

Role of Artificial Intelligence on Consumer Attitude and Awareness towards Green Cosmetic Products

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Abstract— Consumer behaviour is influenced by various factors that keep on changing from one country to another. This review article aims to identify consumer awareness and attitudes towards green cosmetic products. It explores the various factors explaining consumer behaviour, such as increased demand for the consumer, purchasing power, information related to green cosmetic products, awareness of the market condition etc. There is a scope for primary research to explore the green cosmetic market as the finding of this research. This study would help society as well as to the corporate houses. It has concluded that there is a behaviour- purchase gap in the consumers related to the green cosmetic products and the government and the big corporate houses needed to work together to reduce this gap. Also shows that how the pandemic has induced the great advantage of artificial intelligence in attracting the consumers.

Keywords— Green Cosmetics, Cosmetic market, Consumer behaviour, Organic products, Consumer attitude perception, Green marketing, Artificial intelligence

Introduction

In today's scenario majority of the people have started using green cosmetics in comparison to conventional cosmetic due to the realisation of better health treatments and their advantages 'Organic Cosmetic Market'. This effect can be seen very prominently after the COVID pandemic. A research from **Chase D (1992)** claims that majority of the consumer are concerned about the environment and it affects their purchase decisions. If consumers are offered products which are sustainable and are eco- friendly in nature then they will be preferred more as compared to the synthetic or conventional products. To understand the awareness and attitude of the consumer toward the green cosmetics in the market we first need to make it clear that what exactly a cosmetic product is. In India when we talk about cosmetics many people confuse it with the makeup or colour products that are available in the market. The truth is that makeup or colour products are just a part of cosmetics. FDA (Food and Drug Administration) has segregated the cosmetic products in five categories.

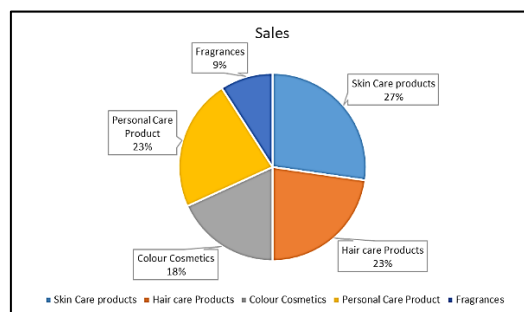


Fig. 1. Market share of the different types of cosmetics in the Indian market (FDA report 2018)

The above chart shows the market share of the different types of cosmetics in the Indian market (FDA Report 2018). In 1940, the Drug and Cosmetic Act was passed, defining cosmetics as “any product that is intended to be applied on the human body for the purpose of cleansing, beautifying, promoting attractiveness or altering outer space”. According to FDA, cosmetics are those products

which are used to intensify or alter the appearance of the face, texture or fragrance of the body of a human. This act was initially passed to control the manufacturing, import and supply of drugs and cosmetics inside India. The primary motive of this act is to see that drugs and cosmetics that are vented in India are safe, effective and of good quality benchmark. Section 16 of this act explains the standard of quality of cosmetics, and section 17 deals with misbranding of the products. Whereas the sale of fake and adulterated products is mentioned in section 27.

According to the Drug and Cosmetic Act cosmetic products are separated based on the ingredient used. The classification is shown in the chart below

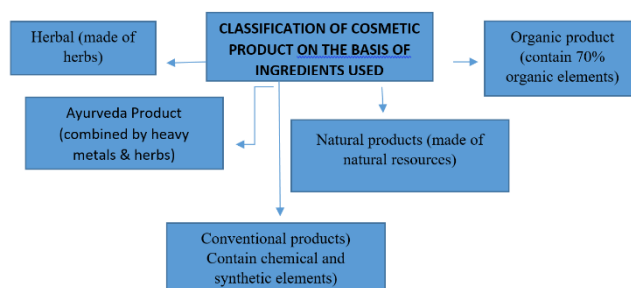


Fig. 2. Classification of cosmetic products (Drug and Cosmetic Act)

The usage of cosmetic products for the purpose of beautification is no new concept for the Indian people because as per the description given in old literatures such as Mahabharata, it shows the evidences of the use of personal care and cosmetic products. It shows the reference of Draupadi's attendant Sairandhri carrying a Prasandhana Petika (a vanity case containing substances to beautify, toiletries and accessories to decorate). And today the cosmetic industry is growing with current worth \$19.3 billion (2018) and is expected to grow at 15-20% in coming future. Earlier the target audience were women of different age groups but now the scenario is changed, as the purpose of cosmetic has also shifted from merely beautification of one's body to enhancing their personality and attitude.

