulted in a kind of environmental sustainability trend, in which consumers have become more conscious of what they consume (Nguyen et al., 2023).

Conscious lifestyles, nowadays, are popular. Individuals are paying more attention to animal welfare, quality of life, and the environment, as well as they have preferred values aligned with sustainable practices (Biswas, 2020). In this way, consumers have switched their current products to green products (Lin et al., 2021). The desire for safety and health are increasing the demand for these products worldwide (Piracci et al., 2023).

Green, or eco-friendly products, aim to prevent environmental pollution (Munerah et al., 2021). They are considered as “alternative” since its production tries to minimize the negative environmental impacts and have alignment with sustainable development (Costa et al., 2021). The “greening” of cosmetics, or beauty products, specifically, have been popularized recently, growing globally, and calling attention from scholars (Limbu & Ahamed, 2023; Suphasomboon & Vassanadumrongdee, 2022).

The Covid-19 pandemic significantly contributed to the consumers’ attitudes toward using green products, including green beauty products (Al Mamun et al., 2023). The pandemic transformed consumers’ mentality, making them more concerned about environmental issues, and, consequently, having a more pro-environmental behavior (Cachero-Martínez, 2020). It happened because restrictions imposed by lockdowns make people “rediscover” the primary role of nature and the environmental concern (De Canio et al., 2021). In this scenario, in 2020, the beauty sector had to reinvent itself to respond quickly to the new market demands (Dini & Laneri, 2021).

Although studies around sustainable consumption have gained a great body in the last decades, a particular focus has been given to trying to understand the factors that influence consumers to make green decisions (Lin et al., 2021; Paço et al., 2019; Shiel et al., 2020), specifically in the beauty sector. Scholars, thus, have called for further investigations on sustainable consumer behavior due to the complexity of the phenomena (Zeng et al., 2023).

Costa et al. (2021), for example, suggested that environmental awareness and attitudes can be an antecedent of previous green product buying experiences. In the same way, De Canio et al. (2021) argues that more literature is needed to understand the motives that can lead consumers to minimize the impact of their shopping and consumption habits on the environment. Piracci et al. (2023) reinforces that to promote sustainable consumption patterns, it is crucial to understand consumers’ attitudes.

Additionally, consumers’ preference and prioritization of environmental attributes depends on concern and knowledge of environmental issues (Momberg et al., 2012). Hence, it remains of utmost importance to further enhance our comprehension, especially within a context where excessive consumption is driving the depletion of our natural resources (Shiel et al., 2020). Exceptionally in South Africa, where the green movement has expanded rapidly (Yadav & Pathak, 2016), citizens face several environmental problems, such air and water pollution, loss of biodiversity, climate change, and waste generation (Momberg et al., 2012; Tshivhase & Bisschoff, 2023).

Based on these arguments, this study aims to analyze the antecedents of environmental attitude amongst green beauty products consumers in a developing country. More specifically, it aims to investigate the influence of environmental concern and environmental knowledge on environmental attitude, as well as the mediation role of environmental knowledge in the relationship of environmental concern and environmental attitude. In order to achieve the objectives, data from South African green beauty products consumers were analyzed by Partial Least Squares Structural Equation Modelling (PLS-SEM) technique.

This study has theoretical and managerial contributions, specially focused on green products. At the same time, findings also invite policymakers to promote environmental programs. Results from empirical analysis are also aligned with Sustainable Development Goals (SDGs).

The paper is structured as follows: the second section outlines the main theoretical concepts and presents our hypotheses. The third section describes the methodological aspects. In the fourth section, empirical analysis is presented and analyzed. The fifth section comprises our discussions and implications. Finally, the sixth section summarizes our final remarks.

2 THEORETICAL FRAMEWORK AND HYPOTHESES

2.1 Green Beauty Products

Green products are seen as an opportunity to reduce environmental impacts, just because their existence motivates the green consumption (Ansu-Mensah, 2021; Nguyen et al., 2023). These commodities are environmentally friendly, or naturally friendly, because they seek to maintain and protect the environment (Ansu-Mensah, 2021; Candrianto et al., 2023), and human health (Ogiemwonyi, 2022). Their production decreases waste, energy use, reduces packaging, uses fewer toxins and has a green life cycle (Nguyen et al., 2023). Consequently, green products have the least negative impact on the environment during production and consumption (Nguyen et al., 2023). They can also be recycled or conserved (Mostafa, 2007).

In accordance with Ansu-Mensah (2021), green products not only impact the environment, but affect human actions. The authors argue as consumers become increasingly advised with this category of products, they again become aware of the existence of the green products and could possibly influence their green purchase intentions and subsequent behavior (Ansu-Mensah, 2021; Li et al., 2021). Certainly, the awareness among consumers regarding the adverse repercussions of their consumption habits and choices has prompted a heightened environmental consciousness, consequently altering their perspectives on environmental matters (Costa et al., 2021).

