



## Social Media Marketing Influence on Consumer Perception and Interest in Aesthetic Procedures versus Topical Cosmeceuticals: A Multi-Method, Cross-Cultural Comparative Study

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### Abstract

**Purpose:** This study pioneers exploration into consumer behavior within the Beauty and Cosmetics sector, focusing on Cosmeceuticals and Facial Rejuvenation Procedures. It investigates and compares consumer preferences, attitudes, and perceptions in these categories, leveraging social media data and behavioral theories for comprehensive analysis.

**Study Design:** Employing a mixed-methods approach, quantitative data from Brazil, South Korea, and the USA is combined with qualitative insights from Dubai. The study incorporates the Theory of Attribution and the Theory of Planned Behavior to enhance the analysis, providing a deeper understanding of the factors influencing consumer decision-making processes.

**Findings:** Significant insights into audience demographics, social media platform preferences, and online visibility across regions are uncovered. Trends such as increased male representation, influential presence of the 25-34 age demographic, and the dominance of YouTube as the preferred social media platform are noted. Cultural values, social norms, and emotional dimensions emerge as pivotal factors shaping consumer choices.

**Originality:** This research presents novel insights into an unexplored sector of Beauty and Cosmetics, shedding light on consumer behavior in Cosmeceuticals and Facial Rejuvenation Procedures. It paves the way for further exploration into specific aspects of consumer behavior within this dynamic industry, shaping future research.

**Keywords:** Facial Appearance; Digital influence; Facial Treatments/Products; Online Consumer Behavior; Social Media Beauty Trends

### Introduction

#### Background

The societal fixation on youthful appearances, deeply ingrained historically, persists in today's beauty industry, offering an array of anti-aging products and procedures. Despite advancements in healthcare, the pursuit of eternal youth prevails, inadvertently portraying aging as a "problem" necessitating correction. This cultural attitude has propelled the proliferation of anti-aging interventions. The global facial rejuvenation market comprises

surgical and non-surgical treatments, where non-invasive options gain popularity for their efficacy and minimal downtime. In tandem, cosmeceuticals, blending cosmetic and pharmaceutical elements, have surged, becoming a notable trend in beauty care for their potential to enhance skin and hair. The medical aesthetic procedures market is reported to have a robust growth, projecting an increase from USD 15.4 billion in 2023 to USD 25.9 billion by 2028, with a 68% rise in 5 years [1]. Similarly, the cosmeceuticals market is set to grow from USD 61.79 billion to USD 82.77 billion

in the same period, marking a 34% increase [2]. When analyzing this growth, it's important to consider that while cosmeceuticals are projected to increase in terms of absolute dollar value by twice as much as medical aesthetics, their percentage increase is only half as high due to its higher base value. This multifaceted growth is driven by demographic shifts, rising incomes, technological advancements, and increased accessibility via social media and online advertising.

### Research objective

In a world where surgical and non-surgical procedures are increasingly prevalent; this project aims to investigate the impact of social media marketing on consumer perception and interest in facial rejuvenation treatments as compared to topical cosmetic products.

### Research hypothesis

Social media marketing campaigns, using cognitive theories as a framework, have had a significant impact on the global expansion growth rate of facial rejuvenation procedures by attempting to manipulate consumer perceptions and engagement/purchase rates, whereas the growth rate of cosmeceuticals has been less affected by such campaigns.

### Significance of the study

This research pioneers a unique approach by bridging topical cosmeceuticals and facial rejuvenation procedures, often studied separately within the beauty industry, thereby addressing a crucial gap in existing studies. It conducts a comparative analysis of social media's impact on consumer perceptions, aiming to establish connections between these areas. Notably, it adopts a cross-cultural perspective, exploring consumer motivations across countries, examining aging's effects on millennials, and scrutinizing the role of social media influencers. The study's insights hold promise in guiding industry strategies to better meet consumer demands, inspire innovative cosmetic product development and to connect our understanding of topical cosmeceuticals and facial rejuvenation procedures from the consumer perspective.

### Literature Review

#### Chronicles of youth aspirations: tracing humanity's quest for timeless beauty and the evolution of anti-aging practices

The origins of the growing aversion to the natural signs of aging and the widespread anxieties surrounding the aging process are

deeply rooted and multifaceted. Throughout history, humanity has fervently sought the mythical fountain of youth, spanning from Ponce de Leon's quest in the 1600s to the infamous endeavors of Hungarian Countess Elizabeth Bathory, who sought to preserve her youth through macabre means involving the blood of young virgins [3]. This persistent cultural fixation on youth and beauty has been perpetuated by today's aesthetic procedures and cosmetics industry, which offers a myriad of anti-aging treatments and products, all promising to combat the perceived "disorder" of aging and restore a youthful appearance. Simultaneously, scientific, medical, and interdisciplinary efforts aim to delay our biological clocks, confront age-related conditions, and rekindle our sense of youthful vitality, making the aging process a more physically and emotionally pleasant journey.