Because of the increase in the purchasing power of the people demand has increased for the cosmetic and personal care product. Indian cosmetic Industry has seen a swift expansion over the last decades as the awareness of the people about their appearance also improved. Earlier the advertisements were female centred and depicted that these

products are specifically for the women but now even the pattern of the advertisements has changed. The advertisements now a days including men in them and allowing the people to accept the concept that these cosmetic products are even for the male population of the market. Apart from this Indian market is also facing some challenges such as -

- Change in fashion and technology
- Different types of skin and their preferences
- Change in consumer attitude
- Awareness regarding organic and herbal cosmetics

All these four factors are very important to understand and eliminate so that the cosmetic market could flourish without any hurdles. It will help to understand what can be done or what are the various ways in which green cosmetic products can increase their visibility and likeability in comparison with the conventional or chemical based products.

In a country like India knowledge and awareness regarding the green cosmetic product is still at infant stage so it is required to change the mind-set of the people regarding the green cosmetic

product. Research that the conventional cosmetic and personal care products do cause harm to the skin and health in a long run. It is very important to make the people aware about all such problems. The daily use products which are sold in the market cause a lot of harm to the human being as well as to the environment.

- These conventional products are harmful to the skin of the people and tends to cause skin irritation, hair fall, red eyes etc.
- They also harm the environment once they are washed of the body.

In a study (**Phulen Sharma 2016**), it is observed that even the kumkum usage has shown adverse effects on the women forehead in a long run in some parts of the southern India . The sticker bindi also cause some serious dermatitis. So it is very necessary to address this concern and protect the environment and the people by finding out valuable ideas to solve such problems.

Literature Review

The literature review has been done with a motive to understand the major work done on the organic products in India as well as around the globe.

“**Organic cosmetic market**” (**2008**) data says that the people have started using organic cosmetic in comparison to conventional cosmetic due to the realisation of better health treatments and their advantages . (**Chase D, 1992**) Also claims that majority of the consumers are bothered about the environment and some of their purchase decisions are also affected by the environmental friendliness of the product offered to them. If the consumers are offered the products which are sustainable and are eco-friendly in nature then they will be preferred more in comparison to the conventional products. **Eastin, M. (2002)** with the help of his study shows that in some cases the consumer of the cosmetic and health care product uses the foreign brands of organic cosmetic in order to compare it with the domestic brands and their perception and the attitude changes toward these brands. This change in attitude and perception occur because of the good impact on the minds of the customers and the foreign brands also meet the consumer’s expectations, needs, wants, beliefs and desires. Repeated purchase of the products is also the result of the perception and the changed attitude of the consumer. **Nielsen. (2007)** Says that many of the products are made to be environment friendly but still disappoint the consumer as it is very difficult to make the consumer believe that what is offered to them is actually organic and is worth the higher prices. The findings shows that consumer choices are fairly guided by the people they trust rather than the other sources of information. **Fan Shean Cheng (2010)** predict that now a days even males are positively concerned toward self-image and the consumption of male grooming cosmetic. Majority of the male consumer tends to purchase their cosmetic and personal care products from one shop only. Which is not same in case of the female consumer due to the variety of the product availability of the personal care and cosmetic products. The male segmentation of the market have less variety of the cosmetic and personal care products so they tends to lean toward the quality of the product and this affects the purchase intention of the consumer. **Jaiswal, D. (2012)**. this article examine the availability, awareness and preference of the usage of green products in various households of Gujarat and concluded that there is a moderate knowledge about the green products among the participants of the research study .The knowledge about the pricing range of the products is very less among the participants which they gathered from televisions, magazines, friends and relatives. The information regarding the availability of green products is in infancy stage.

