



## Science vs. Trends: Exploring Skincare in a Media-Driven Market

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### Abstract:

Skincare is constantly evolving with more complex routines and new products added to the market regularly. Instead of containing only one product, skincare routines consist of a multi-step process with many products. This paper will discuss the most common categories of skincare products and the chemistry of each of these skincare types. Later, this work will explore potential influences of social media on the pricing of similar products by doing a fiscal and chemical comparison on two similar sunscreen products. It is revealed that many brand name products are almost identical to their more generic counterparts, and social media advertising may contribute to an individual's decision. In addition, the number of products included in a person's skincare routine can be a result of internet influencers. Ultimately, this paper aims to help consumers have tools to make informed decisions that suit their skins' needs.

### Introduction

The skin is the body's largest organ containing structural lipids, proteins, ceramides, cholesterol, glycans and much more that provides a protective barrier between internal organs and the outside world (Yousef et al.). Clinical dermatology strives to develop novel ways to protect and maintain this barrier which can include (like prescribed tropical creams) and luxury skincare products sold commercially. With the growth of medical technology and pharmacological advancements, there is discussion in the clinical and public spheres about the necessity of complex skincare routines. According to a study evaluating the difference between an advanced routine (Cleanser, toner, eye cream, serum, day or night cream) in the morning and night and a simple routine (Cleanser and day cream) only in the morning, the advanced routine outperformed the simple routine subjects in terms of hydration as measured by skin moisture levels. Information such as the ones from this study are entering the public and commercial sphere, causing increased attention to the regiments people use to maintain and protect their skin barrier (Kligman).

This paper discusses some aspects of skincare mechanism and advertising to increase consumer awareness.

### Types of Skincare:

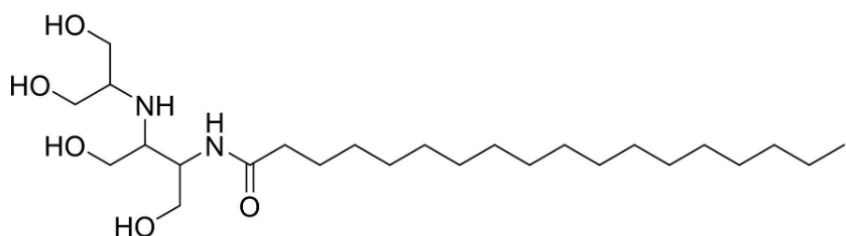
There are many types of different skincare products available to consumers due to the variety of personal skin needs. For example, there are simple cleansers to remove dirt and oil from the skin while there are more advanced skincare products like serums and toners. With the strong influence of social media, these products are finally being brought into the spotlight for users, bringing these complex skincare regimens into the mainstream.

A basic skincare routine consists of a face cleanser and a moisturizer. Specifically, the goal of skin cleansing is to reduce sebum (oily, waxy substance produced by sebaceous glands in the skin and hair) and pollutants on the skin to control the skin's microbiome. The endogenous lipids and the natural skin structure must be preserved; thus, the skin barrier has to be maintained when cleansing (Mijaljica et al.).

### Cleanser

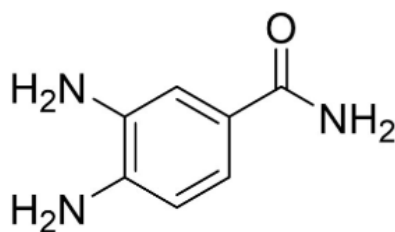
Highly active substances can cause allergic reactions to the skin so it is important to pick out products that suit an individual's skin type. Common ingredients found in basic cleansers include:

- Ceramide 3- This compound maintains the water permeability barrier function of the skin (Coderch et al.) (PubChem, *Ceramide 3*)



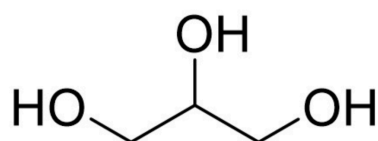
Ceramide 3

- Niacinamide- A vitamin B3 compound that restores the skin's moisture barrier and visibly fades skin discoloration ("Toleriane Purifying Foaming Facial Wash | La Roche-Posay"). (PubChem, *Niacinamide*)



Niacinamide

- Glycerin- A water soluble emollient that softens and smooths skin, attracts water into the skin, and helps retain skin moisture (*Gentle Skin Cleanser - Face & Body Cleaner | Cetaphil US*) (PubChem, *Glycerin*)