Modern medicine has now assumed the role of regulating and rejuvenating both the aesthetic procedures and appearance of aging bodies, often unintentionally reinforcing the notion that aging itself is a problem requiring correction. It is intriguing to observe that contemporary medical aesthetics increasingly suggest that as one's skin ages and diverges from youthful standards, their appearance becomes less "normal" and attractive. This societal narrative imposes pressure and urgency on individuals in midlife and beyond to combat the visible markers of aging. Relentless advertising further perpetuates this belief, serving as a daily reminder that sagging skin and wrinkles not only signify aging but also constitute issues in need of avoidance and rectification. This collective cultural attitude against aging has prompted many medical professionals to join the cause, inadvertently propagating the notion that aging requires remediation. Dermatologists, plastic surgeons, and other specialists now offer an array of anti-aging interventions and products, all pledging to wage war against the "disorder" of aging and resurrect a youthful appearance. Non-surgical procedures like microdermabrasion and Botox injections promise swift transformations, while plastic surgery provides the most dramatic age-defying results.

Remarkably, almost two decades ago, Bayer's 2005 study disclosed a rising trend in the adoption of age-reversing methods by both men and women annually, all against the backdrop of remarkable advancements in sanitation, healthcare, and nutrition throughout the twentieth century [3]. This era of progress significantly extended the average lifespan in the United States,

leading to the prevailing assumption that the typical American would outlive the middle stages of life. The focal point has shifted from mere longevity to a pursuit of an enriched quality of life and a more youthful appearance in the aging process. Various fields, including science and medicine, are vigorously endeavoring to actualize this aspiration by slowing down our biological aging mechanisms, addressing age-associated conditions, and rekindling our sense of youthful vitality. This endeavor is influenced by the age-old application of the golden ratio, a principle deeply ingrained in art and architecture for millennia due to its pivotal role in shaping our perception of facial beauty [3].

In the realm of facial rejuvenation, the golden ratio, also known as the divine proportion, plays a significant role. This mathematical concept, frequently observed in nature, is harnessed to maintain facial symmetry, a crucial aspect of perceived beauty. Recent years have witnessed the integration of this mathematical principle into aesthetic medical procedures, particularly in facial augmentation and restoration. One notable approach is the “4 R’s” method, encompassing Resurfacing for smoother skin, Relaxing overactive muscles, Replenishing lost volume, and Re-draping loose skin. This strategy highlights targeted treatments such as skin rejuvenation, facial reshaping, and cosmetic surgery as effective means to restore facial symmetry.

The global facial rejuvenation market pertains to the extensive array of products and procedures designed to rejuvenate the facial appearance, effectively reversing the effects of aging. This broad spectrum of facial rejuvenation techniques is strategically tailored to address the prevalent signs of aging, encompassing concerns such as wrinkles, dark spots, scarring, skin laxity, volume depletion, and textural irregularities. Facial rejuvenation treatments encompass a diverse range of options that can be categorized into surgical and non-surgical approaches, each varying in depth and invasiveness. Surgical options involve more invasive procedures such as brow lifts, eye lifts, facelifts, chin lifts, and neck lifts, characterized by the need for anesthesia, surgical incisions, and intricate tissue manipulation. In contrast, non-invasive treatments offer less invasive alternatives, including chemical peels, neuromodulators like Botox, dermal fillers, fat transfer, thread lifts, laser resurfacing, photorejuvenation, radiofrequency treatments, and ultrasound procedures. These non-surgical treatments have gained popularity for their effectiveness in rejuvenating the face with minimal

downtime and reduced invasiveness compared to surgical counterparts.

The global facial rejuvenation market is characterized by structured segmentation, primarily based on product type and end-user categories. This segmentation approach provides a nuanced analysis of specific sectors within the industry, thereby offering comprehensive insights to assist decision-makers in identifying key market applications. The product types encompass a wide range, including Botulinum Toxin (commonly referred to as BOTOX), Soft Tissue Fillers, Microabrasion Equipment, Chemical Peels, Topical Skin Care Products, and advanced Skin Rejuvenation Devices. Likewise, the end-user categories encompass Hospitals and Clinics, Beauty Centers and Spas, Dermatology Clinics, and other specialized facilities. This comprehensive analysis extends across various categories, encompassing product types, treatment methods, population segments, routes of administration, modes of purchase, end-user demographics, and distribution channels.

In recent years, the facial skin rejuvenation market has witnessed a significant surge in growth, as corroborated by the survey on aesthetic and cosmetic procedures conducted globally in 2022 by ISAPS [4]. According to the ISAPS 2022 survey findings, as depicted in Chart 1, there was a notable rise in total aesthetic procedures worldwide compared to the 2021 statistics, experiencing an 11.2% increase. Moreover, face and head procedures saw a 4.3% global increase.

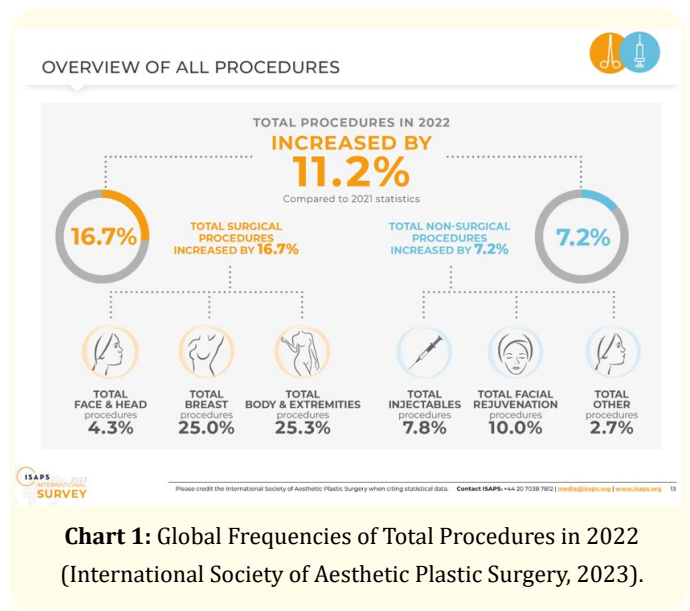


Chart 1: Global Frequencies of Total Procedures in 2022 (International Society of Aesthetic Plastic Surgery, 2023).

