Factors Affecting Females' Green Purchasing Behavior of Green Cosmetics in Bahrain

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Abstract: This study analyzed the factors influencing green purchasing behavior among Bahraini women toward eco-friendly cosmetics. A conceptual model integrating planned behavior theory and value-belief-norm theory was used to survey 400 women. Positive attitudes towards eco-friendly cosmetics were prevalent, with high levels of purchases due to health and environmental benefits. The study confirmed all hypotheses of the conceptual model, which included four independent variables: attitudes, subjective norms, perceived behavioral control, and environmental beliefs, and a key dependent variable of green purchasing behavior. The study recommends that cosmetics companies prioritize environmental sustainability by using natural and organic product components, eco-friendly packaging, and cruelty-free products in order to promote green purchasing behavior among female consumers in Bahrain.

Keywords: Green Purchasing Behavior- Green Cosmetics - Eco-Friendly Cosmetics – Bahrain – Planned Behavior Theory – Value Belief Norm (VBN) Theory.

1 Introduction:

Concern about environmental issues and sustainability has been growing since the early 20th century. The publication of Rachel Carson's book Silent Spring in 1962 is a watershed moment in the modern environmental movement. The book documented the harmful effects of pesticides on the environment and human health, and it helped to galvanize public support for environmental protection [1]. In the subsequent decades, a diverse array of environmental challenges, such as the contamination of air and water, the depletion of forests, and the onset of climate change, garnered significant global recognition as pressing matters. The 1970s witnessed the inception of the inaugural Earth Day in 1970, an event that raised awareness about environmental issues and subsequently paved the way for the establishment of the United States Environmental Protection Agency [2]. The inaugural United Nations Conference on the Human Environment, convened in Stockholm in 1972, served as a seminal global gathering dedicated to addressing environmental concerns and served as the catalyst for the establishment of the United Nations Environment Program [3].

Similarly, the inclination towards green purchasing behavior and the adoption of environmentally sustainable products can be attributed to the nascent 1970s era when the environmental movement was surging forward. As apprehensions regarding ecological deterioration and the adverse consequences of human actions on the environment intensified, a novel manifestation of consumer activism emerged. Consumers commenced demanding greater transparency regarding the environmental ramifications associated with their purchases and actively sought out products that boasted enhanced ecological credentials [4]. Throughout the 1980s, the momentum behind green purchasing behavior persisted, particularly catalyzed by the release of "The Green Consumer Guide" authored by John Elkington and Julia Hailes. This influential publication empowered consumers by furnishing them with valuable insights into environmentally conscious products, consequently fostering heightened consciousness regarding the ecological repercussions associated with consumer choices [5]. During the 1990s, noteworthy ventures such as the Forest Stewardship Council (FSC) and the Marine Stewardship Council (MSC) were founded with the objective of endorsing sustainable goods and augmenting consumer awareness regarding the ecological consequences associated with their buying choices. These initiatives sought to certify products that adhered to sustainable practices, thereby equipping consumers with enhanced information concerning the environmental impact of their purchasing decisions [6].

Therefore, green purchase behavior pertains to the inclination of consumers to opt for products or services that exhibit environmental friendliness or possess a lesser ecological impact compared to comparable alternatives. This behavior encompasses a broad spectrum of actions, ranging from selecting products crafted with sustainable materials to choosing those that demonstrate energy efficiency or a diminished carbon footprint [7]. The significance of the concept

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of green purchase behavior is progressively escalating as consumers demonstrate a heightened awareness of the consequences their choices have on the environment, and as businesses increasingly acknowledge the value of providing environmentally responsible products and services [8].

Furthermore, a green product is one that has been purposefully developed, produced, and packaged to mitigate its environmental footprint. Typically, green products are crafted from sustainable materials, manufactured using eco-friendly methods, and packaged with environmentally conscious materials. They are intentionally designed to minimize waste and energy consumption, while also reducing the utilization of hazardous chemicals and greenhouse gas emissions throughout the entire lifespan of the product [9]. Green products encompass a diverse range of categories, encompassing household cleaning products, personal care items, food and beverage products, and building materials, among others. To guarantee adherence to specific environmental criteria, these products can undergo certification by esteemed third-party organizations like the Forest Stewardship Council or Energy Star. Moreover, green products frequently bear eco-friendly logos or symbols as visual indicators, aiding consumers in readily identifying and selecting them [10].