Glycerin

### Moisturizers, Serums, & Toners

Moisturizers are necessary to protect the skin, especially the epidermis. These moisturizers fill the gaps between the cornified cells of the stratum corneum and this creates the effect of smoothened skin. It additionally serves as a skin barrier helping the skin retain moisture. Without the barrier, it is more likely that water will leave the skin rather than entering and so having a barrier is beneficial (Harwood et al.). Serums are lightweight skincare products with a high concentration of active ingredients which are meant to target skin concerns. For example, vitamin C serum is meant to brighten dull skin and contains mostly vitamin C in its ingredients. (Bilodeau). A toner is a water based lotion or liquid that is used after cleansing your face but before moisturizing. It is meant to balance the skin's pH and remove any leftover impurities. It can additionally prep the skin for subsequent cosmetic products if used ("Face Toners").

### Financial Aspects of Skincare:

In a somewhat beneficial skincare routine, simple or complex, there are many important products that are used. They can include a simple moisturizer, toner, retinol, vitamin C, and many more. Retinol increases skin cell production, and vitamin C is used to help with sun protection, anti-aging, and scarring. Vitamin C additionally stimulates collagen synthesis and helps assist against UV-induced photodamage (Pullar et al.) The average price for a moisturizer on Amazon is about \$13 and the average price for a cleanser is about \$15 as of January 2025. For typical drugstores and simple moisturizers, the price per fluid ounce ranges from \$1 - \$10. However, it is very important to note the social media impact on the skincare products people end up buying.

In a study conducted in Saudi Arabia, it was found that 75% of women used social media, and 51% of the women surveyed mentioned that they learned about skin products through social media. Nevertheless, it was shown that only 5.5% of women learned about the information about skin care products through a healthcare staff member (Alamer et al.).

### Product analysis:

We chose to examine two very similar products, Elf glow sunscreen and Supergoop sunscreen, (similar in usage and function) to analyze why the Supergoop was more expensive

than the Elf. When we closely analyzed the two products, the overall chemical makeup of the Elf glow sunscreen and the Supergoop sunscreen were extremely similar (*see Table 1 for function of ingredients*). Both products have the four core active ingredients: homosalate, octocrylene, avobenzone, and octisalate. Homosalate absorbs short wave UV-B rays which are associated with an increased risk of skin cancer and DNA damage (PubChem, *Homosalate*). Octocrylene is able to neutralize UV radiation dissipated by sunlight and minimize skin damage from prolonged sun exposure (PubChem, *Octocrylene*). Avobenzone is an oil soluble ingredient and absorbs ultraviolet light over a wider range of wavelengths (PubChem, *Avobenzone*). Octisalate is an oil soluble chemical sunscreen agent that absorbs against UV-B radiation (but not UV-A) (PubChem, *Octisalate*).

The only two differences in ingredient composition are that the Elf contains 9% of Homosalate while the Supergoop contains 4% of Homosalate and that the Elf contains 7% of Octocrylene while the Supergoop contains 8% of Octocrylene. The same amounts of Avobenzone (3%) and Octisalate (5%) are present in both sunscreen brands. When we compare the costs, the Supergoop sunscreen costs \$38 while the Elf glow sunscreen only costs \$14. It was observed that the Supergoop glow screen has 4 different shades available whereas the Elf glow sunscreen has 3. It is speculated that Supergoop may have additional ingredients rather than the major chemicals mentioned that cost more in comparison to the Elf's chemical makeup that are not a part of the breakdown discussed, potentially contributing to the difference in pricing.

| Ingredient  | Price (per g) | Supergoop | Elf |
|-------------|---------------|-----------|-----|
| Homosalate  | \$0.10        | 4%        | 9%  |
| Octocrylene | \$0.14        | 8%        | 7%  |
| Avobenzone  | \$0.22        | 3%        | 3%  |
| Octisalate  | \$0.13        | 5%        | 5%  |

*Table 1: This table shows the ingredients in both the Elf glow screen and the supergoop, their price per gram, and their percentage of each ingredient*

As of March 26th, 2025, homosalate is the cheapest ingredient at \$0.10/g and the most expensive one would be Avobenzone at \$0.22/g of which the Supergoop and the Elf contain the same amount. This can explain some of the difference in price between the two products: Elf glow screen costs less in comparison to the Supergoop and contains more of the cheapest ingredient, Homosalate. Octocrylene is the 2nd most expensive ingredient at \$0.14/g. The Supergoop contains 8% of the Octocrylene whereas the Elf has 7%. Both the Elf and the Supergoop use the same amount of Avobenzone, the most expensive ingredient as seen in Table 1 above.

