

Study on the Influence of Environmental Protection Packaging of Green Cosmetics on Consumer Preference

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Abstract: The concept of environmentalism is gradually integrated into various fields, including the food industry, daily necessities and even industrial production. Similarly, the cosmetics industry has subsequently incorporated environmental protection concepts into the industry's products and formed a green cosmetics industry chain. In recent years, environmental protection concepts have been reflected in the cosmetics industry in the form of green product ingredients and green production industrial chains. However, many companies have embodied the green concept in their packaging, introducing the concept of "green packaging". Although there are many academic studies on the impact of packaging design on consumers' purchase intention and behavior, there needs to be a unified review to summarize and specifically consider the mutual influence of the combination. This study aims to fill this research gap. This paper will review the relevant literature and summarize the influential relationship between the latest consumer behavior research in the cosmetic industry and the latest advances in green packaging for cosmetics based on the latest developments in the cosmetic industry. This research followed the PRISMA guidelines to search and summarize the literature on these two areas. The most common factors that determine consumers' choice of green cosmetic products are branding, their own health needs, the degree of consumers' awareness of environmental protection, and the collective effect. Green packaging materials and design were integrated into these factors. It was finally confirmed that green packaging materials and design had a choice-promoting effect on cosmetic consumers' behavioral preferences.

Keywords: cosmetic packaging, green purchase, green buying behavior, environmentalism, purchase intention

1. Introduction

Green packaging, also known as pollution-free packaging and environment-friendly packaging, refers to packaging that is harmless to the ecological environment and human health, can be reused and regenerated, and composite sustainable development. This concept first originated in 1987 when the

United Nations Commission on Environment and Development published "Our Common Future".

Then, in June 1992, the United Nations Conference on Environment and Development adopted the "Rio Declaration on Environment and Development" and "Agenda 21" and formally put the concept of green packaging on the statute, and then this concept in various fields set off to protect the ecological environment as the core of the green wave. The concept of green packaging has a large number of applications in the food industry, logistics industry and daily necessities industry. The specific embodiment of the form includes the reduction of plastic products used in packaging and the use of biodegradable materials for the production of packaging, as well as many countries are doing to reduce the problem of over-packaging products.

In contrast, the cosmetics industry is more cautious about the introduction of green concepts in terms of external packaging. First of all, the packaging of cosmetics cannot have a chemical reaction with the cosmetics itself, that is, the functionality of cosmetic packaging. The second is to emphasize the protective nature of the packaging, which needs to be portable and, at the same time, have a certain degree of durability to protect the goods from being destroyed. The last is the decorative nature of the packaging; the packaging must have the role of enhancing the brand and improving its own value. Because of these specific packaging needs, most of the cosmetic industry uses plastic, glass and metal to produce outer packaging. However, with the introduction of relevant environmental policies and green environmentalism gradually entering the consumer's field of vision, the cosmetics industry has also begun to introduce green packaging, the use of plastic materials, composite materials and environmentally friendly materials for the production of packaging. For example, in the 1980s and 1990s, in countries such as the United States and France, there were requirements for environmental protection as well as legislation, and even regulations for rigid packaging containers appeared. By now, at MakeUp in Paris 2019, Knoll Prestige Packaging, the world's leading producer of secondary packaging for luxury goods, is launching eco-friendly plastics that are 100% biodegradable and are described as an alternative to thermoformed plastics, in the hope of replacing most of the materials used in the production of cosmetic packaging today [1].

For the choice of green cosmetic products, we refer to a large number of literature paper materials involving male and female consumers from the United Kingdom, India, Malaysia, Vietnam, and some national regions from South America [2]-[5]. It is not difficult to find out that the factors affecting the choice of green cosmetics are mainly focused on the real usability of the product, the quality of the product and brand effect. However, there is little mention of the influence of external packaging factors on consumers' choice of green cosmetics. With the gradual penetration of green environmentalism into various industries, many companies have chosen to reflect green environmentalism in the packaging; whether this initiative can promote consumer choice as much as the brand effect, green ingredients and other factors is a question worth exploring.

Based on the field of green cosmetics, this paper will search and summarize past cosmetic consumers' perceptions of eco-friendly external packaging and their preference of choices in order to identify the impact of green external packaging on cosmetic consumers' preferences and behaviors.