Among the various types of green products, green cosmetics stand out as a notable category, distinguished by their utilization of natural, organic, and non-toxic ingredients. These cosmetic products are frequently devoid of synthetic chemicals, dyes, and fragrances, and are widely acknowledged for their superior environmental friendliness and sustainability compared to conventional cosmetics. Illustrative examples of green cosmetics encompass a wide array of offerings, ranging from natural skincare products and organic makeup to cruelty-free beauty items [11].

Recently, there has been a notable surge in the popularity of green cosmetics among female consumers, primarily driven by the perceived environmental and health advantages they offer. A global survey conducted by Euromonitor International, a renowned market research company, reveals an escalating demand for green cosmetics, with natural and organic beauty products experiencing a more rapid growth rate compared to conventional beauty products [12].

According to research conducted by the Natural Marketing Institute (NMI), a significant majority of women in the United States, accounting for 58%, exhibit a preference for utilizing natural and organic cosmetic products. The study further highlights that within the age group of 18 to 34, a substantial 69% of women lean towards green cosmetics as their preferred choice, surpassing the inclination towards traditional cosmetic alternatives [13].

As a result, the primary objective of this study is to examine the determinants that shape the green purchasing behavior of Bahraini women regarding green cosmetics. Additionally, it delves into their perspectives and attitudes towards these products, as well as their motives for making such purchases. This investigation draws upon the dimensions of the planned behavior theory and the Value-Belief-Norm (VBN) Theory to shed light on these aspects.

2   Literature review:

2.1. Green cosmetics industry in the world and Bahrain:

The concept of green cosmetics has been around for centuries, with many ancient civilizations using natural ingredients in their beauty rituals. However, the modern green cosmetics industry can be traced back to the 1970s, when concerns about the impact of chemicals on the environment and human health led to a growing demand for natural and organic beauty products [14].

In the 1970s, pioneers such as Anita Roddick, the founder of The Body Shop, and Horst Rechelbacher, the founder of Aveda, began to develop natural and organic beauty products that were free from harsh chemicals and synthetic fragrances. These early green cosmetics brands helped to popularize the idea of using natural ingredients in beauty products and played a key role in raising awareness about the environmental impact of the beauty industry [15].

In the decades that followed, interest in green cosmetics continued to grow, with the rise of organic and natural beauty brands such as Burt's Bees, Lush, and Dr. Hauschka. These brands emphasized the use of natural and organic ingredients, sustainable packaging, and environmentally responsible manufacturing processes, appealing to consumers who were increasingly concerned about the impact of their purchasing decisions on the environment [16].

Nowadays, the green cosmetics industry is a rapidly growing sector of the beauty industry, with many mainstream beauty brands now offering natural and organic product lines in response to consumer demand. The rise of social media has also helped to raise awareness about the benefits of green cosmetics, with influencers and bloggers promoting natural and organic beauty products to their followers [17].

According to a survey conducted by Mintel, a notable research firm, it was found that in the United Kingdom, 15% of shoppers specifically opt for organic or natural shampoo and conditioner. Furthermore, 40% of adults who purchase natural or organic beauty and personal care products believe that these products are gentler on the skin and hair.

Additionally, 40% of adults express interest in purchasing refillable natural or organic beauty and personal care products, while a significant 73% of UK consumers believe that brands should be transparent about the production processes of natural products [18]. In the Asia-Pacific region, a study conducted by market research firm Nielsen (NIQ) reveals a growing inclination among women towards green cosmetics. The study found that 62% of women in the region expressed a willingness to pay more for natural and organic beauty products [19]. Similarly, in France, a survey conducted by the French organic certification agency Ecocert discovered that 81% of women expressed an interest in purchasing organic cosmetic products.[20] However, according to a study conducted by Statista, the share of female consumers in Germany who reported using organic or natural cosmetics was 24% in 2021 [21].

The green cosmetics market in the Kingdom of Bahrain is still in its early stages. While there are currently few local green cosmetics brands in Bahrain, there is a growing interest in natural and organic beauty products. Many international brands that offer natural and organic beauty products are available in Bahrain, and local retailers are beginning to stock these products in response to consumer demand [22]. There are some brands that offer natural and organic cosmetic products, such as Luscious Cosmetics, Pure Skin Boutique, The Body Shop, LushNeal's Yard Remedies, Nivea Naturals, Sephora Collection Clean, Herbline Essentials, Dr. Organic and Kiehl's. These brands cater specifically to the growing demand for green cosmetics in Bahrain.