Additionally, non-surgical procedures exhibited a 7.2% rise, with facial rejuvenation procedures specifically showing a significant 10.0% uptick, while injectable procedures saw a notable increase of 7.8%. This expansion is the result of a confluence of factors that have increased the demand for cosmetic products and treatments. As depicted in the chart above, while our emphasis is on facial procedures, it is crucial to recognize the growing prevalence of surgical interventions to enhance appearance across various body parts. Facial procedures constitute just one aspect of this overarching trend. In our discussion of the rising demographic and cultural influences on the increase in facial procedures, it is essential to acknowledge that the surgical modification of various body regions also plays a role in shaping the willingness to undergo surgery or other related procedures on the face.

Demographically, the global population is aging, with a marked increase in the elderly population. This demographic shift has led to heightened interest in facial rejuvenation treatments, such as facelifts, dermal fillers, and botox injections, as individuals seek solutions to address the signs of aging and maintain a youthful appearance. These demographic changes and associated aspirations are complemented by economic factors, including rising disposable incomes in both developed and developing countries. Moreover, the increasing availability of dermatology clinics and cosmetic suppliers worldwide has broadened accessibility to these treatments. The entry of new global corporations into the beauty care industry has fostered competition and innovation within the facial treatment market, further fueling its growth. Concurrently, technological advancements in skincare product development have further enriched the market's growth potential. The integration of technological advancements, such as laser therapy, radiofrequency, ultrasound, and microdermabrasion, has improved the effectiveness and safety of facial treatments, making them more accessible and attractive to consumers.

The growth of the facial treatment market is influenced by various other factors [5]. Traditionally, people, especially women, have always been motivated by appearance. Now, with an increase in disposable income and a focus on personal well-being, there is a greater willingness to spend on beauty products and services. This shift can be compared to Maslow's hierarchy of needs, where as lower needs are met, attention turns to higher-level concerns, including personal appearance [6].

Additionally, the pervasive influence of social media platforms like Facebook, YouTube, and Instagram has made information about facial treatments more accessible to consumers. Market players are leveraging these platforms to expand their reach and boost sales. Furthermore, factors such as rapid urbanization, busy lifestyles, heightened pollution levels, and the popularity of medical tourism and male grooming have contributed to the growing demand for customized skincare solutions. This confluence of demographic, economic, technological, and cultural factors collectively shapes the dynamic landscape of the facial rejuvenation market, driving its expansion and fostering innovation [5]. In conclusion, the combination of these changes in societal attitudes, economic factors, and technological advancements has significantly contributed to the growth of the facial treatment market. This trend is expected to continue as individuals increasingly prioritize personal grooming and appearance.

It's essential to recognize the variations in people's preferences for different cosmetic procedures, whether surgical or non-surgical. In 2022, the United States led globally in non-surgical procedures, with approximately 5,802,761 cases, as reported by the ISAPS [4]. Botox's popularity played a significant role in this trend due to its cost-effectiveness, swift application, and reduced need for anesthesia compared to other procedures. Notably, Botox emerged as the most performed facial rejuvenation procedure in the US in 2022, with 9,221,419 treatments conducted in that year alone. This resulted in a remarkable 26.1% increase in the number of Botox treatments performed in the US when compared to 2021 [4]. Conversely, in 2022, Brazil topped the global rankings for surgical procedures on the face and head, with a total of 784,992 performed. At times, individuals opt to travel to Brazil from other nations for plastic surgery due to its more cost-effective nature. In the same year, the United States ranked third globally in the same category, conducting 347,207 facial surgical procedures [4]. Notably, Brazil also secured the third position worldwide for non-surgical cosmetic procedures, totaling 971,294 cases in 2022 [4].

Regarding plastic surgery, it is seldom covered by medical insurance, and its cost can be notably high, particularly in the United States, especially when anesthesia is involved [7]. Consequently, many patients opt to travel to countries with more affordable medical expenses for their plastic surgery needs.

South American nations like Brazil, Mexico, and Costa Rica are favored destinations, as are Asian countries such as South Korea and Singapore, along with Eastern European spots like the Czech Republic, Hungary, and Turkey [7]. The primary factors that affect plastic surgery rates within a country include its economic status and the disposable income of its residents. For instance, countries like Greece, the United States, and South Korea, known for their affluence, have citizens with the financial means to pursue elective beauty surgeries. Cultural perspectives also play a significant role. In some countries such as Brazil, plastic surgery symbolizes status, while in others such as India, it carries a social stigma and disapproval from society. Another determinant is whether a country's government provides subsidies or tax incentives for individuals choosing to undergo plastic surgery. Brazil serves as an illustrative case of both influences at play: Brazilian citizens enjoy tax incentives, and there's no social stigma attached to plastic surgery; in fact, procedures like liposuction and breast implants are seen as status symbols [7]. These factors wield substantial influence and significantly contribute to Brazil's reputation as one of the world's most enthusiastic adopters of plastic surgery.