For consumers, the outer packaging is the first impression they see when looking for an eco-friendly product, including the material of the packaging, whether or not the outer packaging has a recyclable label and other aspects that will be a factor in determining whether or not this product will be taken to the checkout counter by the consumer [6]. Marketers are finding that for product selection, consumers are increasingly favoring options that put product functionality aside, with the concept of packaging becoming an emerging selection factor [7]. This concept defines the presentation and role of the product's outer packaging, such as whether it is used only as a tool to protect the product or as a promotional tool. The elements contained in the packaging (shape, color, material, brand logo) work together to form and support the product's image and marketing strategy

[8,9]. The origins of green packaging are largely believed to have come from the creation of "environmentally conscious" consumers in the mid-1970's when aerosols containing chlorofluorocarbons (CFCs) damaged the ozone layer and caused some consumer anxiety. These were the first consumers to become aware of green packaging and to influence choices. Moreover, over the next 20 years or so, this awareness began to be integrated into the production of cosmetic brands. The Body Shop, for example, began to consciously invest time and money into their packaging in an attempt to create the most environmentally friendly packaging for their production. Subsequently, some consumers began to consciously choose products with green packaging, and many European cosmetic consumers put nature-friendly packaging at the top of their wish lists.

2. Consumer Perceptions of Green Cosmetics and Factors Affecting Choice

In recent years, natural green cosmetics have become the industry standard for regulating the production of beauty products [10]. The global Natural and Organic Cosmetics market reached a market value of \$34.5billion in 2018 and is expected to reach \$54.5billion by 2027 at an annual growth rate of 5.2% from 2018 to 2027 [11]. The green cosmetics market is expanding at a steady and sustained pace, and the factors that influence the choice of green cosmetics are gradually being emphasized by companies.

According to a study on the attitudes of UK cosmetic consumers towards green cosmetics, from 30 respondents, the researchers found that most respondents had definitions and different criteria for measuring green cosmetics. Cosmetics were also different. The criteria and definitions directly affect the aspects that the respondents consider when choosing green cosmetics. For example, a 25-year-old respondent said that she believes that green cosmetics mean that the ingredients are green, so she pays extra attention to the ingredients when purchasing cosmetics so that she can choose what she considers to be "green cosmetics". However, according to this survey of UK consumers, UK women have a low level of interest in spending on green cosmetics due in large part to the current depressed economic climate in the UK. Therefore, we searched and summarized green cosmetics consumption data from other countries and regions to further confirm the factors that influence the general consumer's choice of green cosmetics.

According to the results of different forms of experiments [12,13] on factors influencing consumers' choice of green cosmetics designed by different researchers for female consumers in South Africa, Vietnam, Malaysia, Mauritius and Indonesia, the top three influencing factors are ingredients (i.e., women's health factors), ethical consumerism, and price effects. Other influencing factors include advertisements, one's own education and definition of green products, brand effects, and product packaging, among others. It is worth noting that male consumers also demonstrate some motivation and ability to consume green cosmetics, although these two aspects are much lower than those of female consumers. Zelezny and his colleagues [14] conducted an experiment involving participants from 14 countries around the world on the gender-selective factors in the consumption of green cosmetic products, which proved that female consumers are more likely than male consumers to consume green cosmetic products. The experiment proved that female consumers are more concerned about the green composition of cosmetics than male consumers.

The first is the ingredients of green cosmetics. Ingredients, by definition, serve as the first area in which the concept of green cosmetics was introduced. Generally speaking, cosmetics are synthesized from numerous chemical components to achieve body modification [15]. Most of the chemical ingredients used in cosmetics, such as heavy metal ingredients, are hazardous to health and, up to a certain amount, can cause skin allergies, hair and other related diseases. This is why consumers give the highest priority when considering green cosmetic products. The second is the ethical consumerism demonstrated by consumers in purchasing green cosmetics. From the experiment designed by Sharmila et al. [16], the percentage of ethical consumerism in the survey