The government of Bahrain has also taken steps to promote sustainability and environmental protection, including the establishment of the Supreme Council for Environment and the launch of the National Strategy for Environmental Sustainability [23]. These initiatives have helped to raise awareness about environmental issues and promote sustainable practices across various industries, including the beauty industry. In addition, there are several local organizations and initiatives that are focused on promoting sustainable and environmentally friendly practices in the beauty industry. For example, the Bahrain Animal Production Society (BAPS) is working to promote cruelty-free beauty products and raise awareness about animal welfare issues in the beauty industry [24].

2.2. Green purchasing behavior of green cosmetics :

Green purchasing behavior is driven by a number of factors, including environmental awareness, health consciousness, and personal values. Consumers who engage in green purchasing behavior of green cosmetics are often motivated by a desire to reduce their impact on the environment and to support brands that are committed to sustainability [25].

[26] shows that women may be more aware of the potential health risks associated with certain chemicals found in traditional cosmetics, especially those that are known endocrine disruptors, and prefer to use green cosmetics that are made with natural and organic ingredients. Especially Women who are pregnant or breastfeeding may be particularly concerned about exposure to toxic chemicals, as these substances can potentially harm the developing fetus or infant. Using green cosmetics can be a way to reduce this risk.

[27] explain the most important motives for women's purchase of green cosmetics as they may feel pressure to conform to certain beauty standards and may feel that green cosmetics are a way to achieve a natural or healthy-looking appearance. While [28] confirm that the primary motive for purchasing these products that Women may be more likely to consider ethical factors when making purchasing decisions, such as whether a brand uses cruelty-free testing or sources ingredients from fair trade producers also women may be more likely to prioritize sustainability and environmental concerns when making purchasing decisions, such as choosing products with recyclable or biodegradable packaging.

Moreover, green cosmetics brands are often more transparent about their ingredients and sourcing practices, which can help women make more informed decisions about the products they use. Additionally, women may choose green cosmetics as a way to support brands that align with their values and to feel empowered in their purchasing decisions [29].

From a medical perspective, women may be more likely to have allergies or sensitivities to certain ingredients in traditional cosmetics. Green cosmetics are often formulated with gentle, natural ingredients that are less likely to cause irritation or allergic reactions. Moreover, women's hormonal fluctuations can affect their skin, causing issues like acne or dryness. Green cosmetics may be less likely to exacerbate these issues, as they are often formulated to be gentle and nourishing [30].

In addition to growing consumer demand for green cosmetics, there are several other factors that are driving the growth of the green cosmetics market globally. Governments around the world are becoming increasingly concerned about the environmental impact of the beauty industry and are introducing regulations to promote sustainability and reduce waste. For example, the European Union has introduced regulations to ban certain chemicals in cosmetics and require companies to disclose the ingredients in their products [31]. Many beauty companies are recognizing the importance of sustainability and are implementing environmentally friendly practices throughout their supply chains to effectively

achieve social responsibility and corporate citizenship within their communities [32]. Social media influencers and bloggers have played a key role in promoting green cosmetics to their followers. Influencers who are passionate about sustainability and eco-friendly living can help to raise awareness of green cosmetics and encourage their followers to make more environmentally conscious purchasing decisions [33]. Additionally, the threat of climate change has become a major concern for consumers around the world, driving interest in environmentally sustainable products and practices [34].

Although many scientific studies have discussed the factors influencing the green purchasing behavior of green cosmetics, there are currently no available studies on the purchasing behavior of these products among Bahraini women. This research gap has prompted the researcher to conduct this study.

3   Methodology and sampling:

This study relied on the descriptive analytical method using various statistical tools. There are two types of data, primary data and secondary data. The E- questionnaire was relied upon as a main tool in data collection by google forms. The questionnaire was designed according to a five-graded Likert scale consisting of five levels. The research used a simple random sample of 400 Bahraini females from the age group 14 to 55 years. Data was collected from February 15 to March 30, 2023. The following is a table showing the demographics of the research sample:

This study utilized the descriptive analytical method and various statistical tools for data analysis. The data included both primary and secondary sources, with the main data collection tool being an E-questionnaire created using Google Forms. The questionnaire was designed with a five-graded Likert scale. A simple random sample of 400 Bahraini females within the age group of 14 to 55 years was used. Data collection took place from February 15 to March 30, 2023. Below is a table that shows the demographics of the research sample.