Although North America may lead the world in total plastic surgery procedures, as per the International Society of Aesthetic Plastic Surgeons, it ranks fifth in terms of surgeries performed per capita. In the US alone, there are 5.91 procedures performed per 1,000 individuals [7]. On the other hand, South Korea stands out as the nation with the highest per-person rate of plastic surgeries worldwide. It's estimated that about one in five individuals in South Korea undergoes a plastic surgery procedure, with women constituting the largest demographic seeking these enhancements [7]. Among South Korean women aged 19–29, about 25% have had plastic surgery, while for men, it's only around 2%; in the 30–39 age group, about 31% of women and approximately 4% of men have undergone plastic surgery [8]. In South Korea, rhinoplasty, liposuction, and blepharoplasty take precedence in the realm of plastic surgeries. Blepharoplasty, also known as double eyelid surgery, typically involves the removal of excess fat around the eyes and the correction of eye drooping. In South Korea, the emphasis lies not so much on wrinkle reduction or tightening around the eyes, but rather on achieving a look more akin to that of the Western world.

The North American region is poised to dominate the global facial injectable market from 2023 to 2028 [9]. This can be attributed to factors such as the aging population in countries like the U.S. and Canada, the launch of new products by key market players, heightened awareness of healthcare issues leading to a surge in demand for aesthetic procedures, advancements in surgical techniques, and technological progress in cosmetic procedures. Notably, the use of Botox injections is on the rise, and regulatory approvals for face injectables are increasing. Additionally, favorable governmental reimbursement policies such as subsidy or tax relief further bolster market growth in North America.

In contrast, in the European region, the driving factors for substantial growth differ, with an emphasis on increasing awareness, rising disposable incomes, and heightened research and development activities, particularly in countries like the U.K., France, and Germany [9]. The region also benefits from a growing number of cosmetic procedures performed and the presence of key market players. Hence, the European region is expected to witness substantial growth, characterized by a healthy Compound Annual Growth Rate (CAGR) in the upcoming years [9].

Simultaneously, the Asia-Pacific region is poised for significant expansion during the forecast period [9]. Factors contributing to this growth include escalating disposable incomes, augmented investments in healthcare infrastructure, the introduction of innovative products, and a surge in healthcare spending in developing nations. Countries like India, Japan, China, and South Korea are pivotal contributors to the region's burgeoning market [9]. While the Middle East and Africa (MEA) as well as Latin America are projected to experience comparatively lower market growth compared to other regions, certain countries within these regions, such as Brazil and Mexico, are anticipated to command a substantial share of the market [9].

### **Cosmeceuticals: The transformative force in personal care**

The emergence of cosmeceuticals signifies a pivotal transformation within the personal care and cosmetics sectors. These products stand out by not merely concealing skin imperfections but by addressing underlying issues that contribute to these flaws. This shift in focus has sparked widespread consumer interest, leading to the ascendancy of cosmeceuticals in the

cosmetics and personal care industries. Their growing dominance is underscored by the substantial market share they have secured, signifying their integral role in the market due to the surge in demand [2].

According to data from MarketsandMarkets [1], the global medical aesthetic procedures market was valued at USD 15.4 billion in 2023 and is projected to reach USD 25.9 billion by 2028, demonstrating a notable compound annual growth rate (CAGR) of 11.0% throughout the forecast period (2023-2028). This robust growth is even more noteworthy when considering the lower initial value. In stark contrast, the cosmeceuticals market is set for substantial expansion, projected to grow from USD 61.79 billion in 2023 to USD 82.77 billion in 2028, exhibiting a CAGR of 6.02% over the period spanning 2023 to 2028 [2]. While the cosmeceuticals market's CAGR is lower, it begins from a significantly higher base value. This comparison underscores the unique dynamics of these two markets and their growth trajectories. The surging popularity of cosmeceuticals is poised to reshape the landscape of these industries and holds considerable promise for the future.

Cosmeceuticals represent a category of cosmetic products that incorporate bioactive components with medicinal attributes. These products can take on the characteristics of medicine, cosmetics, or a fusion of both. They are applied topically in the form of creams or lotions, resembling regular cosmetics, but they contain active ingredients capable of influencing skin cell functions. While some cosmeceutical items have limited effects, such as exfoliation, others can penetrate deeper skin layers, either enhancing or modulating natural skin functions. The applications of cosmeceutical products span a wide spectrum, addressing concerns like skin irritation, tooth whitening, and skin lightening. These products are essentially cosmetics formulated with pharmaceutical-grade ingredients. Manufacturers may choose to enhance the appeal of these products by adding fragrances for a pleasant scent, but it's the active ingredients that deliver the intended skincare properties. Common ingredients in cosmeceuticals encompass antioxidants, retinoids, exfoliants, peptides, proteins, and botanical extracts. A notable advancement in the global cosmeceuticals market is the introduction and growing popularity of natural and organic offerings [2].