K.Garga, P. S. (2012) Says if government and big corporate houses come together then they can contribute a lot. There is a wide scope for expansion in the market of the organic cosmetics. Awareness drives can be launched for educating people about the green cosmetics. **Prof. Surya Rashmi Rawat and Prof. Dr.Pawan K. Garg, (July 2012)**, Suggested that the lack of information about the green products is creating a major challenge in acceptance by majority of population. The study shows that if the marketer wants to create a good market for the green products then they

have to collaborate with the awareness could be increased and a different segment of the consumers can be created who are ready to pay any amount for the purchase of green products that will cause no effect on the environment. **Aarti Kataria and Ruchi Garg (2013)** shows that availability of the eco-friendly products is causing the major problem as well as the price of the eco-friendly products is more than the conventional products. The data shows that some consumer prefer the eco-friendly products due to different reasons but still the researcher concluded that the eco-friendly product purchases is yet a very novel concept and so it is the need of the market that corporate houses and government to come together and work in the favour of the eco-friendly products. **Yadav, D. a. (2013)** the study consumer sensitivity toward the pricing of the cost of the cosmetics high then the consumer adjust either by adjusting their consumption or by shifting to another brand. The Important factors are economic motives, discount motives, social motives, gender appeal in the advertisement, brand perception make the consumer more sensitive toward the product. A lot of consumer are of a mind-set that the high prices products are of good quality and of great advantage **Evan Etal (1996)**.

Mahapatra, D. (2013) Suggested that differentiating a company on an environmental platform helps in increasing the outlook for higher quality products and enhance the people willingness to purchase the premium products. It is very important for the producers in the future to improve the consumer's knowledge about the green products and target the potential market segmentation that understand the advantages of green products and appreciate their positive attributes. It is very important to remove the hurdles between the intentions and the actions of the consumers in order to realize the green market's true potential. **Tejal P, N. D. (2013)** With this study we could explore the consumer perception and awareness about the usage of cosmetics and health care issues related to them. This study was done on the consumers of the Surat city .As it is a traditional mind-set of the people that cosmetics are majorly used by females for the protection purposes, attraction or for fashion but the results shows that the males are equally aware regarding the use of the cosmetic products. Both men and women are going to salons for using their service .But many of the beauticians do not use the standard products so that they can reduce the cost, and these cheap products are harmful for the consumers. Majority of the male participants shows curiosity to know about the products being used on them whereas the female participants do not show such interest. Even though the consumers know about the harmful effects of the chemical based cosmetic still they use them. This is the due to the lack of awareness and information about the green cosmetic.

Prof.K.R.Subramanian, D. a. (2014). Discusses how the consumer attitude toward the green products is shaped by perceptions. The general perception regarding the green products are - green products are healthy, conserve environment and meet the satisfactory performance and satisfaction levels. These are some very broad perceptions of the consumers which actually shape their purchase behaviour as per the study. The study also shows that majority of semi urban and urban population have enough knowledge about the green products and they are more exposed to green products. Nowadays even the rural population are getting aware about the green products with the help of spread of education and increased purchasing power. **A.Virani, S. (2014)** Research aims to identify different factors and their perception on the consumers of different income groups. Perception of standardization for organic brands of cosmetics does not show any difference in mean rating among the three income groups. But the communication tools and the ADD-ONNS offered by companies manufacturing the organic cosmetic shows a remarkable difference among the different income groups. Research concluded that as we have traditional as well as modern selling and advertising practices for conventional cosmetic products similarly we need to have a marketing mix for the organic brands so that their market share can be increased. Corporate Branding, Digital Marketing, Promotion of events are some of the marketing practices that will help to create a positive image in the minds of the consumers. Marketing mix will help to create the visibility and likeability among the consumers for organic cosmetic products. **Gupta, U. D. (2015)** shows that the corporate success is now a days linked with the environment .As many companies are shifting toward the natural

components in their products instead of the chemical elements. But it is also evident that a lot of companies doing green washing of the products. So it is very necessary that consumer are made aware so that they can differentiate among the green marketing and green washing of the products. The consumers want to buy green products and have green consumerism in them but they want companies and the big corporate houses to take the lead. Corporate houses need to undertake great efforts so that the consumer can get aware about the use of the conventional products that are damaging the environment and their skin. Consumer can pay extra price for the organic products only if they will get cash savings in future. The marketer need to understand that only green cannot sell because the product which is not able to satisfy the consumer need efficiently will definitely fail and so it is very important for the companies to concentrate on other features of the product too.