Table 1: The demographic characteristics of the study sample

Demographics		Frequency	Percent
Education level	Middle Preparatory school	46	11.5
	Higher Secondary school	98	24.5
	University education	222	55.5
	Post-graduation education (Master's and PhD)	34	8.5
	Total	400	100
Age	14-24 Yrs.	172	43
	25-40 Yrs.	136	34
	41- 55 Yrs.	92	23
	Total	400	100
Socioeconomic level	V. High	38	9.5
	High	62	15.5
	Medium	171	42.75
	Low	129	32.25
	Total	400	100

Source: Author's own calculations

4   The Conceptual model:

The conceptual model of the study combines two basic theories: the theory of Planned Behavior & The Value-Belief-Norm (VBN) Theory.

The theory of planned behavior, formulated by Icek Ajzen in 1991, is a social psychology theory that elucidates the factors shaping an individual's behavior. According to this theory, an individual's behavior is influenced by their intention to engage in that behavior. The intention, in turn, is determined by three key factors: attitudes towards the behavior, subjective norms, and perceived behavioral control. Attitudes reflect an individual's positive or negative evaluation of the behavior, subjective norms encompass the perceived societal pressure to either perform or abstain from the behavior, and perceived behavioral control pertains to an individual's self-perception of their ability to carry out the behavior successfully [35]. The interplay of these factors collectively influences an individual's intention, which subsequently impacts whether or not they actually engage in the behavior. The theory of planned behavior finds widespread application in various research domains, including health behavior, environmental behavior, consumer behavior, and others [36].

The Value-Belief-Norm (VBN) Theory is a social psychology theory that explains how a person's values, beliefs, and

norms can influence their behavior. The theory was developed by Stern and colleagues in the 1990s and has been used to explain various pro-environmental behaviors, including green purchasing. The VBN Theory proposes that people have three levels of motivational factors that drive their behavior: personal values, beliefs, and norms. Personal values are guiding principles that reflect what a person considers to be important in life, such as protecting the environment [37]. Beliefs are cognitive representations of a person's understanding of reality, such as the belief that climate change is a serious problem. Norms are social expectations or rules that guide behavior, such as the norm of recycling in a community [38]. The VBN Theory suggests that when a person's personal values are aligned with pro-environmental goals, they are more likely to develop positive beliefs about the environment and engage in pro-environmental behavior. These positive beliefs can then lead to the development of environmental norms, which can further reinforce and sustain pro-environmental behavior. Therefore, the conceptual model of this study can be summarized in the following figure [39].
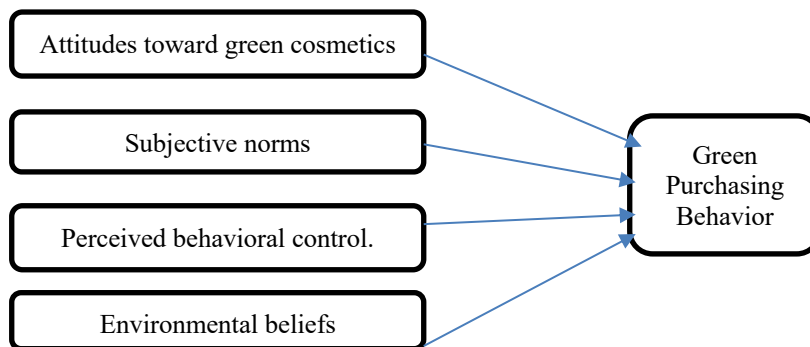

Fig. 1: The study conceptual model

Source: Designed by author

The study model explains the factors affecting the formation of green purchasing behavior for green cosmetics, as there are four main factors affecting green purchasing behavior, namely:

- Attitudes toward green cosmetics: Through identifying female perceptions of the environmental and health benefits of green cosmetics, their willingness to pay for such products. To measure this, a five-point Likert scale was designed using scales from previous studies [12, 40, 41].

- Subjective norms: Through identifying normative beliefs which are based on a person's previous experiences and socialization. To measure this, a five-point Likert scale was designed using scales from previous studies [42, 43].