Cosmetic users play a significant role in contributing to or reducing pollution through their choice and use of products (Munerah et al., 2021). Pitaloka and Widiatami (2022) affirms the cosmetics industry is growing rapidly. Still in accordance with the authors, it is happening due to the opening of the world market, and especially for the changing culture of the millennial generation, who grew up with the environmental conservation consciousness. Hence, new trends have been created in the green cosmetics field, like food supplements to use for skin, hair, and nails, additionally to nutricosmetics (Dini & Laneri, 2021).

While conventional beauty products can have threat compounds that can affect the whole environment, like plastic, non-biodegradable waste, parabens, amongst others chemical additives (Munerah et al., 2021; Suphasomboon & Vassanadumrongdee, 2022), green beauty, cosmetics, or care products, comprises products that have been validated as green or have been eco-labelled (Munerah et al., 2021). They are produced within methods using less natural resources. As a consequence, they produce less waste and cause less negative

environmental impact (Costa et al., 2021). In general, they contain natural and organic sources of ingredients (Suphasomboon & Vassanadumrongdee, 2022). It is important to mention that the “greening” is adopted in the entire production process of these cosmetics, including ingredients, processing, and packaging (Limbu & Ahamed, 2023; Pitaloka & Widiatami, 2022).

For Costa et al. (2021), the primary impetus behind the increased demand for green products largely emanates from consumers' expectations for companies to transition towards environmentally friendlier production methods. It occurs, in accordance with scholars, because awareness towards a healthy life and green products is exponentially rising (AL-Haddad et al., 2020). Green beauty products awareness, particularly, refers to a strong association between these segments and their benefits (Yoo et al., 2000). In past studies, awareness of green beauty products was positively correlated with purchase intention toward green cosmetics and other environmental behaviors (AL-Haddad et al., 2020; Limbu & Ahamed, 2023). In such context, we propose our first (H1) research hypothesis:

H1: Green beauty product awareness positively influences environmental concern.

Beyond awareness, green trust was first proposed in green consumption, as argued by Li et al. (2021), although it is considered a prerequisite for establishing a green product market, for Khan et al. (2022). In a general definition, trust can be considered as the level of the confidence, ability, and kindness that another party would behave as expected (Y. Chen & Chang, 2013; Li et al., 2021). In other words, trust refers to customers' expectation, based on the fulfillment of the promises made by the supplier of the products (Cachero-Martínez, 2020).

In the traditional consumer market behavior literature, customer trust can influence their purchasing decisions (Y.-S. Chen, 2010). Moreover, trust can determine the final purchasing decision (Khan et al., 2022), and is a key variable for the creation of long-term relationships and customer loyalty (Fatma & Rahman, 2017). Regarding the case of beauty products, green trust comprises the buyer's willingness to trust a green product based on beliefs or expectations about the environmental commitment and health performance capacity of these green products (Lin et al., 2021; Román-Augusto et al., 2022). We suppose that trust influences the individuals' environmental behavior, as determined in previous studies (Cheung et al., 2015; Ha et al., 2022; Ogiemwonyi, 2022; H. Wang et al., 2019). Thus:

H2: Green beauty product trust positively influences environmental concern.

2.2 Green Consumers

The first two hypotheses are more related to product attributes. In this section, we will explore the consumer themselves. The “green consumer” concept appeared explicit in the 1970s (Zhao et al., 2014). It has become the pivot around which marketing strategies relating to the environment have been focused by scholars, policymakers, and marketing professionals (Ansu-Mensah, 2021).

Being green is perceived as a response to ease environmental calamity (Ogiemwonyi, 2022). As a consequence, green consumers have a green behavior, that is, they use products that provide benefits to the environment, do not cause harm, and create conditions for protecting the environment over the years (Nguyen et al., 2023). The existing literature also refers to the green behavior as “pro-environmental behavior”, “environmentally friendly behavior”, and “environmental protection behavior” (Wan & Du, 2022).

Independent of the concept used, green consumerism is considered a multifaceted concept, since it has to do with preserving the environment, minimizing pollution, using non-renewable resources and preserving animal welfare (Mostafa, 2007). Thus, consumers who adopt a green behavior believe that the ecological situation on Earth is critical and, therefore, it is needed to change attitudes in order to protect the environment (Leonidou et al., 2010). Indeed, this behavior has become a popular and widely accepted lifestyle due to the availability, at lower costs, of green products (Hoang Yen & Hoang, 2023).