Hashim, N. F. (2015) Shows that the knowledge and awareness of the people is increasing and it has lead a huge impact on the cosmetic industry . However the market for the green cosmetics is still at infancy .The whole study is to understand the generation X purchase intentions toward green cosmetics. The results shows that majority of the generation X respondents are preferring the cosmetic and personal care products based on their personal needs and lifestyles , rather than buying them due to environmental reasons. Different marketing strategies should be used to the cater the need of different market segments. **Poranki, K. R. (2015)** with the help of the research tries to build a connection between the physiological perception and the reaction of the consumer in case of the cosmetic products . Results shows that it is not only based on sensory properties and the physical appearance of the product but is linked with other factors such as previous knowledge, previous experiences, consumer attitude and consumer beliefs. The consumer of the present scenario are much more demanding in terms of safety, quality, product labelling, interest of the producer in maintaining certain health standards, etc. We can understand that the consumer is more and more brand conscious and so the producer need to pay more attention toward the advertising of the cosmetics. Word of mouth is one of the best way to enhance awareness in case of cosmetic products. **Upasana Dhanda & Shivani Gupta, (Feb 2015)** Explores the barriers which hinder the market of the green products. Two types of barriers which are shown, consumer related barrier and firm related barrier. It explains that lack of awareness, price, perception, belief because consumer related barriers and lack of technology, costly raw materials, competition from cheaper non green products cause firm related barriers. **M.Banu Rekha and K.Gokila, (2015)** from the study it is seen that there is a perfect positive correlation between the family income per month and the expenditure on the herbal cosmetic product per month . The researcher also shows a significant level of relationship among the different age group of the population and the period of using the herbal cosmetic products. The first preference of the population was the quality of the products and others things were considered later on. As the companies realised the need of the chemical free cosmetic products so they started producing herbal cosmetic products to attract this segment of the market.

K.Gokila, M. R. (2015).Shows that majority of the respondents have awareness and knowledge about the herbal products and do not consider these herbal products as a luxury item anymore . Majority of the participants are aware about the health issues that are caused by the application of the conventional cosmetic products but they also know that the companies are using large amount of chemicals in the production of the herbal cosmetics. So the producers need to understand the demand of the consumers and have to provide them with satisfying and chemical free herbal cosmetic product. If the manufacturers reduces the amount of chemicals used in the herbal cosmetic products then it will increase the usage by the consumer. **Prof. Nilesh Anute, D. D. (2015)** Highlighted a very interesting trend among the Indian consumers in cosmetic market. While other developing countries are using the traditional Indian herbal and Ayurveda application in cosmetic products, the Indian consumers are running after the international cosmetic product brands as they have a sophisticated and upper class image. The results also shows that majority of the population gives more importance to the quality of the green cosmetic product and least importance to the

packaging of the cosmetic product. **Mukherjee, A. K. (2016)**. with the help of their study shows that in most of the cases consumer status and identity plays a major role in consumer minds while choosing among sustainability oriented (green products) and conventional alternatives. Whereas in some cases it also shows that the importance of the family in the consumer's life affects the sustainability related purchase.

Role of Artificial Intelligence in Cosmetic Industry

After reading the prominent articles, it was clearly evident that marketers need to make more efforts to create their product image in consumer mind. From the study done by **Alsmad (2007)** we could understand that consumers are showing a positive attitude toward the green products, as they understand the benefit that could be gained from green products. But this positive attitude is not always converted into consumer behavior. Reasons given for this attitude and behavior gap are due to perceived knowledge and faith on conventional products as well as there is a low confidence on the claims regarding the green products. **Nilsen (2007)** says that consumer choices are fairly guided by the people they trust rather than other sources of information. So it is the emerging demand of the market that companies stop green washing their products and take corrective actions on providing true information to their consumers. **K.Garga, P.S (2012)** says if government and big corporate houses comes together then they can contribute a lot to the green product market. Since the Indian market is very diverse and have a lot of opportunities if explored in right direction. And this can only be done if the government and corporate houses try to work together for the benefit of the society and educate the consumer for the same.

We could understand that consumer preferences has shifted from conventional cosmetics to herbal and green cosmetic products as they are considered as safer options. This could be seen with the growth graph of various green cosmetic companies such as Shahnaz Hussain, Kama Ayurveds, Biotique, Khadi Naturals etc. This growth has been affected after the pandemic as it become difficult for the potential customers to go to the market and make purchases. And as per the researchers it is defined as the time where the application of artificial intelligence has become different and helped the cosmetic industry to propel.

Earlier researchers could identify that products of hair care, skincare and fragrances were among the most popular products in terms of their marketing and selling in the market. With the rise in COVID cases and lockdown situation, Artificial Intelligence and machine learning is helping the cosmetic industry for exploring the new possibilities. As different vendors are offering software's using various artificial intelligence based technologies. There are different merchants who are offering programming utilizing diverse simulation intelligence based advancements. There is a proven skincare application that uses artificial learning to create individual customer database by asking them to fill a quiz or a form and then comparing the responses with the application database. The questions asked from the customers are related to their skin condition, including dryness, pigmentation, acne and elasticity. With this collected data machine learning algorithms matches the customer skin condition and then help the potential consumers in choosing the best suited skincare product for their skin.