- Perceived behavioral control: Through identifying the sense of obligation to take pro-environmental behavior with great control over these behaviors. To measure this, a five-point Likert scale was designed using scales from previous studies [8, 44].

- Environmental beliefs: By identifying the ecological worldview and environmental knowledge. To measure this, a five-point Likert scale was designed using scales from previous studies [45, 46].

5   Research questions and hypotheses

The study contains 2 questions and 4 hypotheses, namely:

Q1: To what extent do female consumers buy green cosmetics, and what are the motives for buying?

Q2: What are the attitudes of female consumers towards green cosmetics in Bahrain?

H1: Attitudes toward green cosmetics have a positive effect on green purchasing behavior.

H2: Subjective norms have a positive effect on green purchasing behavior.

H3: Perceived behavioral control has a positive effect on green purchasing behavior.

H4: Environmental beliefs have a positive effect on green purchasing behavior.

6   Reliability and validity:

To ensure the validity and reliability of the questionnaire, several tests were conducted, namely:

- Exploratory factor analysis (EFA) To identify underlying factors or dimensions in a set of observed variables and

to reduce the dimensionality of a larger set of variables or to identify a smaller set of variables that can be used as predictors in subsequent analysis.

- The method of Principal Components and the rotation method of Varimax are used in exploratory factor analysis to obtain a set of uncorrelated factors that explain the most variability in a set of observed variables, but on condition that the Variables should be greater than 0.5 to be significant indicators of a given factor.

- In relation to composite reliability (CR), the scores for reliability were discovered to be greater than the required threshold of 0.70. Therefore, each component within the model has detected indicators that share many similarities and they are statistically significant [47]. An evaluation of convergent validity was also conducted by observing the average variance extracted (AVE) values. All AVE values in the outcomes surpassed the minimum required value of 0.50. The least value was 0.61, thus, confirming the convergent validity [48].

- Cronbach's alpha was relied upon in order to verify the reliability of the measurements; 6 items for each variable: (Attitudes toward green cosmetics = 0.85, Subjective norms = 0.83, Perceived behavioral control = 0.76, Environmental beliefs = 0.88, Green purchasing behavior= 0.91) The following table shows the above:

Table 2: Exploratory factor analysis (EFA) of the study model, α, CR & AVE (N: 400)

Study Variables	Factor loading	α, CR, AVE
1- **Attitudes toward green cosmetics consumption**		α =0.85 CR=0.83 AVE=0.61
1. I believe green cosmetics are better for the environment than conventional cosmetics.	.825	
2. I am willing to spend extra money on green cosmetics.	.625	
3. I believe green cosmetics are healthier for my skin.	.971	
4. I like the idea of using natural or organic ingredients in my cosmetics.	.784	
5. I find green cosmetics to be effective in achieving my desired beauty results.	.642	
6. I think it is important to support companies in Bahrain that produce green cosmetics.	.637	
2- **Subjective norms**		α =0.83 CR=0.93 AVE=0.71
1. My family and friends think I should use green cosmetics.	.622	
2. I feel pressure from my social network to use green cosmetics.	.685	
3. People who are important to me frequently use green cosmetics.	.603	
4. My social network values using environmentally friendly products.	.824	
5. The Bahraini government encourages us to use environmentally friendly green products.	.789	
6. NGOs in Bahrain encourage us to use environmentally friendly green products.	.891	
3- **Perceived behavioral control**		α =0.76 CR=0.82 AVE=0.79
1. I feel confident in my ability to use green cosmetics properly.	.702	
2. I have the necessary resources to use green cosmetics.	.644	
3. I am confident that I can overcome any obstacles to using green cosmetics.	.833	
4. I have the knowledge to use green cosmetics effectively.	.863	
5. I believe that using green cosmetics is easy to do.	.967	
6. I am comfortable using green cosmetics.	.981	
4- **Environmental beliefs**		α =0.88 CR=0.93 AVE=0.75
1. I have a good understanding of environmental issues and challenges.	.802	
2. I believe that environmental issues are important and relevant to my daily life.	.844	
3. I believe that individuals have a responsibility to protect the environment.	.893	
4. I think that environmental education is important for everyone.	.863	
5. I am aware of the environmental impact of my lifestyle choices.	.767	
6. I believe that protecting the environment is essential for future generations.	.781	
5- **Green purchasing behavior:**		α =0.91