In summary, green consumption is pivotal in achieving sustainability for the benefit of future generations (Paço et al., 2019). Moreover, green consumption behavior is consistent with ethical or responsible consumption, a behavior that is associated with ethical purchase decisions (Lin et al., 2021). In accordance with Suphasomboon and Vassanadumrongdee (2022), ethical consumerism has been recognized as one of the green buying antecedents (Suphasomboon & Vassanadumrongdee, 2022). By this way, consumer-perceived ethicality has been considered a variable with significant influence on green consumption.

In a general sense, the term “ethics” refers to a set of moral norms, principles, or values that guide people's behavior (Brunk, 2010). Therefore, when something is described as being “ethical”, it reflects a positive and subjective moral judgment of an individual (Brunk, 2010). In the same sense, consumer-perceived ethics explain individuals' perceptions of a firm's ethical level (Tolentino et al., 2021). The perception of ethicality, however, is influenced by various groups of stakeholders in the brand (Fatma & Rahman, 2017). In a practical example, consumers tend to repurchase a product when the salespersons or frontline employees perform an ethical and fair behavior (Shah et al., 2020).

Regarding the context of green beauty products, consumer perceived ethicality has to do with environmental and social dimensions, that is, since recycling, animal welfare, social justice, human rights issues, until involvement in the exploitation of workers (Tolentino et al., 2021). Consequently, in the literature, ethical consumption is linked to a deliberate refusal to purchase products from companies with questionable behavior, alongside the active pursuit of information about the reputations of the companies that consumers wish to engage with (Tolentino et al., 2021). In this background, we suppose the perceived ethicality influences environmental concern (Fatma & Rahman, 2017); hence, we hypothesize our third hypothesis (H3):

H3: Consumer perceived ethicality positively influences environmental concern.

Based on the context of environmental and social worries, studies have shown that self-transcendence values are very associated with green consumers' behavior (Kim, 2011). This concept emphasizes transcending personal narrowness, placing greater importance on the well-being and needs of others (Guo et al., 2023). For Guo et al. (2023), individuals with self-transcendence values share characteristics that shift the focus on the self and promote prosocial behaviors, such as green consumption behaviors. Thus:

H4: Self-transcendence positively influences environmental concern.

2.3 Environmental Behavior

As already exposed above, environmental issues have referred to consumers' attention to environmental sustainability. As individuals become aware about nature exploration, they straighten their perceptions about the relationship between consumption habits and environmental problems with green products' consumption (Bulut et al., 2021). Hence, by definition, environmental behavior includes all those elements in the psychology of an

individual that reflect their sensitivity to environmental issues, such as avoiding waste, keeping places clean, saving energy, among others beliefs that make people to protect the environment (Leonidou et al., 2010).

In Leonidou et al. (2010) words', ecologically conscious was first noted in the late 1960s. A few years later, a growing body of research on environmental behavior started to appear in the literature (Maderson, 2023). However, recently a gradual change in consumer behavior has been effectively noted to limit the negative impact on the environment of human activities (Ogiemwonyi et al., 2020). For Carmi et al. (2015), environmental behavior depends on many factors to be modified. In other words, it is conditional to a kind of "awareness sequence" that leads individuals to environmental attitudes.

Existing literature suggests that environmental concern is one of the main factors that affects consumers' decision-making process towards sustainable products (Bulut et al., 2021; L. Chen et al., 2022; Dangelico et al., 2022; Yadav & Pathak, 2016). It refers to individuals concerned about environmental issues and holding themselves, society, and future generations accountable for their actions in the use of natural resources (Nguyen et al., 2023; Zeng et al., 2023). It is also related to people committed to solving environmental issues and would exert influence on others to do the same (X. Wang et al., 2022). Moreover, it is capable of avoiding more harm to nature (Bulut et al., 2021).

In accordance with Chen et al. (2022), environmental concern is a cognition formed in the memory through the process of sensory stimulation, attention, recognition, and perception. As a result, it tends to enhance an individual's emotional response to environmental problems (Nguyen et al., 2023). Thus, "concern" can be considered a value commonly attributed to pro-environmental behavior (De Canio et al., 2021; Hoang Yen & Hoang, 2023; Li et al., 2021; X. Wang et al., 2022), as it stimulates ecological responsibility in daily people's shopping and evokes consumers' emotional resonance (L. Chen et al., 2022).

Dangelico et al. (2022) points out environmental concern can be divided into two categories: specific environmental issues and comprehensive and universal. In general, it is possible to find individuals with different degree levels of efforts to try to solve environmental problems (Bulut et al., 2021; Hoang Yen & Hoang, 2023; Li et al., 2021; Mu et al., 2023; Paço et al., 2019; Paul et al., 2016). Literature explains this phenomenon arguing that knowledge and information that consumers attain influence on its attitudes (Hoang Yen & Hoang, 2023; Yadav & Pathak, 2016). In such context, we argue that high levels of concern influence on environmental knowledge, like demonstrating in hypothesis five (H5):

H5: Environmental concern positively influences environmental knowledge.