process is 12.6%, ranked second after the ingredient factor. Some respondents in Mauritius have made it a moral obligation to "buy green cosmetics and beauty care products", which they strongly believe protects the environment and demonstrates to the outside world that they are committed to green environmentalism. At the same time, they also sought moral comfort and satisfaction in their pursuit of environmentalism. Finally, there is the price effect. Green cosmetics are today's still emerging industry; the development of efforts and technology popularization is still far less than the food industry, daily necessities industry and logistics industry. Therefore, both the ingredients in green cosmetics, packaging and design and publicity, etc., need a lot of capital investment, which increases the production cost of green cosmetics. As expressed by a number of Mauritian interviewees, "local prices of green cosmetics and beauty care products are too high". The reverse explanation is that when there is a promotional mix of green cosmetics, consumers' willingness to spend increases. At the same time, consumers are also concerned about whether the price of the product is equal to its value. In the hypothesis testing of Azila et al. [17], hedonic value is considered to be an essential factor in the consumer's attitude towards the consumption of personal green cosmetic products, and this value can be interpreted as whether or not the product satisfies the consumer's needs.

2.1. The Evolution of Green Cosmetic Outer Packaging

Packaging as a carrier vessel for a product is divided into three main types, primary, secondary and distribution transportation packaging. Traditionally, packaging has served only as a storage and protection function, but with increasing business competition, packaging has also become a vital product promotion and marketing tool. Just as Copley mentioned in his research, "A package should be attractive, recognizable and different". When a product is introduced, companies create appropriate packaging concepts to support the product's marketing strategy and corresponding value. For example, Constantin Bolimond, a foreign design firm, designed nut packaging for a German food retailer. The designer blended the design concept with nature to create a nut package in the shape of a squirrel. The walnuts were packed in a bag modeled after the squirrel's cheeks, which fully matched the product value and promotional effect of the walnuts. As green environmentalism is gradually becoming a hot social topic, the outer packaging of many products is appearing in the public eye under the titles of green, recyclable or biodegradable.

Trace the origins of eco-friendly packaging for green cosmetics back to the mid-1970s. The release of chlorine atoms from hydrochlorofluorocarbons (HCFCs) contained in the packaging to high altitudes risked destroying the ozone layer, which aroused the anxiety of some cosmetic consumers and gave rise to the first "eco-conscious" consumers. It took nearly two decades for the concept to enter the minds of corporate brands such as The Body Shop, where concerns were raised about other natural environmental issues and the need for packaging to be environmentally friendly, such as media warnings about the toxicity of vinyl ammonia, a chemical commonly used in the manufacture of lotion containers. Later, the Chernobyl nuclear disaster and the Alaskan oil spill were both wake-up calls for consumers to become more environmentally conscious. When consumers have a green demand for cosmetics, this demand gives enterprises the necessity of green product design. For packaging, many manufacturers have conducted many tests and experiments to try to produce biodegradable packaging, such as PET bottles. In the five years between 1988 and 1993, recycling plants for plastic containers were built in the suburbs of many American cities.

However, nowadays, green environmentalism in green cosmetic packaging is not only reflected in the composition and shape of the packaging; many large beauty companies have given the packaging more functions and marketing strategies. For example, in Germany, the world's largest consumer of spray bottles and cans, DM and Unilever have launched a recycling program called "R' cycle!" in conjunction with environmental activities. They recycled consumers' spray bottles and

cans and used the recycled aluminum to produce nearly 800 bicycles, which were donated to local children's charities [18]. Other beauty and skincare companies have also been incentivized by the market share generated by this Unilever linkage. For example, Lancôme encourages consumers to bring empty bottles of used cosmetics back to the counter, where the brand rewards them with points and cosmetic samples. Such a combination of green concepts and actions for the establishment of the image of the enterprise has a great consumer to promote the role of the enterprise in environmentally friendly packaging to the outside world to convey their product information, said that the enterprise itself is assuming a high degree of environmental protection and social responsibility, to promote the consumer to produce green consumption psychology.

3. Discussion

The purpose of this study is to discuss the relationship between eco-friendly packaging and consumer preference behavior of green cosmetics. Much of the past literature has explored consumers' responses to green cosmetic ingredients, marketing strategies, and other factors, as well as consumer preference behaviors. However, there is a small amount of literature on whether or not the "determinants of the green cosmetic revolution", the packaging, affect consumer preference behaviors, not to mention the impact of further development of green packaging. While it is true that the ingredients of green cosmetics, price and consumers' own ethical consumerism are the main factors influencing the choice of green cosmetics, it is true that, based on the available research data, it can be confirmed that green outer packaging can have a positive selection effect on the choice of green cosmetics.