			CR=0.89 AVE=0.66
1. I actively seek out green cosmetics when I need to make a purchase.	.927		
2. I make an effort to purchase green cosmetics whenever possible.	.833		
3. I will purchase a green cosmetic product even if it costs more than a conventional product.	.841		
4. I consider the environmental impact of the packaging when purchasing a cosmetic product.	.622		
5. I research the environmental practices of cosmetic companies before making a purchase.	.603		
6. I try to limit my consumption of non-green cosmetic products.	.767		
• Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.803* (The value is considered acceptable)			
• Bartlett's Test of Sphericity (Approx. Chi-Square) = 3600.966 (Df 171, Sig. .000)			

Source: Author's own analysis

7   Results and Discussion:

The study presents its findings by answering its questions & testing its hypotheses as follows:

Q1: To what extent do female consumers buy green cosmetics, and what are the motives for buying?

Table 3: Buying level and demographics.

Demographics	High Purchase Level		Medium Purchase Level		Low Purchase Level		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
14-24 Yrs.	118	68.6	36	20.9	18	10.4	172	43
25-40 Yrs.	75	55.2	44	32.3	17	12.5	136	34
41- 55 Yrs.	41	44.5	26	28.2	25	27.1	92	23
Total	234	58.5	106	26.5	60	15	400	100
Middle Preparatory school	10	21.8	17	36.9	19	41.3	46	11.5
Higher Secondary school	71	72.4	17	17.3	10	10.2	98	24.5
University education	129	58.1	66	29.7	27	12.1	222	55.5
Post-graduation education (Masters and Ph.D.	24	70.5	6	17.5	4	11.7	34	8.5
Total	234	58.5	106	26.5	60	15	400	100
V. High Socioeconomic level	30	78.9	5	13.1	3	7.8	38	9.5
High Socioeconomic level	52	83.8	8	12.9	2	3.2	62	15.5
Medium Socioeconomic level	104	60.8	47	27.4	20	11.6	171	42.75
Low Socioeconomic level	48	37.2	46	35.6	35	27.1	129	32.25
Total	234	58.5	106	26.5	60	15	400	100

Source: Author's own analysis

The table data indicate a significant increase in the purchase levels of cosmetics across various demographic characteristics of the sample. Regarding age, the purchase level of cosmetics for females aged 14-24 years increased by 68.6% as the highest age group that buys green cosmetics. This may be attributed to the fact that this age group consists of teenagers and young adults who usually show interest in fashion, cosmetics and overall appearance.

Regarding education level, post-graduates (Master's and PhDs) are the highest group that buys green cosmetics with a percentage of 70.5%. This may be due to the high level of environmental awareness among this educational segment.

In terms of socioeconomic level, the A socioeconomic class is the highest group that buys green cosmetics with a percentage of 83.8%, followed by the A+ socioeconomic class. This indicates that the wealthy class in the sample is interested in purchasing such products and spending generously on them.

To understand Bahraini females' motivations for buying green cosmetics, an open-ended question was included in the E-questionnaire to identify the most important reasons for their purchase. The most common motivations for buying green cosmetics, according to the frequency of responses respectively, were as follows:

First, health benefits: green cosmetics may be perceived as safer and healthier due to the absence of harmful chemicals and additives. Second, better quality: green cosmetics may be associated with better quality ingredients, leading females to believe they will achieve better results than with conventional cosmetics. Third, allergies or sensitivities: individuals

with sensitive skin or allergies may opt for green cosmetics, which are often marketed as hypoallergenic. Fourth, beauty trends: green cosmetics may be seen as a trend or a fashionable statement, leading females to purchase them to keep up with the latest beauty trends. Fifth, environmental concerns: females who prioritize protecting the environment may choose green cosmetics to reduce their carbon footprint and minimize waste. Sixth, ethical considerations: Some females may choose green cosmetics to support ethical practices, such as fair trade and animal cruelty-free products. Seventh, Personal experience: females may have had positive experiences with green cosmetics in the past, leading them to continue purchasing them over conventional options. Eighth, transparency: green cosmetic brands often provide more transparency regarding their products' ingredients and production methods, which may appeal to females who value transparency and honesty. Ninth: social media influencers: influencers on social media may heavily promote green cosmetic products, leading females to try them out. Tenth: eco-friendly packaging: is often used for green cosmetics, which can be an added incentive for females who care about sustainability. Eleventh, product variety: There is a wide range of green cosmetic products available, giving females more options to choose from. Twelfth, Innovations in green beauty: the beauty industry is constantly innovating and developing new green beauty products, attracting females who are always looking for the latest and greatest. The previous motives are consistent with prior studies [40, 49-52].

