

A Study on the Impact of AI in Promoting Whitening Cream Cosmetic Products in Chennai City

Ms. Sowmiya S¹, DR. G.R. Inbaraj²

¹Part Time Research Scholar (Ph.D), Govt Arts College (A), Nandanam.

²Associate Professor, Department of Commerce, Govt Arts College (A), Nandanam.

Abstract

Artificial Intelligence (AI) has emerged as an important tool for promoting and marketing cosmetic products, particularly whitening creams. Cosmetic companies in Chennai City are increasingly using AI-based technologies such as personalized product recommendations, virtual try-on tools, chatbots, social media promotions, targeted advertisements, and customer analytics to attract consumers. AI helps consumers select suitable whitening creams based on their preferences, skin concerns, and desired results. It also helps companies reduce promotional costs and improve customer engagement. This study aims to examine the impact of Artificial Intelligence on the promotion of whitening cream cosmetic products in Chennai City. The study focuses on consumer happiness, cost control, product durability, result-oriented performance, and satisfaction with physical support, such as in-store assistance and product demonstrations. The study will help understand consumer perceptions of AI-based promotional activities and provide insights into how cosmetic companies can improve their marketing strategies and customer satisfaction.

Keywords: AI, Whitening Cream, Social Media, Consumer, Cosmetic, etc.

1. Introduction:

Artificial Intelligence: Artificial intelligence (AI) enables computer systems to perform tasks that require human intelligence, such as learning, reasoning, problem-solving, and decision-making. AI aids businesses in the cosmetics industry in understanding consumer preferences, assessing behavior, providing customized product suggestions, and enabling targeted marketing. Artificial intelligence (AI) chatbots, virtual try-on tools, skin analysis, and recommendation systems are a few examples of technology that boost customer satisfaction and engagement while helping companies develop effective marketing strategies.

AI Used in Beauty Industry: Artificial intelligence (AI) is transforming the beauty industry by allowing personalized, inclusive, and innovative consumer experiences. Customized product suggestions, AI-powered skin analysis, and virtual makeup try-ons boost customer confidence and engagement. Additionally, by helping businesses with trend prediction, inventory management, product waste reduction, and sustainability practices, AI enables customers to make better-informed beauty purchases.

Whitening Cream:



Olay, Vitamin C MAX Face Moisturizer, Brightening Cream for Women, Hydrating, Evens Tone, Dark Spot and Hyperpigmentation Reduction, Glowing Skin Care



Lakme LAKMÉ Absolute Perfect Radiance Skin Brightening Night Creme - 50 g



POND'S Bright Beauty Day Cream 35 g, Non-Oily, Mattifying Daily Face Moisturizer, SPF 15 - With Niacinamide to Lighten Dark Spots for Glowing Skin



NIVEA Soft Daily UV Light Moisturising Cream with SPF-15, 200ml



Mamaearth Rice Dewy Bright Light Moisturizing Cream with Rice Water & Niacinamide for Glass-Skin - 50 g | 24 Hrs Long-Lasting Moisturization | For Face



Lotus Professional PHYTORx WHITENING & BRIGHTENING CREAM SPF 25 | PA+++ | Radiant skin | Even skin tone | Pigmentation | Paraben Free | 50g

AI's Role In Cosmetics Manufacturing: The beauty industry is increasingly adopting Artificial Intelligence (AI) to enhance efficiency, quality, and sustainability. Beyond consumer applications such as personalized recommendations and virtual try-ons, AI plays a vital role in cosmetic production by optimizing product formulation, manufacturing processes, and production scale-up, thereby improving overall operational performance.

AI Social Media Marketing Platforms: AI-based social media platforms enhance marketing by automating content creation, scheduling, analytics, audience engagement, and performance tracking. Tools such as Hootsuite, Sprout Social, Canva, Predis.ai, Ocoya, and Sprinklr improve marketing efficiency through AI-driven insights, content optimization, and data-based decision-making, enabling businesses to strengthen consumer engagement and overall marketing performance.

AI Tools Used In Social Media Marketing

AI-based tools are widely used in social media marketing for content creation, scheduling, audience engagement, social listening, and performance analysis. Platforms such as Sprout Social, Brandwatch, Buffer, Jasper, Copy.ai, Ocoya, and ContentStudio enhance digital marketing by automating content generation, improving consumer engagement, supporting data-driven decision-making, and increasing overall marketing efficiency.