In terms of company sizing, Elf - Eyes Lips Face- is a large cosmetics company consisting of about 633 employees ("E.l.f. Beauty (ELF) Number of Employees") whereas Supergoop consists of about 51-200 employees overall ((11) *Supergoop!: Overview | LinkedIn*).

Supergoop having lesser employees and the fact that the Elf products are found in not only their website but also in big box retailers like Walmart, Target, Amazon, Sephora, and more shows that Elf is a bigger and more developed company compared to Supergoop. Elf also sells makeup and hair products, not just lotions and sunscreen like Supergoop sells. Since Elf is a bigger company overall, they are more likely to have the capacity to produce products in bulk resulting in a cheaper sale price; however, Supergoop is a smaller company, which may mean they have smaller facilities, which may result in a higher cost per item.

### Media and Technology Influence:

As mentioned previously, social media plays an influential role in skincare nowadays. Supergoop took off on platforms like TikTok and Instagram until users discovered what was called the “cost effective alternative” of Supergoop which was the Elf glow screen. Influencers were curious as to why there was a major price difference in two appearing similar products. Supergoop’s marketing relies on the youth, using Snapchat filters, Tiktok, and instagram to market their products whereas Elf is a mass market, budget friendly brand. The majority of this difference had to do with social media. In the same 2023 study mentioned before conducted in Saudi Arabia, it used a questionnaire to contact a variety of women (Alamer et al.). Their demographics, social media usage, source of information and degree of trust were taken into account. The study showed that around half of the interviewed subjects purchased a cosmetic or skincare product advertised by social media bloggers whereas 15.9% of the people reported that they have never purchased a product from social media and the remaining percentage was not sure or did not remember how they picked their skincare products. Additionally the analysis showed that subjects mainly used Instagram, Snapchat, and Tiktok as their main source of information. The subjects reported watching dermatology videos on a social media platform as their main source of information for buying skincare products.

Social media continues to set trends of what “perfect” skin is supposed to look like and how it can be achieved by using the advertised products of a particular video or post. Users can be misled by advertisement videos: they are not always honest since content creators are paid for positive reviews of the products. People’s ability to trust continues to shift as viewers are leaving their skincare routine up to influencers rather than dermatologists. The truth is that dermatologists and medical professionals are trustworthy sources. Influencers often play a role in mainstream skincare by advertising products through paid sponsorships. This leads to viewers to see products repetitively and by people they follow, which can increase the likelihood they buy a product. However, they may be buying a product that does not truly meet their skincare needs or an overpriced brand item simply because they saw it on their social media feed. Products and care recommended by medical professionals may be overlooked because people relate more to or have more access to influencers than professional healthcare providers. An influencer’s job is to influence. They made it look like they have an extensive product collection, making the audience inclined to buy the same products, changing their financial and skincare decisions. In comparison, the simpler skincare routine suggested by the dermatologists may not be as appealing to them. However, dermatologists recommended more simple and compatible routines to your skin and its needs because dermatologist approved products tend to follow clinical studies and science instead of trends.

Technology and artificial intelligence (AI) also play vital roles in cosmetic dermatology. AI is capable of creating personalized treatments and is even being developed to diagnose skin



concerns with pinpointed accuracy. For example, AI is able to detect early stages of skin cancer and can help improve clinical care by complementing clinicians who may sometimes miss nuances with the naked eye. However, AI is still new and constantly learning, so it too will have errors in diagnosis. Nowadays, traditional cosmetic dermatologic appointments are still done but a virtual follow up exam can be offered using AI diagnosis and tracking of people's skin progression. This way the dermatological system does not fully stay away from AI but neither does it completely shift to AI (Haykal et al.).

#### Future Directions:

As the media continues to shape consumers' perceptions of what the "ideal" skincare routine is, it is essential to investigate deeper into claims made by certain products to avoid making purchases based on influencer marketing. Furthermore, as AI usage continues to grow in today's world, further studies can be performed to investigate AI-driven skin analysis and misinformation. This is especially important because AI and social media play a huge part in the modern world. In skincare and skin health, there is an overall shift towards a more technological and media-influenced approach to development of new products and routines. In contrast, more research in the clean beauty industry can be done as these products are also increasing in popularity among social media influencers. Many people are now making it a priority to buy clean, eco-friendly, and vegan products to support sustainable living. The media is starting to market these clean products to customers, influencing them to prioritize eco-friendly and safe skincare products. Ultimately, the intersection between media and technology influences consumer's choices in skincare, and consumers can consider the purpose and composition of different products in addition to medical advice to make the best decision for their skincare goals.



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