Major application of Artificial Intelligence in Cosmetic industry could be seen through this chart

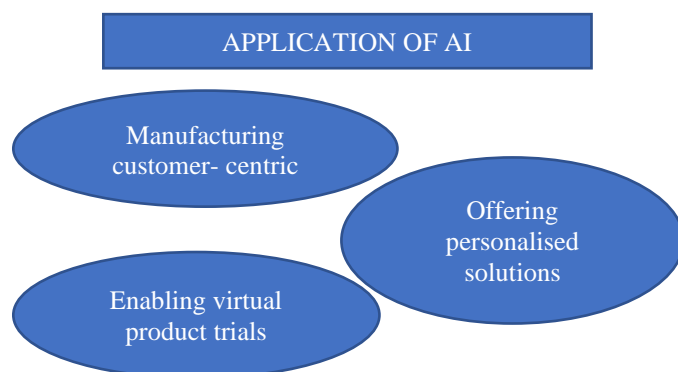


Fig. 3. Application of Artificial Intelligence in cosmetic Industry

Chart in Fig.3 shows the different uses of Artificial intelligence in cosmetic Industry that could be seen in the current market scenario. Manufacturing of cosmetic products has become more customer centric due to the use of a programme called NLP (Natural Language Processing). With the help of this program the computer can easily understand human language which is written and spoken. Computer sciences and AI are able to create an interactions between computers and human languages. We could say that computers are able to process and analyse large amount of natural language data. This helps customer feedback to be analysed with the combination of computer vision and NLP .AI algorithms can review comments, feedback posted by customers on websites, social media and other social media platforms.

Artificial Intelligence has made it possible to offer personalised solutions based on the responses provided by the potential customers. As the companies provide questionnaire to their customers and based on their responses their problem is identified by the different algorithms that analyses the informational data .And so companies are able to provide specific skin care or hair care routine and products to the customers that will align the individuals goals while considering company motives. Some of the new companies which are using this are Skin Craft, Biotique etc.

Virtual product trials has also become more popular as large number of products now can be tried online. Virtual mirrors are used for this particular purpose as the potential customer could try on different shade of the products and can analyse their look in the virtual mirrors.

Conclusion

On the basis of the review of major research papers it could be concluded that. The consumers of the present India are much more demanding in terms of safety, quality, product labelling. Interest of the producers in maintaining health standards etc. **Poranki, K.R (2015)**. The study proved that the consumer is more brand conscious and so the producers need to pay more attention toward the advertising of cosmetics. The advertising could be of any form but the main purpose of it should be creating more awareness and faith in the minds of the consumers. **Prof.Surya Rashmi rawat (2012)** highlighted through her study that the spreading awareness is a big task and could not be done by the corporate houses alone . For this purpose government has to collaborate with the small and big corporate houses. So that awareness could be increased and a different segment of the consumers can be created who are ready to pay any amount for the purchase of green products.

Although the purchasing power of the consumers is increasing but still this price factor is affecting the purchase of green cosmetic products. **Aarti Kataria (2013)** shows in her studies that since the conventional products are cheaper as well as easily available in the market, so they are stopping the market development of green products. **Yadav D. (2013)** also tells that if the prices of

the products are high then the consumer adjust either by adjusting their consumption or by shifting to another brand. With this price sensitivity, lack of information is another factor regarding the green cosmetic product in the Indian market. So it is the emerging need of the market that proper information should be made available to the consumers.

The researchers have proved through their studies that consumers in the present market are fully aware about the social and environment issues. But only the awareness regarding environment alone does not affect the purchase pattern of the consumers. There are attributes regarding the products which could be either positive or negative that affect the point of purchase decision. This has been explained by Ramirez (2013), Rokka & Unsitalo (2008). As per Mainieri, Barnett (1997) beside situational factors like monetary imperatives, absence of time, which are not caught by existing attitude behavior models, may also affect the relationship among attitude and behavior toward green product brands.

Looking at the current scenario artificial intelligence can help the green cosmetic products to new height and will boost the sales of these products. With the adoption of machine learning database the consumers could best understand the products and will be able to build the trust about green cosmetic products. Corporate houses need to invest in the research of artificial intelligence uses in the cosmetic industry so that they could understand the consumer behavior in more depth.

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