Even as we suppose environmental concern positively influences knowledge, there is also evidence in past studies that elucidate environmental concern is a representative variable of environmental attitudes (Li et al., 2021; Mu et al., 2023). This thesis is based on a belief that higher environmental concerns would form a favorable attitude toward green practices, actions, and purchases (Hoang Yen & Hoang, 2023). In fact, in a great number of studies environmental concern has been found to be a major determinant of buying environmentally friendly products (Cachero-Martínez, 2020; Hoang Yen & Hoang, 2023; Yadav & Pathak, 2016; Zeng et al., 2023), and organic food (De Canio et al., 2021; Mostafa, 2007).

By this way, we have not described what is in fact an environmental attitude. Conceptually, environmental attitude leverages adoption of such behavior for environmental protection (Biswas, 2020). Therefore, in a literal sense, "attitude" is an expression of feeling regarding likes and dislikes from an individual respecting objects (Ogiemwonyi et al., 2020).

Literature in psychology defends attitude can be used to explain psychological patterns of consumer behavior (Cachero-Martínez, 2020; L. Chen et al., 2022). In fact, it composes the

Theory of Planned Behavior, and is widely used in consumer buying behavior (Biswas, 2020; Mostafa, 2007; Zhao et al., 2014). Moreover, an attitude can be formed either internally through one's existing cultural, social values and beliefs, or externally through cognitive learning from social stimuli (Hoang Yen & Hoang, 2023; Taufique & Vaithianathan, 2018).

Regarding green products, researchers suggested that consumers with positive attitudes toward sustainability are more favorable to purchase this type of product (Costa et al., 2021; Mostafa, 2007). An environmental attitude, however, not only refers to a positive inclination of the natural world, but also to a negative (Zeng et al., 2023), that is, it can be favorable-to-unfavorable product assessment. Therefore, in this study, we suppose that the fulfillment of the intention of a pro-environmental behavior depends on positive attitude, (Cachero-Martínez, 2020). More specifically, we suppose that people with such an attitude have a great interest in social, legal, political, and other issues pertaining to the natural environment protection (Leonidou et al., 2010).

In this regard, we hypothesized our sixth hypothesis (H6):

H6: Environmental concern positively influences the environmental attitude.

“Knowledge” has also proven to be one of the basis for generating positive environmental attitudes (Candrianto et al., 2023; Paço & Lavrador, 2017; Yadav & Pathak, 2016; Zhao et al., 2014). In accordance with Martínez-Martínez et al. (2019), the concept of environmental knowledge has evolved significantly over the years. For Carmi et al. (2015), knowledge is defined as accurate stored information. In the environmental context, it reflects what a person knows about ecology (Carmi et al., 2015). It is also an appreciation of systems and collective responsibilities necessary for sustainable development (Martínez-Martínez et al., 2019; Mostafa, 2007). Additionally, for Zeng et al. (2023), it is the capability to identify a range of environmental concepts, indicators, and behavioral patterns.

Among these diverse definitions, individuals who have some environmental knowledge will be more concerned and sensitive to environmental damage compared to individuals who do not (Candrianto et al., 2023; Zhao et al., 2014). Hence, as previous research have demonstrated (Biswas, 2020; Mostafa, 2007; H. Wang et al., 2019; Zeng et al., 2023), we hypothesize that the more people have high levels of environmental knowledge, they, consequently, will have more levels of environmental attitude:

H7: Environmental knowledge positively influences the environmental attitude.

Literature also supports that when environmental issues are concerned, knowledge about the environment changes environmental attitudes (Carmi et al., 2015; Leonidou et al., 2010; Yadav & Pathak, 2016). In this respect, we believe that there exists a relationship between environmental concern and environmental attitude mediated by environmental knowledge. Based on these arguments, we present our last hypothesis of research (H8):

H8: Environmental knowledge mediates the relationship between environmental concern and environmental attitude.

3 METHODOLOGICAL ASPECTS

This study has a quantitative approach and uses a descriptive research design following a cross-sectional data collection. Data analysis was conducted by PLS-SEM, a technique that allows the estimation of complex models, with several structural paths (Hair Jr, J. F., Black, W. C., Babin, B. J., & Anderson, 2019). PLS-SEM also allows mediation

analysis; hence it is able to allow a causal-predictive approach, which emphasizes prediction (Hair JF, Hult GTM, Ringle CM, 2022).

The requisite data for this study were procured by IPSOS, a globally acclaimed marketing research firm specializing in global market research and public opinion analysis. IPSOS possesses an extensive database consisting of 40,000 panelists located in the Republic of South Africa. Owing to the considerable size of the research company's participant pool, researchers often succeed in achieving their target sample sizes. The data collection process, involving the administration of a questionnaire, commenced at the outset of the year 2023, focusing on South African residents as the study's subject population.