Artificial Intelligence (AI) In Beauty And Cosmetics Market Report Scope

The market was valued at USD 4.9 billion in 2025 and is expected to reach USD 33.75 billion by 2035,

growing at a CAGR of 22.30% from 2026 to 2035. The report covers market trends, growth prospects, competitive landscape, technologies, applications, and distribution channels across major global regions, including North America, Europe, Asia Pacific, Latin America, and the Middle East & Africa. Key companies include L'Oréal, Estée Lauder, Procter & Gamble, Unilever, Shiseido, Revieve, Perfect Corp, and other major industry players.

2. Review of Literature

- Agrawal and Dhamija (2023) investigated the implementation of AI in the beauty and cosmetics sector and discovered that chatbots, virtual assistants, and virtual try-on apps improve customer experiences and personalized product suggestions. Reduced human interaction, data security, and privacy are still major issues.
- Grech, Kefala, and Rallis (2024) claim that AI improves accessibility and customization through skin analysis, virtual try-ons, and product recommendations. Concerns about data privacy, AI bias, safety, and the representation of different skin tones were all found in the study.

3. Research Methodology

The study uses a qualitative analysis-based descriptive research design. Information has been gathered from secondary sources, including: Scholarly publications, Industry publications, Internet-based publications, Studies on market analysis. To find patterns, trends, and important variables affecting lipstick use, the gathered data is examined.

Statement of the Problem: The marketing of whitening cream cosmetics has changed due to the growing use of AI, which has also affected customer awareness and purchasing decisions. However, further research is needed to determine how AI will affect customer satisfaction, cost-effectiveness, durability, result-oriented performance, and physical support. Thus, this study looks at how AI affects Chennai City consumers' purchases of whitening cream cosmetics.

Objectives of the Study:

- To examine the impact of Artificial Intelligence on promoting whitening cream cosmetic products in Chennai City.
- To evaluate consumer satisfaction with AI-based promotional services.
- To analyse the relationship between demographic factors and consumer perceptions of AI promotions.

Research Design: The study adopts a descriptive survey research design to examine consumer perceptions and satisfaction regarding the use of Artificial Intelligence (AI) in promoting whitening cream cosmetic products in Chennai City.

Population and Sampling: The population comprises consumers of cosmetic products in Chennai City. A sample of 102 respondents was selected using convenience sampling to understand their perceptions of AI-based promotional activities.

Data Collection Tool

Data were collected using a structured questionnaire comprising two sections. Section A covers demographic and general information such as age, gender, purchase frequency, and awareness of AI-based promotions. Section B focuses on consumer perceptions regarding happiness, cost-effectiveness, product durability, result-oriented performance, physical support, and overall satisfaction with AI-based promotion of whitening cream cosmetic products.

- **Statistical Tools Used**
- Percentage Analysis – to analyse demographic characteristics and responses to the questionnaire.
- Chi-Square Test – to examine the association between demographic variables and perceptions of AI-based cosmetic promotion.
- **Scope of the Study:**
- The study focuses on the role of AI in promoting whitening cream cosmetic products in Chennai City.
- It evaluates consumer satisfaction and perceptions using primary and secondary data.
- **Need for the Study:**
- The increasing adoption of Artificial Intelligence in cosmetic marketing necessitates an assessment of its impact on consumer awareness, purchase decisions, and satisfaction.
- The study provides insights that help cosmetic companies improve AI-driven promotional strategies and customer engagement.
- **Limitation of the Study:**
- The study is limited to consumers in Chennai City.
- The findings are based on the opinions of the respondents.

4. Data Interpretation

Table: Pearson Chi-Square Test of Association Between Demographic Characteristics and Perceptions of AI-Based Promotion of Whitening Cream Cosmetic Products

Demographic Characteristic	AI Promotion Perception Construct	χ^2	df	p	Decision	Result
Gender	AI Advertisement Awareness	0.765	1	0.382	Fail to reject H_0	Not significant
	Happiness with AI Advertisements	9.803	3	.020	Reject H_0	Significant
	Perceived Utility of AI Recommendations	7.31	4	0.12	Fail to reject H_0	Not significant
	Perceived Brand Marketing Cost Control	3.7	4	0.448	Fail to reject H_0	Not significant
	Overall Satisfaction with AI Promotion	13.773	4	.008	Reject H_0	Significant
Age Group	AI Advertisement Awareness	3.482	5	0.626	Fail to reject H_0	Not significant
	Happiness with AI Advertisements	40.214	15	< .001	Reject H_0	Significant
	Perceived Utility of AI Recommendations	36.494	20	.013	Reject H_0	Significant
	Perceived Brand Marketing Cost Control	40.085	20	.005	Reject H_0	Significant
	Overall Satisfaction with AI Promotion	65.42	20	< .001	Reject H_0	Significant