To determine the motives and reasons for the low level of purchasing green cosmetic products, females who rarely buy such products (low level of purchase) were asked an open-ended question in the E-questionnaire about the reasons for their low purchase of these products. The most important reasons, in order, were as follows:

First, high prices of green cosmetic products compared to non-green alternatives. Second, limited availability of green cosmetic products in stores Third, preference for well-known and trusted brands that do not offer green cosmetic products. Fourth, lack of trust in the effectiveness of green cosmetic products. Fifth, lack of awareness about the benefits of green cosmetic products. Sixth, lack of knowledge about the ingredients used in green cosmetic products. Seventh, concerns about the shelf life and preservation of green cosmetic products. Eighth, the perception that green cosmetic products are less glamorous or luxurious than non-green alternatives. Ninth, the Influence of advertising and marketing that promotes non-green cosmetic products. Tenth, personal preferences for the scent, texture, or other characteristics of non-green cosmetic products. The previous motives are consistent with prior studies such as [53-55].

Q2: What are the attitudes of female consumers towards green cosmetics in Bahrain?

Tabel 4: the attitudes of females towards green cosmetics (N=400)

Attitudes toward green cosmetics consumption	Strong agree		Agree		Partial agree		Disagree		Strong disagree	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1. I believe green cosmetics are better for the environment than conventional cosmetics.	192	48	150	37.5	33	8.25	20	5	5	1.25
2. I am willing to spend extra money on green cosmetics.	94	23.5	113	28.25	166	41.5	17	4.25	10	2.5
3. I believe green cosmetics are healthier for my skin.	209	52.25	126	31.5	55	13.75	8	2	2	0.5
4. I like the idea of using natural or organic ingredients in my cosmetics.	167	41.75	150	37.5	52	13	21	5.25	10	2.5
5. I find green cosmetics to be effective in achieving my desired beauty results.	112	28	144	36	101	25.25	32	8	11	2.75
6. I think it is important to support companies in Bahrain that produce green cosmetics.	99	24.75	109	27.25	122	30.5	45	11.25	25	6.25

Source: Author's own analysis

From the data in Table (4), a prevailing positive attitude can be observed among females towards consuming green cosmetic products in Bahrain, where 48% of the study sample strongly agree that these products are better for the environment than conventional cosmetic products. Additionally, 41.5% of the sample partially agree that they will spend more on green cosmetic products in the future, and 41.25% strongly agree that these products are healthier for

their skin. Furthermore, 41.75% strongly agree with the idea of using organic and natural ingredients in cosmetic products. 36% agree that these products are successful in achieving desired beauty results, and 30.5% partially agree on the importance of supporting green cosmetic companies in Bahrain. In a related context, positive attitudes towards cosmetics are consistent with previous studies, such as:[56-58].

Hypothesis test results:

Table 5: results of linear regression

Hypotheses	Indicators	validation
H1: Attitudes toward green cosmetics have a positive effect on green purchasing behavior.	$R^2 = 0.135$ $\beta = 0,102$ Sig = 0, 000	Validated
H2: Subjective norms have a positive effect on green purchasing behavior.	$R^2 = 0.223$ $\beta = 0,472$ Sig = 0, 013	Validated
H3: Perceived behavioral control has a positive effect on green purchasing behavior.	$R^2 = 0.185$ $\beta = 0,381$ Sig = 0, 000	Validated
H4: Environmental beliefs have a positive effect on green purchasing behavior.	$R^2 = 0.175$ $\beta = 0,432$ Sig = 0, 000	Validated

Source: Author's own analysis

The study utilized principal component analysis to obtain a set of factors which were then used to analyze correlations between variables, as well as to conduct regression analysis to confirm the research hypotheses. Following this, a linear regression analysis was carried out to investigate the links between constructs according to the conceptual model of the study. The findings revealed that the four independent variables of the study have a positive and significant effect on the main dependent variable green purchasing behavior ($p<0.05$).