To assess the adequacy of the sample size and the statistical power of the analysis, the G*Power software, as developed by Faul et al. in 2009, was employed. Given that the model under consideration incorporates a maximum of four predictors for a construct, the minimum required sample size is determined to be 85. Notably, the final sample comprises 500 respondents, rendering it suitable for estimation via PLS-SEM.

Regarding the measurement instrument and data collection methodology, the IPSOS data collection firm utilized its FastFacts information retrieval system to gather the requisite data. The constructs comprising the measurement instrument were adapted from prior published and validated research sources. To measure the independent variables, the following constructs were used: Green Beauty Product Awareness (Yoo et al., 2000); Green Beauty Product Trust (Cheung et al., 2015; Ha et al., 2022); Consumer Perceived Ethicality (Brunk, 2010); Self-Transcendence (Kim, 2011); Environmental Concern (Yadav & Pathak, 2016); and Environmental Knowledge (Mostafa, 2007). Finally, the dependent variable is Environmental Attitude, a construct adapted from (Leonidou et al., 2010). The questionnaire utilized a six-point Likert scale, ranging from one (strongly disagree) to six (strongly agree).

4 RESULTS AND ANALYSIS

Initially, we analyzed the sample profile. 50.8% was female, while 48.6% was male and 0.6% self-declared as non-binary or preferred not to declare. Age varied between 18 and 65 years old, with a mean of 36 years old. 87.4% live in the urban area, more specifically in the Gauteng province (41.6%). Regarding the beauty product usage behavior, the most frequent are respectively: toiletries, skincare products, haircare products, fragrances, and color (make-up).

The statistical analyses and validation of tests in this study were conducted using Software SmartPLS 3.0, as outlined by Ringle, Wende, and Becker in 2015. These tests were designed through the application of the structural equation technique in multivariate analysis. Consequently, an examination of the measurement model was undertaken through Confirmatory Factor Analysis (CFA), given that the indicators of the constructs were drawn from various sources. In this CFA, all factor loadings exhibited values exceeding 0.70, as indicated by Brady and Cronin in 2001, as well as Hair Jr., Black, Babin, and Anderson in 2019. Notably, no indicators required exclusion from the analysis. Detailed CFA results and the corresponding questionnaire indicators are presented in Table 1.

Table 1 – Confirmatory factor analysis

Questions	Factor loading	Mean	Std. dev.	T-value	P-value
<i>Green Beauty Product Awareness</i>					
(GBPA1) I can recognize green beauty products among other competing beauty products	0.846	0.845	0.019	44.677	0.000
(GBPA2) I am aware of green beauty products	0.880	0.880	0.015	59.350	0.000
(GBPA3) I am familiar with green beauty products	0.926	0.926	0.007	127.351	0.000
(GBPA4) I can list a number of green beauty products	0.859	0.859	0.015	57.302	0.000
<i>Green Beauty Products Trust</i>					
(GBPT1) The environmental reputation of green beauty products is generally trustworthy	0.914	0.914	0.010	87.845	0.000
(GBPT2) The environmental claims from green beauty products are generally trustworthy	0.940	0.940	0.007	135.833	0.000
(GBPT3) The environmental statements made by green beauty products are generally reliable	0.935	0.935	0.008	121.578	0.000
(GBPT4) Green beauty products keep promises and commitments for environmental protection	0.911	0.911	0.012	77.924	0.000
<i>Consumer Perceived Ethicality</i>					
(CPE1) Green beauty products respect moral norms	0.859	0.859	0.015	56.585	0.000
(CPE2) Green beauty products always adhere to the law	0.891	0.891	0.012	73.773	0.000
(CPE3) Green beauty products are socially responsible	0.874	0.873	0.015	58.717	0.000
(CPE4) Green beauty products avoid damaging behavior at all costs	0.855	0.854	0.023	37.158	0.000
(CPE5) Green beauty products are produced by good companies	0.878	0.877	0.015	57.593	0.000
<i>Self-Transcendence</i>					
(ST1) Honesty is an important value to me	0.833	0.829	0.029	28.614	0.000
(ST2) Being helpful to others is important to me	0.866	0.865	0.024	35.451	0.000
(ST3) Protecting the environment is an important part of my everyday life	0.833	0.833	0.015	54.408	0.000
(ST4) Being considerate of other people is important to me	0.849	0.848	0.022	37.853	0.000
<i>Environmental Concern</i>					
(EC1) The balance of nature is very delicate and can be easily upset	0.823	0.823	0.022	36.706	0.000
(EC2) Human beings are severely abusing the environment	0.816	0.814	0.028	28.640	0.000
(EC3) Human beings must maintain the balance with nature in order to survive	0.869	0.868	0.018	47.513	0.000
(EC4) Human interferences with nature often produce disastrous consequences	0.858	0.858	0.018	48.093	0.000
<i>Environmental Knowledge</i>					
(EK1) I know that I purchase products and packages that are environmentally safe	0.812	0.812	0.019	43.305	0.000
(EK2) I know more about recycling than the average person	0.830	0.830	0.017	47.974	0.000
(EK3) I know how to select products and packages that reduce the amount of waste ending up in rubbish dumps	0.879	0.878	0.014	62.384	0.000
(EK4) I understand the environmental phrases and symbols on product packages	0.864	0.863	0.016	54.837	0.000
(EK5) I know a lot about environmental issues	0.861	0.861	0.015	57.362	0.000
<i>Environmental Attitude</i>					
(EA1) I am concerned about the environment	0.840	0.840	0.019	45.388	0.000
(EA2) I would be willing to reduce my consumption to help protect the environment	0.841	0.840	0.024	34.955	0.000
(EA3) I would donate part of my own money to help	0.755	0.754	0.027	27.598	0.000