The central drivers of the cosmeceuticals sector revolve around effective therapy, the healing attributes of beauty products, and

consumers' desire to maintain a youthful appearance. As global awareness of personal appearance continues to rise, the market is poised for substantial expansion. The presence of a diverse range of premium, higher-priced cosmeceutical products further fuels industry development. Companies in the cosmeceuticals sector are investing heavily in research and development (R&D) efforts to introduce novel formulations and extend their market reach. For cosmeceutical products, novel ingredients like peptides and stem cells are being actively explored. The introduction of new formulations enriched with bioactive ingredients plays a pivotal role in enhancing the global demand for cosmeceutical products.

The multifaceted benefits of cosmeceuticals serve to accelerate market growth. Firstly, cosmeceuticals offer the advantage of over-the-counter solutions for cosmetic skin issues that may not necessitate a prescription but warrant attention. Furthermore, cosmeceuticals have the capacity to complement prescribed skincare regimens, enhancing treatment outcomes. One of the key attributes contributing to the widespread recommendation of cosmeceuticals by dermatologists worldwide is their ability to serve as both cosmetic products and therapeutic agents. The expanding market for cosmeceuticals is linked to the rising demand for addressing oral health issues like bad breath, teeth whitening, and cavities [2]. Additionally, cosmeceuticals are frequently employed in the treatment of common skin concerns, such as acne, sunburn, and other dermatological issues that affect both men and women. Increasing consumer awareness of the advantages offered by cosmeceuticals and the burgeoning urban population represent significant driving forces propelling the cosmeceuticals industry as well.

Additionally, the industry's growth is influenced by consumer awareness of beauty, the escalating demand for natural and organic products, disposable income growth in developing markets, and the ready availability of technologically advanced and user-friendly cosmeceutical offerings [2]. Within the product segment, skincare is anticipated to maintain its prominence, with the anti-aging sub-segment projected to yield the highest revenues over the forecasted period. Increased awareness about the detrimental effects of UV radiation on the skin has led to heightened consumer interest in protective skincare products. Products like BB creams, which are short for "Blemish Balm" or "Beauty Balm," are known for their versatility in functioning as sunscreen, makeup primer,

and moisturizer. This multifunctionality has made them popular, as they simplify skincare and makeup routines, contributing to the growth of the skincare segment.

In terms of regional dynamics, the Asia Pacific cosmeceuticals market reigns as the world's largest regional market, poised for rapid expansion [2]. The rising disposable incomes, increasing awareness of cosmeceuticals, and the allure of beauty products such as anti-aging solutions, sun care items, and hair care products all contribute to burgeoning demand. Furthermore, technological advancements and the introduction of novel ingredients have fostered the global proliferation of cosmeceutical products. Japan's prominence as a significant consumer of cosmetics, ranking within the top five national markets for personal care products, highlights the potential of success in the Japanese cosmeceuticals market, which can subsequently boost product or brand reputation in other Asian markets [2]. In China, the rapid adoption of cosmeceuticals has been particularly noteworthy, solidifying it as a leading product category [2]. The European cosmeceuticals market is expected to exhibit a healthy Compound Annual Growth Rate (CAGR) during the forecast period from 2023-2028, attributable to the rapid adoption of consumer goods such as cosmetics and clothing [2]. Elevated awareness of cosmeceutical products in this region results from robust promotional activities by manufacturers. Growing aging populations and increasing disposable incomes further drive market demand. The utilization of diverse marketing strategies, including social media marketing and engagement with beauty influencers, contributes to market expansion [2]. Moreover, the availability of a wide array of products accessible through various sales channels, both in retail stores and online, fuels market demand. The growth of the market is substantiated by the expanding consumer base in countries like the U.K., France, Germany, Italy, and others [2].

### Navigating the digital landscape: engaging consumers in the digital era

Social media marketing is the use of social media platforms to promote and market products or services to potential customers. In the 21st century, there has been an unprecedented surge in internet-based messages disseminated through these platforms. This form of marketing has become a crucial component of the digital marketing mix due to its massive reach and engagement

levels. This surge has emerged as a significant driver in shaping diverse facets of consumer behavior, encompassing awareness, gathering information, forming opinions, attitudes, making purchases, and engaging in post-purchase communication and evaluation [10]. Social media marketing is crucial for businesses that aim to build and maintain brand awareness, connect with their target audience, and increase website traffic and sales.

Social media platforms have revolutionized the way consumers connect with brands and vice versa. Marketing managers now have a new arsenal of tools at their disposal in the digital environment, allowing them to reach entire networks of consumers, collect vast amounts of personal information, analyze data, and maintain ongoing communication. However, this power shift is not one-sided, as consumers also gain a stronger voice in the online conversation, which can be both a risk and an opportunity for companies. To succeed in this digitally driven landscape, businesses must address the challenges that come with transitioning from offline to online.

Social media is about fostering a meaningful conversation with clients and customers, enabling brands to establish a distinct personality and voice while working collaboratively with consumers. Identifying and engaging with customer influencers across the social web has become essential, as noted by Paul May, Founder and CEO of BuzzStream [11]. This requires a thoughtful approach to designing and implementing every component of a social media campaign. Social media marketing, tailored for social media platforms, focuses on engaging consumers in their online social spaces where they naturally spend their time. Digital managers observe consumer activities and preferences on these platforms, linking them with relevant brands and proposals to create a unique and favorable consumer experience. The ultimate goal is to cultivate positive word-of-mouth and strong brand-consumer relationships [12].