When green cosmetic companies are designing their outer packaging, sustainable packaging becomes a necessary consideration for them. Moreover, the conclusion obtained by Muhammad and his colleagues in hypothesis testing expresses that green packaging is positively and statistically significant for the purchase behavior of green cosmetic consumers. At the same time cosmetics companies put forward to encourage an empty bottle recycling policy and packaging waste recycling back to the community activities to convey a good environmentalism image to the community, and these behaviors attracted cosmetics consumers. Since June 2019, Lancôme has joined hands with Terry Environmental Protection to launch the "Empty Bottle Recycling Program" in China. As of March 31, 2021, Lancôme has recycled a total of 73,195.1KG of empty bottles, which is equivalent to 3,324,312 empty bottles, accounting for 17% of the total number of the brand's offline products sold. This joint initiative has reaped favorable responses from cosmetic consumers, with green cosmetics accounting for 26.8% of the total. At the same time certified the strategy and role of green packaging, not only the pursuit of environmentally friendly materials, but also to mobilize consumers to join the entire process of environmental recycling. Consumers can gain a sense of fulfillment and satisfaction in the recycling process, which also coincides with the demand for ethical consumerism of green consumers.

In fact, there is another clear reason that the cost of research on ingredient technology for green cosmetics is too high. This has discouraged many cosmetic companies. However, the need to open up their own green cosmetics market under the near monopoly of several leading cosmetics companies is challenging for many cosmetics companies. Then if you cannot do the composition and price sales strategy and the leading enterprises side by side, another way is not a good way. Work on the packaging, can also be done to establish an environmentally friendly corporate image to attract green cosmetics consumers. This proved to be true. Chinese brand ZhiBen, launched the concept of environmental protection, the introduction of recyclable words on the outer packaging and detailed printing of the steps on how to recycle, coupled with the high quality of its own products, attracted a lot of consumers. 2022 ZhiBen's annual sales volume of 15.38 million pieces,

an increase of 61.32%; the total sales of 1 billion yuan, an increase of 49.92%, the data performance of the eye-catching, and to achieve the volume of the double increase.

Another interesting fact is that green packaging and green cosmetic consumer preference behavior are mutually reinforcing. Today's green cosmetics are faced with the expectation of personalized packaging, the incorporation of environmentalism, which have made the packaging in this industry competitive, especially in Europe, where the rate of green cosmetic consumers choosing green cosmetics is much higher than in other states. In addition to several leading beauty companies, many companies have been forced by competition to make the switch to environmentally friendly packaging. Discerning consumers are willing to pay more for outer packaging made from natural materials, and are also seeking multiple uses of packaging to minimize environmental damage. There are some flaws in this search study, however. Because the influence of green packaging on the choice of green cosmetics is mostly reflected in the experimental research that focuses on the study of mainly other factors, there are fewer directly related materials, and the only materials that are available are mainly narratives, lacking more precise experimental data.

While environmentalism is gradually being integrated into people's lives, the cosmetics industry spends a lot of time and effort on external packaging in order to make their products stand out. The environmental requirements of these companies for external packaging are the feedback of consumer preference behavior. At the same time, environmentally friendly material packaging and a reasonable recycling policy for green cosmetics have confirmed its green concept. Such a two-way influence is conducive to the green cosmetics industry to truly realize environmentalism. This aspect should be emphasized, in the near future when the competition between enterprises is not limited to ingredients, price, and sales strategy. Perhaps green packaging can become an emerging leading factor.

4. Conclusions

The purpose of this study is to investigate the effect of green cosmetic eco-friendly packaging on consumer preference behavior, and through the search of literature and data summarized, it is confirmed that green cosmetic eco-friendly packaging has a positive role in promoting choice for consumers. At the same time, consumers' green consumption demand also promotes the exploration and research of environmentally friendly packaging by enterprises.