protect wild animals (EA4) I have asked my family to recycle some of the things we use	0.799	0.799	0.022	36.163	0.000
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Subsequently, the PLS-SEM analysis was conducted, beginning with an examination of the measurement model. Given that all constructs within the model are reflexive in nature, the assessment encompassed three key aspects: (i) convergent validity, (ii) discriminant validity, and (iii) reliability, as delineated by Hair, Hult, and Ringle (2022). Convergent validity was assessed via the Average Variance Extracted (AVE), which necessitated values exceeding 0.50. Additionally, it was imperative to evaluate whether the factor loadings of the indicators exceeded 0.70. To evaluate discriminant validity, the square root of AVE was compared to the correlations between constructs, following the guidelines established by Fornell and Larcker (1981). Furthermore, an assessment was made to ensure that the factor loadings of the indicators surpassed the cross-factor loadings, as per the criteria advocated by Hair Jr., Black, Babin, and Anderson in 2019. Finally, for evaluating reliability, indicators such as Cronbach's alpha, rho_A, and composite reliability were employed, each of which needed to exceed the threshold of 0.70, in accordance with the recommendations of Hair Jr., Black, Babin, and Anderson (2019). The results, as presented in Table 2, align with the established criteria outlined by Hair, Hult, and Ringle (2022).

Table 2 – Analysis of the measurement model

Construct	CPE	EA	EC	EK	GBPA	GBPT	ST
CPE	<i>0.871</i>						
EA	0.482	<i>0.809</i>					
EC	0.393	0.654	<i>0.842</i>				
EK	0.643	0.562	0.378	<i>0.849</i>			
GBPA	0.412	0.332	0.195	0.440	<i>0.875</i>		
GBPT	0.751	0.443	0.332	0.584	0.492	<i>0.925</i>	
ST	0.412	0.603	0.569	0.426	0.199	0.417	<i>0.847</i>
Cronbach's alpha	0.921	0.824	0.863	0.903	0.901	0.944	0.868
rho_A	0.922	0.834	0.869	0.904	0.940	0.945	0.868
Composite reliability	0.940	0.883	0.907	0.928	0.929	0.960	0.910
AVE	0.759	0.655	0.709	0.721	0.766	0.856	0.717

Note: The diagonal values mentioned in italics represent the square root of AVE.

To validate the structural model, the initial stage involved the evaluation of the Variance Inflation Factor (VIF), with all values found to be below 5, as per the criteria outlined by Hair, Hult, and Ringle (2022). Subsequently, we proceeded to assess the significance of the indicators utilizing the bootstrapping technique, along with effect sizes measured by f^2 and R^2 . The results from the Student's t-test indicated that all relationships were statistically significant, except for the association between green beauty product awareness and both trust and environmental concern.

To further examine the relationship between constructs, the mediation analysis of indirect effect was proceeded with the bootstrapping procedure of 5,000 subsamples (Efron & Tibshirani, 1998). Thus, the mediating effect between environmental knowledge and the relationship between environmental concern and environmental attitude is partial and positive. To evaluate the outcomes of the structural model, we used the coefficient of determination (R^2), where values of 0.35, 0.14 and 0.54 can be considered moderate, weak, and substantial (Cohen, 1998; Faul et al., 2009).