Several key objectives and quality improvements in social media campaigns are measurable [12], including:

- **Increased brand awareness:** Social marketing efforts often enhance brand exposure.
- **Increased brand engagement:** Valuable content can lead to more likes, comments, and shares.
- **Driving website traffic:** The website serves as the hub for in-depth brand information.

- **Generating new leads:** Social media's user base and connections can attract potential customers.
- **Growing revenue:** Social media analytics enable tracking of marketing impact on revenue.

This transparent communication between brands and consumers necessitates clear objectives and consistent engagement points. In the age of social media, content creation is not exclusive to companies and marketing managers; consumers also contribute. This empowerment results in highly engaged consumers. Nevertheless, companies have the opportunity to leverage social media platforms to dominate their industries and elevate their brand. Thus, it is crucial for companies to adapt to these trends, turning potential risks into competitive advantages in both online and offline realms.

### Previous studies on aesthetic and cosmetic procedures

#### The subjective nature of aesthetic and cosmetic procedure outcomes

As psychologist Nancy Etcoff highlights, the recognition of beauty is an instinctive response, yet defining beauty in precise terms remains a subjective, ever-evolving, and intricate task [13]. This subjective nature of beauty and aesthetics underscores the importance of considering individual factors, such as skin quality, psychological well-being, and expectations, in cosmetic procedures.

In light of this, skin quality has gained substantial importance within the medical aesthetics industry. Injectable therapies, cosmeceuticals, and rejuvenation procedures have seen a surge in popularity, as discussed in earlier sections. However, the absence of a clear, objective definition of skin quality presents a challenge in accurately assessing and addressing unsatisfactory skin conditions. Current literature primarily focuses on age-related changes in skin quality, but terminology associated with skin quality can vary widely among researchers and regions [14]. This lack of standardization impedes the identification of clinical indicators and evaluation methods crucial for precise assessment and treatment. Given the significant influence of skin quality on social interactions, self-perception, quality of life, and emotional well-being, Humphrey, *et al.* have proposed a comprehensive framework for comprehending the factors that influence skin quality [14]. Their framework, categorized into visual, mechanical,

and topographical elements, provides a foundation for identifying clinical indicators and assessment methods. A clear and comprehensive definition of skin quality is pivotal for enhancing patient outcomes within the aesthetic procedures industry, given its profound impact on various facets of individuals' lives. The authors highlight the need for more standardized language within the aesthetic procedures' community, which would enhance clarity and consistency in describing skin quality measures [14].

Moreover, facial surgery plays a crucial role in altering a person's physical appearance and, consequently, their psychological well-being. Herruer, *et al.* [15] emphasize the preoperative identification of patients who may not be suitable candidates for facial cosmetic surgery to prevent unsatisfactory outcomes. Despite technical success, some patients may not share a positive post-operative sentiment [15]. While psychiatric disorders like body dysmorphic disorder are established as negative outcome predictors, more subtle psychosocial aspects remain less rigorously explored. Herruer, *et al.* study suggests the presence of seven potential psychosocial factors influencing surgical satisfaction, including gender, age, expectations, deformities, personality traits, and other factors [15]. Obtaining a comprehensive preoperative assessment of these negative predictors for patient satisfaction relies on various factors. It is noteworthy that validated questionnaires specifically designed to measure these psychosocial aspects were lacking at the time of this research. An interview, while providing demographic information and an intuitive understanding, may not be sufficient. Therefore, Herruer, *et al.* recommend using the Glasgow Benefit Inventory to assess patient contentment with the surgical results [15].

Furthermore, Klassen, *et al.* [16] conducted a study centered on treatments aimed at altering one's physical appearance for aesthetic rather than medical purposes. Their research explored the potential benefits of employing pre-treatment instruments during clinical encounters. These instruments could help physicians identify patients who might require education to manage their expectations or additional support, including psychological referrals. Their study targeted patients aged 18 and older seeking facial aesthetic or body contouring treatments. Recruitment spanned clinics in the United States, United Kingdom, and Canada from February 2010 to January 2015. To evaluate the psychometric properties of the scales, Rasch Measurement Theory



(RMT) analysis was employed. The scale scores, ranging from 0 to 100, measured patients' expectations and levels of psychosocial distress. Higher scores indicated more inappropriate expectations and greater distress. In the context of facial aesthetic treatments, the study found that lower scores on the FACE-Q Satisfaction with Appearance scale were associated with higher expectations and psychosocial distress [16]. This suggests that individuals seeking cosmetic surgery often have inappropriate expectations and experience psychosocial distress related to their appearance. The researchers recommended the integration of concise, clinically meaningful scales during clinical encounters for cosmetic practitioners [16].