References

- [1] "Green packaging becomes the trend of 2019 Paris Makeup Show," *China Packaging* 2019, Vol. 39 No. 9, pp. 86-89, Dec. 2019.
- [2] Syuhaily. O, Walton.W, and Kai Wah.C, "Factors affecting the halal cosmetics purchasing behaviour in Klang Valley, Malaysia," *FWU Journal of Social Sciences*, vol. 16, no. 4, pp. 102–120, Dec. 2022, doi: 10.51709/19951272/winter2022/8.
- [3] Y. B. Limbu, L. Pham, and T. Nguyễn, "Predictors of Green Cosmetics Purchase Intentions among Young Female Consumers in Vietnam," *Sustainability*, vol. 14, no. 19, p. 12599, Oct. 2022, doi: 10.3390/su141912599.
- [4] Y. B. Limbu and A. Ahamed, "What influences green cosmetics purchase intention and behavior? A systematic review and future research agenda," *Sustainability*, vol. 15, no. 15, p. 11881, Aug. 2023, doi: 10.3390/su151511881.
- [5] Y. Lin, S. Yang, H. Hanifah, and Q. Iqbal, "An exploratory study of consumer attitudes toward green cosmetics in the UK market," *Administrative Sciences*, vol. 8, no. 4, p. 71, Nov. 2018, doi: 10.3390/admsci8040071.
- [6] D. Donald A, "Green for cosmetics," *Drug & Cosmetic Industry*, vol. 156, no. 2, pp. 22, Feb. 1995, url: <https://www.proquest.com/trade-journals/green-cosmetics/docview/196439221/se-2?accountid=38789>

- [8] D. Grundey, "FUNCTIONALITY OF PRODUCT PACKAGING: SURVEYING CONSUMERS' ATTITUDE TOWARDS SELECTED COSMETIC BRANDS," *Economics & Sociology*, vol. 3, no. 1, pp. 87–103, May 2010, doi: 10.14254/2071789x.2010/3-1/9.
- [9] Kotler, P. (2002). *Marketing Management. Millennium Edition*. New York, Prentice-Hall, Inc.
- [10] Kotler, P., Armstrong, G., Wong, V., Saunders, J. (2008), *Principles of Marketing, 5th European Edition*, Harlow: Pearson Education Ltd.
- [11] A. S. Shimul, I. Cheah, and B. B. Khan, "Investigating Female Shoppers' Attitude and Purchase Intention toward Green Cosmetics in South Africa," *Journal of Global Marketing*, vol. 35, no. 1, pp. 37–56, Jun. 2021, doi: 10.1080/08911762.2021.1934770.
- [12] Growth of the global cosmetics packaging industry (2017) https://www.interpack.com/en/TIGHTLY_PACKED/SECTORS/COSMETICS_PACKAGING
- [12] NG/News/Growth_of_the_global_cosmetics_packaging_industry (visited 2020, April 18)
- [13] A. Jaini, F. Quoquab, J. Mohammad, and N. Hussin, "'I buy green products, do you...?', '" *International Journal of Pharmaceutical and Healthcare Marketing*, vol. 14, no. 1, pp. 89–112, Jan. 2020, doi: 10.1108/ijphm-02-2019-0017. Anonymous, "Packaging assumes a key role in green cosmetics image," *Drug & Cosmetic Industry*, vol. 156, no. 2, pp. 34, Feb. 1995
- [14] S. Sousa, E. Correia, C. Viseu, and M. Larguinho, "Understanding green purchasing behavior in Portugal: a case study of gender differences," *The International Journal of Environmental Sustainability*, vol. 18, no. 2, pp. 63–87, Jan. 2022, doi: 10.18848/2325-1077/cgp/v18i02/63-87.
- [15] Oishi, S. (2002), "Effects of propyl paraben on the male reproductive system", *Food and Chemical Toxicology*, Vol. 40 No. 12, pp. 1807-1813.
- [16] S. Pudaruth, T. D. Juwaheer, and Y. D. Seewoo, "Gender-based differences in understanding the purchasing patterns of eco-friendly cosmetics and beauty care products in Mauritius: a study of female customers," *Social Responsibility Journal*, vol. 11, no. 1, pp. 179–198, Mar. 2015, doi: 10.1108/srj-04-2013-0049.
- [17] F. Quoquab, A. Jaini, and J. Mohammad, "Does it matter who exhibits more green purchase behavior of cosmetic products in Asian culture? A Multi-Group Analysis approach," *International Journal of Environmental Research and Public Health*, vol. 17, no. 14, p. 5258, Jul. 2020, doi: 10.3390/ijerph17145258.
- [18] J. Drobac, V. Alivojvodić, P. Maksić, and M. Stamenović, "Green Face of Packaging – Sustainability issues of the cosmetic industry packaging," *MATEC Web of Conferences*, vol. 318, p. 01022, Jan. 2020, doi: 10.1051/mateconf/202031801022.