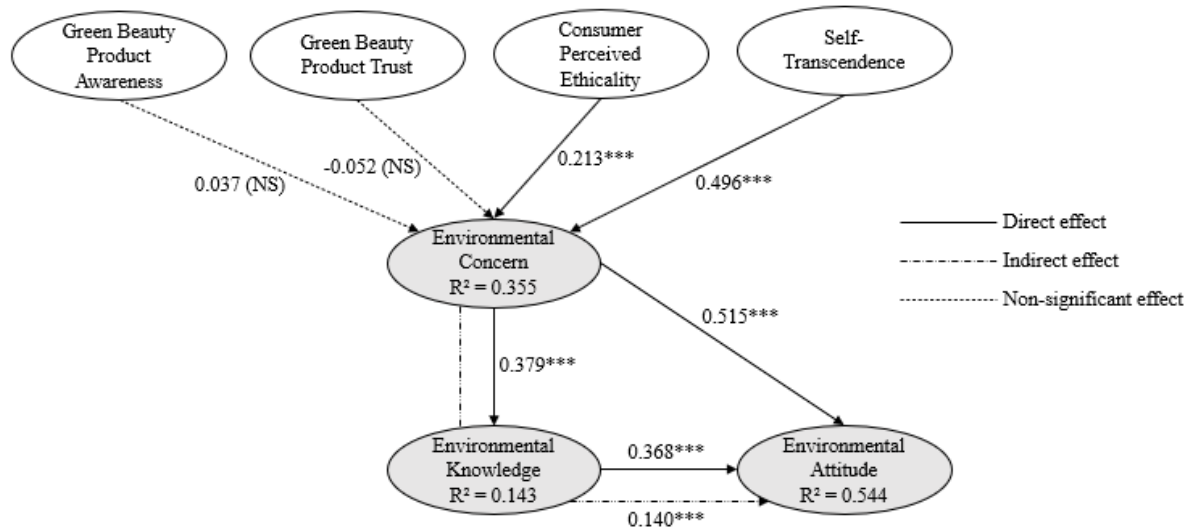
The Root Mean Square Error (RMSE) outcomes produced by the PLS-SEM were observed to be lower than those obtained from a linear reference model. Additionally, all dependent variables exhibited Q^2 prediction values greater than zero. These findings

collectively suggest that the PLS path model possesses a strong predictive capacity for environmental attitudes. The relevant indicators are presented in Table 3, while the comprehensive empirical model is illustrated in Figure 1.

Table 3 – Analysis of the structural model

	Hypothesis	Path coefficient	T-value	P-value	Significant at 5%?
<i>Total effects</i>					
H1	GBPA → EC	0.037	0.824	0.410	No
H2	GBPT → EC	-0.052	0.820	0.412	No
H3	CPE → EC	0.213	3.513	0.000	Yes
H4	ST → EC	0.496	9.192	0.000	Yes
H5	EC → EK	0.379	7.132	0.000	Yes
H6	EC → EA	0.515	12.293	0.000	Yes
H7	EK → EA	0.368	8.870	0.000	Yes
<i>Specific indirect effects</i>					
H8	EC → EK → EA	0.140	5.610	0.000	Yes

Figure 1 – Complete empirical model



Note: NS = Not significant; * = significant at 5%; ** = significant at 1%; *** = significant at 0.1%.

5 DISCUSSIONS AND IMPLICATIONS

This study tested eight hypotheses in order to find antecedents of environmental attitude. However, the first analysis, the sample profile, confirmed what is already proved by previous studies, regarding the predominance of women usage of green beauty products, especially in developing countries (AL-Haddad et al., 2020).

The empirical results, in turn, demonstrated that the influence of green beauty product awareness (H1) and trust (H2) on environmental concern are not statistically significant ($p < 0.05$), not supporting both hypotheses. Our findings, hence, are not in line with past research (Khan et al., 2022; Li et al., 2021; H. Wang et al., 2019). More specifically, while scholars argue trust is a key determinant of green product marketing strategies, and it is able to transform consumers behavior, we found it does not influence environmental concern.

Once awareness and trust are very linked, we can suppose that the use of cosmetics itself is a consciousness of everyone. Thus, the decision to buy everything is returned to the concern of that individual in consumption. Therefore, trust does not play an indispensable role in purchasing decisions, and in environmental attitudes (Pitaloka & Widiatami, 2022). We can also suppose that the green beauty market does not perform enough credibility, benevolence,

and ability regarding the environment to its customers (Lin et al., 2021), not being able to affect individuals' concern.

Still regarding predictors of environmental concern, evidence suggests that consumer perceived ethicality has a positive effect on it, supporting H3. Although trust and consumer ethical perceptions have a straight relationship (Tolentino et al., 2021), the perceived ethicality is more evident to consumers, since it refers to pro-environmental attitudes that are performed by a company, affecting company reputation (Fatma & Rahman, 2017; Shah et al., 2020). In other words, if a company is involved in scandals or unethical practices, immediately the media reports it, and consumers are rapidly alerted. When the contrary happens, consumers learn and take conscious of good practices.