These instruments could effectively identify patients in need of additional education and personalized attention. While initially designed for academic and industry research, patient-centered self-report instruments are now finding increasing use in clinical care, patient and consumer education, benchmarking, and quality improvement initiatives. It is expected that plastic surgeons will show interest in using these screening scales to identify patient concerns and integrate this valuable information into patient management strategies [16]. The study also revealed significant findings, such as individuals not in a marital or common-law relationship tended to report higher levels of psychosocial distress. Furthermore, expectations and psychosocial distress were more pronounced in patients seeking surgical procedures compared to those opting for minimally invasive treatments. In the context of facial aesthetic treatments, the goals typically center around subtlety, such as enhancing specific facial features or achieving a younger, more refreshed appearance, rather than making drastic alterations.

In conclusion, the studies discussed in this sub-section emphasize the subjective nature of aesthetic and cosmetic procedures outcomes. They highlight that outcomes are contingent on individual factors, including skin quality, psychological well-being, and expectations. Personal characteristics like age, gender, education, and satisfaction further influence how individuals perceive their appearance post-procedure. Therefore, it is crucial to consider patient satisfaction and quality of life measures alongside clinical outcomes when evaluating the success of these procedures. The need for standardized language within the medical aesthetics community is evident, as it would significantly enhance clarity and consistency in describing skin quality measures.

### Understanding the motives behind decision-making for aesthetic and cosmetic procedures

The studies by Maisel, *et al.* [17], Martinez, *et al.* [18], Sobanko, *et al.* [19], and Ramirez, *et al.* [20] together offer a comprehensive exploration of the diverse motivations and factors influencing patients seeking cosmetic and aesthetic procedures. These findings provide valuable insights into the multifaceted nature of patient motivations, which extend beyond the commonly held belief that such procedures are solely driven by vanity. They underscore the importance of considering various demographic, clinical, and psychosocial factors when assessing patient motivations and highlight the significance of understanding patient expectations for successful aesthetic rejuvenation.

The study by Maisel, *et al.* [17] sheds light on the motivations and complexities surrounding patients seeking cosmetic dermatology and surgery procedures. This research is particularly noteworthy for being the first national, multicenter study of its kind. It investigates the motivations behind cosmetic procedures with a survey instrument developed in collaboration with patients. The findings challenge the common misconception that cosmetic procedures are driven solely by vanity. Instead, patients' motivations are multifaceted, including emotional, physical, social, and professional considerations [17]. Internal motivations were predominant, emphasizing personal desires to seek cosmetic treatments. Media influence appeared to be minimal, with patients either unconsciously affected or unwilling to admit it. In contrast, recommendations from physicians, friends, and family played a more significant role in motivating patients. Interestingly, the study identified that affordability influenced the timing of treatments. It was also found that many patients seeking preventive treatments were under 45 years old. Neuromodulator injections, considered effective in delaying aging, were a popular choice among these patients. Notably, patients driven by internal motivations were more likely to report satisfaction with treatment outcomes. On the other hand, those primarily motivated to look better for others might experience less favorable outcomes, highlighting the importance of identifying external motivation before treatment. The study also emphasizes that patients pursue aesthetic or cosmetic procedures for various reasons, often beyond a desire to enhance their appearance [17]. It's revealed that these treatments can serve as solutions for serious psychological and emotional issues, ranging from boosting self-confidence to addressing disfigurements

interfering with daily life and work. Ultimately, these findings contribute to the growing body of evidence supporting the idea that cosmetic procedures can have a substantial impact on both physical and psychological well-being.

Martinez, *et al.* [18] review delves into the burgeoning demand for facial cosmetic procedures worldwide, highlighting the multifaceted motivations driving patients to seek these enhancements. In contrast to prior research that often viewed these desires through a psychopathological lens, this systematic review emphasizes that patient motivations are best understood in terms of everyday intrapersonal, social, and behavioral factors. The analysis reveals a predominance of studies focusing on intrapersonal factors [18], notably the desire to prevent aging or address negative self-perceptions. Notably, these factors remain consistent across various demographics, including race, gender, age, and geographical origin. Social influences also play a significant role, with patient social networks and a desire for improved social standing emerging as common motivators. On the other hand, behavioral factors, while less frequently explored, were found to include engagement with media portraying cosmetics positively and the manipulation of photographs on social platforms, both strongly associated with motivation for facial cosmetic procedures. The categorization of findings into intrapersonal, social, and behavioral factors offers a comprehensive understanding of the myriad influences guiding patient decisions. Collaboration between dermatology and human decision-making experts further enriches the review's design.

However, the study points out limitations in the existing research. While intrapersonal and social factors have been extensively explored, behavioral influences have received less attention. The diversity in research questions and methodologies presents a challenge in synthesizing comprehensive insights. The need for more robust sampling methods, higher-quality studies, and validated measurement tools is emphasized. Furthermore, the majority of studies included in the review were cross-sectional, with only one employing an experimental design [18]. This lone experimental study suggests that exposure to media about cosmetic enhancements heightens interest in pursuing such procedures. The review underscores the profound impact of media on motivation, in line with the surge in cosmetic procedure portrayals in television programming [18]. This aligns with the significant role of social

media for patient acquisition in private practice, highlighting its influence on consumers' decisions to undergo cosmetic procedures. Overall, the review calls for a deeper understanding of the diverse motivations behind cosmetic enhancements, advocating for more rigorous research methods and validated assessment tools [18]. It accentuates the significance of these insights for aesthetic physicians in ensuring patient suitability for aesthetic rejuvenation procedures.