Interpretation:

According to the Chi-square study, there is a substantial correlation between gender and both overall satisfaction with AI promotion and happiness with AI advertisements. On the other hand, Age Group exhibits strong correlations with Overall Satisfaction, Marketing Cost Control, Happiness, and Perceived Utility. However, neither gender nor age group has a significant correlation with AI Advertisement Awareness. These results imply that consumer impressions of AI-based cosmetic promotion are more influenced by age than by gender.

5. Findings

The study reveals that most respondents are young consumers aged 18–25 years and are aware of AI-based promotional activities for whitening cream cosmetic products. The descriptive analysis indicates moderate to high satisfaction with AI in terms of product awareness, cost-effectiveness, quality, durability, and purchase decisions. The Chi-square analysis shows that age has a significant association with most AI promotional factors, whereas gender is significantly associated only with happiness and overall satisfaction. However, AI advertisement awareness does not significantly vary across demographic groups, indicating its widespread acceptance among consumers.

6. Suggestions

Based on the finding the cosmetic companies should enhance AI-driven promotional strategies by offering personalized product recommendations, transparent product information, and ethical data practices. Greater emphasis should be placed on improving customer engagement through accurate AI recommendations and integrating digital promotion with customer support services to strengthen consumer trust and satisfaction.

7. Conclusion

Based on the above study concludes that Artificial Intelligence has a significant positive impact on promoting whitening cream cosmetic products in Chennai City. The findings reveal that AI enhances consumer awareness, influences purchase decisions, and improves overall customer satisfaction through personalized and effective promotional strategies. Statistical analysis further indicates that demographic factors, particularly age, significantly influence consumer perceptions of AI-based promotions. Overall, AI has emerged as an effective marketing tool that enhances customer experience and marketing efficiency. Therefore, cosmetic companies should continue investing in AI-enabled promotional strategies to strengthen consumer engagement, improve business performance, and achieve sustainable growth.

8. Reference

1. Agrawal, R., & Dhamija, R. (2023). *A study on artificial intelligence in beauty and cosmetic industry*. International Journal of Research and Analytical Reviews (IJRAR), 10(4), 308–311.
2. Grech, V. S., Kefala, V., & Rallis, E. (2024). Cosmetology in the era of artificial intelligence. *Cosmetics*, 11(4), 135. <https://doi.org/10.3390/cosmetics11040135>
3. Artificial intelligence - Wikipedia
4. Artificial Intelligence in Beauty | Innovation & Future Trends
5. 15 Best Permanent Skin Whitening Cream in India 2026 - Get Best India
6. AI's Role in Cosmetics Manufacturing

7. IJRAR23D1170.pdf
8. Cosmetology in the Era of Artificial Intelligence
9. Artificial Intelligence (AI) In Beauty and Cosmetics Market Size, Scope and Trends 2026 to 2035
10. Amazon.com: Olay, Vitamin C MAX Face Moisturizer, Brightening Cream for Women, Hydrating, Evens Tone, Dark Spot and Hyperpigmentation Reduction, Glowing Skin Care - Niacinamide, Peptides, 1.7 Ounce: Beauty & Personal Care
11. POND'S Bright Beauty Day Cream 35 g, Non-Oily, Mattifying Daily Face Moisturizer, SPF 15 - With Niacinamide to Lighten Dark Spots for Glowing Skin: Amazon.in: Beauty
12. Buy Nivea Soft Daily UV Light Moisturising Cream With SPF 15 200ml - Day Cream for Women 32433748 | Myntra
13. Mamaearth Rice Dewy Bright Light Moisturizing Cream With Rice Water & Niacinamide For Glass-Skin 200G – Mamaearth Srilanka | Official Website
14. Lotus Profession A STUDY ON THE IMPACT OF AI IN PROMOTING WHITENING CREAM COSMETIC PRODUCTS IN CHENNAI CITYal PhytoRx Whitening Brightening Night Repair Face Cream 50g | eBay