The study found that among female consumers, attitudes toward consuming green cosmetics have a significant impact on their behavior when it comes to purchasing green cosmetics. The results of the regression analysis indicated that these attitudes explain 13.5% of the variation in green purchasing behavior. Furthermore, the beta coefficient of 0.102 means that as attitudes towards green cosmetics consumption become more positive, so does the likelihood of engaging in green purchasing behavior. The significance level of 0.000 shows that this relationship is highly statistically significant. In accordance with the results of previous studies, the increase in purchase rates of green cosmetic products is directly proportional to the positive attitudes of female consumers towards these products. Specifically, their confidence that these products are natural, organic, and able to achieve the required beauty standards without harming the skin plays a significant role [40, 59].

The results of the study suggest that subjective norms based on the Planned Behavior Theory explain 22.3% of the variation in green purchasing behavior of green cosmetics among female consumers. The beta coefficient of 0.472 indicates a strong positive relationship between subjective norms and green purchasing behavior. The significance level of 0.013 indicates that the relationship between subjective norms and green purchasing behavior of green cosmetics is highly statistically significant. Consistent with previous studies, the results confirm that the socialization and reference groups of females have a direct impact on the purchasing behavior of green cosmetic products. The purchasing decision is usually taken according to the recommendations of others or positive reviews from close associates [41, 60].

The results indicate that perceived behavioral control explains 18.5% of the variation in the green purchasing behavior of green cosmetics. The beta coefficient of 0.381 indicates a moderate positive relationship between perceived behavioral control and green purchasing behavior. This means that the perceived level of control over engaging in green purchasing behavior of green cosmetics increases. The significance level of 0.000 demonstrates that this relationship is highly statistically significant.

The study found that among female consumers, their environmental beliefs based on the VBN Theory have a positive effect on their green purchasing behavior of green cosmetics. The results indicate that environmental beliefs explain 17.5% of the variation in the green purchasing behavior of green cosmetics. The beta coefficient of 0.432 means that as the strength and importance of environmental beliefs increase, so does the likelihood of engaging in green purchasing behavior of green cosmetics. The significance level of 0.000 highlights that these findings are highly statistically significant. This result is consistent with [61, 62] that proved that increasing environmental knowledge and awareness among females leads them to purchase green cosmetic products more than those who have limited environmental beliefs.

8   Conclusion:

This study aimed to explore the factors affecting green purchasing behavior of cosmetic products among Bahraini females through a survey of a random sample of 400 individuals. The study model included several variables derived from the Planned Behavior Theory and the Value-Belief-Norm (VBN) Theory. The study found several results that confirmed the validity of all the study hypotheses.

The study results also showed high percentages of green cosmetic product purchases by the sample. The main motivations for purchasing were the health benefits, organic and natural ingredients, and compatibility with sensitive skin. On the other hand, the main reasons for low purchasing behavior of these products were their high cost, limited availability in the Bahraini market, and trust in well-known brands that offer traditional cosmetic products. The study results also indicated positive attitudes toward green cosmetic products by the sample, with a decrease in negative attitudes toward them.

The study recommends that cosmetics companies should prioritize the environmental sustainability aspect of their products, including haircare, skincare, makeup, deodorants, and antiperspirants. This can be achieved by focusing on natural and organic product components, eco-friendly packaging, and cruelty-free products. The study further recommends creating awareness campaigns to promote green cosmetic products, highlighting their health benefits for women and the environmental advantages.

9   Limitations and future research

There were some limitations that should be considered when interpreting the results, and future research could be conducted to address these limitations. The study was limited to the context of Bahrain, which has unique cultural, social, and economic factors that may not be representative of other regions or countries. Future research could examine the green purchasing behavior of females in different countries or regions to compare and contrast the findings.

Another limitation of the study is that the sample size was 400, which may be insufficient for conducting a comprehensive analysis of the factors that influence females' green purchasing behavior. Future research could involve increasing the sample size to obtain a more representative sample and enable a more in-depth analysis of the variables involved.

The study was also limited in terms of the variables considered when analyzing the factors that influence green purchasing behavior. Future research could expand the scope of the study to include other variables such as the perceived ability to reduce threat, biospheric value and adverse consequences of valued objects which could provide a more comprehensive understanding of the factors that influence green purchasing behavior.

The study was applied only to the market of green cosmetic products, which is a limited market when compared to other green markets such as the organic food market, green cleaning products, solar energy products, green fashion Products, biodegradable products, Energy-Efficient Appliances and Green Home Products.

Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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