Additionally, results show that self-transcendence positively influences environmental concern, also confirming H4. In accordance with Guo et al. (2023), self-transcendence is very related with altruistic motivation, and environmental concern. More specifically, this characteristic makes individuals more familiar with green products due to their environmental awareness.

By our theoretical framework, we highlighted that environmental behavior is developed in levels. It is necessary to have high levels of concern and knowledge to perform positive environmental attitudes (Bulut et al., 2021). In this background, results support H5, in which environmental concern positively influences environmental knowledge. This finding is in line with previous literature (Dangelico et al., 2022; Yadav & Pathak, 2016). In the same way, H6 is also confirmed: environmental concern also influences attitudes.

Similarly, results suggest that knowledge influences environmental attitude positively, supporting H7. There is already a consensus on literature predicting that environmental concern and environmental knowledge are pivotal in environmental, and also social, attitudes (Taufique & Vaithianathan, 2018). It means that, regarding consumption, individuals with high levels of concern and knowledge about nature issues tend to buy green products (Yadav & Pathak, 2016). As a proof, we partially supported H8.

We found "knowledge" as playing a mediating role in the relationship between environmental concern and environmental attitude. This variable is commonly used to test mediation, like observed in studies conducted by Paço & Lavrador (2017) and Zubair et al. (2019). In sum, we discovered that the relationships between environmental concern, knowledge, and attitudes are complex; but, we argue that since society has become more concerned regarding sustainability, a greater possibility exists in buying green beauty products.

Our empirical findings have important theoretical and practical implications. Theoretically, the research provides further evidence on the factors that influence environmental attitudes. While environmental knowledge was tested as a direct antecedent of environmental attitudes, we here find that knowledge also mediates the relationship between environmental concern and attitude. Simultaneously, the impacts of perceived ethicality and self-transcendence demonstrate positive influences on environmental concern. These evidences are based in a robust model with the high explanatory power of environmental attitudes in a developing country

Although product awareness and trust seems to be not an antecedent of environmental concern, we agree that immoral advertising practices about green beauty products negatively impact environmental concern, and, consequently, environmental attitudes. We base our arguments on Brunk (2010), who defends that the way a business is conducted can largely impact on the end consumers.

These findings have significant implications to marketers, in order to develop suitable strategies for green beauty products and its dissemination. Thus, marketers are suggested to emphasize on providing information to the consumers, how they can higher their levels of

awareness of green products (Yadav & Pathak, 2016). At the same time, marketers should invest in effective communication, such as eco-brand and eco-labeling, to earn the consumer's trust and guide them in purchasing such products (Khan et al., 2022).

Still regarding managerial contributions, our study supports that in individuals with stronger self-transcendence and perceptions of ethicality will be more likely to have environmental attitudes (Shiel et al., 2020). Hence, companies must be more transparent regarding their practices and moral values, specifically focusing on ethical stance.

For policymakers, educational programs are necessary to promote higher levels of environmental concern, knowledge and attitudes (Zhao et al., 2014). When formulating these programs, policymakers should empathize with self-transcendence development, especially on education of children and teenagers, in order to make them feel as playing an important role in advocating green products and protecting the environment. In other words, environmental educators are invited to approach and strive for more knowledge about the environment and related issues to achieve the objective of behavioral change (Carmi et al., 2015) and sustainable development. Finally, results are aligned with SDG 3, good health and well-being, and 12, responsible consumption and production.

6 FINAL REMARKS

This study aimed at analyzing the antecedents of environmental attitude amongst 500 green beauty products consumers in South Africa. PLS-SEM technique was applied in order to test if environmental concern and environmental knowledge influence environmental attitude, as well as if the mediation role of environmental knowledge in the relationship of environmental concern and environmental attitude is positive.

The empirical evidence sheds light on the fact that environmental concern and environmental knowledge are significant predictors of fostering environmental attitude. It is further validated that those having high perceptions of ethicality and self-transcendence will deliberately have high levels of environmental concern that will, in turn, drive environmental attitudes. Additionally, environmental knowledge has a direct and positive effect on environmental attitude, while it also mediates the relationship between environmental concern and environmental attitude. These findings have important theoretical and practical implications, as reported in the previous section.

This research has some limitations that must be overcome by future studies. First, our study looked at a sample of 500 consumers of green beauty products. Second, it is not probabilistic, being a convenience sample. Thus, the results cannot be generalized to other categories of green products. Furthermore, we report results for some antecedents of environmental attitude.

Therefore, new studies must explore other antecedents of environmental attitude. Furthermore, an additional avenue for future research could address mediation and moderation in environmental attitudes that could change in different contexts and types of consumption. It is also significant that this study be replicated in other categories of green products, such as organic food and sustainable tourism. Future research could also compare the results of developed and developing countries, by the same questionnaire. Our research also invites longitudinal and qualitative research that explores antecedents of environmental attitudes.

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