The research conducted by Sobanko, *et al.* in 2015 uncovered valuable insights regarding patients seeking injectable aesthetic treatments in an urban outpatient academic setting [19]. The study identified a predominant patient profile characterized by being predominantly employed, highly educated women. These patients held the belief that the procedure would have a positive impact on their appearance, and they demonstrated a heightened awareness of the significance of sunscreen and skincare in their overall look compared to their peers. A noteworthy discovery was that a notable minority of these patients had experienced significant life events within the past year, underscoring the importance of addressing these issues during the initial patient consultation. Intriguingly, in today's digital age dominated by the internet and social media, the study found that trusted friends and word-of-mouth recommendations held more influence on patients' decision-making processes than websites or newspaper advertisements. The research team anticipates that these findings will contribute to a deeper understanding and heightened awareness of the psychosocial factors that define patients seeking minimally invasive aesthetic rejuvenation [19].

In their 2021 research [20], Ramirez, *et al.* delved into the relatively unexplored territory of patients seeking Non-Surgical Facial Aesthetic (NSFA) procedures. They recognized the scarcity of knowledge in this area and addressed the crucial aspect of racial differences among patients in terms of demographics, clinical characteristics, and motivations. A key finding revealed that approximately 88% of patients who sought consultation proceeded with treatment. The majority of these patients were older than 40 years of age, female, and had received prior treatments. Notably, the high frequency of patients expressing a goal of rejuvenation, rather than correction, stood out as a significant clinical outcome objective. The study emphasized the significance of understanding distinctions between Chinese and Caucasian patients, particularly

their attitudes and behaviors, which should be considered during the initial consultation process [20]. A higher proportion of Chinese patients often seek a “corrective” or more aggressive outcome, indicating a need for specific attention to manage their expectations. However, once other explanatory factors were adjusted for, such as prior procedures; there seemed to be no significant difference in the likelihood to proceed with treatment between the two groups. Moreover, the study pointed out that patients tend to be receptive to treatment once they engage in a discussion with a physician. However, caution is necessary to ensure patients have ample time for thoughtful consideration, especially those with a multitude of clinical concerns and high vanity scores. Introducing a “cooling off” period may be beneficial to allow patients to step back and evaluate the proposed treatment plan. Interestingly, the research identified a self-correcting or self-adjusting pattern among patients who proceeded with more comprehensive care, suggesting a deliberate approach to treatment without hasty decisions.

Furthermore, the research shed light on the fact that patients pursuing Non-Surgical Facial Aesthetics (NSFA) treatments generally express a goal of achieving natural rejuvenation [20]. This finding is reassuring, as it indicates that patients with realistic expectations may have a higher likelihood of attaining their desired aesthetic outcomes. Finally, the study underscored the importance of developing a comprehensive database within the field of aesthetic medicine and plastic surgery. Such a database has the potential to be a valuable tool for generating new clinical insights that can ultimately enhance clinical care and outcomes.

Collectively, these studies highlight the multifaceted nature of patient motivations for aesthetic and cosmetic procedures, emphasizing the importance of personalized consultations to better understand and meet patients’ expectations. The findings underscore the role of various demographic, clinical, and psychosocial factors in shaping patient decisions, enhancing the overall quality of care in the field of aesthetic rejuvenation.

### The psychosocial benefits of aesthetic and cosmetic procedures from a subjective perspective, moving beyond anatomical outcomes

The title “Moving Beyond Anatomical Outcomes” signifies a deliberate shift towards uncovering the profound non-physical advantages of aesthetic and cosmetic procedures. This

literature review segment is dedicated to investigating how these interventions influence a person’s emotional and mental well-being. It delves into the transformative potential of these procedures, highlighting their capacity to elevate self-esteem, bolster confidence, and enhance overall quality of life, transcending the realm of mere physical alterations.

As the field of cosmetic interventions continues to evolve, with a notable shift toward minimally invasive procedures, it is imperative to determine whether these procedures provide benefits beyond aesthetic improvements. This is especially pertinent in the context of the Patient Protection and Affordable Care Act, which places a strong emphasis on patient-centered outcomes and effectiveness. Furthermore, identifying potential positive psychosocial gains from these procedures is vital to pinpoint the specific patient profiles that are most likely to benefit from them for accurate preoperative screening and patient stratification. This knowledge may also help address ethical challenges in the practice of cosmetic surgery.

Over the last decade, the demand for aesthetic procedures has seen significant growth, resulting in nearly \$10.4 billion in costs for Americans in 2011 from 13.8 million elective surgical and non-surgical procedures [21]. However, traditional clinical measures used to evaluate the success of cosmetic surgeries may not be sufficient to assess aesthetic treatments, as these procedures can have a more profound effect on patients’ mental and emotional wellbeing than merely improving their physical appearance [22].

Despite the increasing number of facial aesthetic procedures performed in the US, at the time of that review article, there has been limited understanding of their effects on psychosocial functioning, including quality of life, self-esteem, and body image. Previous reviews, as referenced in the Imadojemu., *et al.* paper [22], suggest that psychosocial functioning only slightly improves after cosmetic surgery due to a lack of control groups, short follow-up periods, and loss of patients to follow-up. Imadojemu., *et al.* suggested that facial cosmetic surgery may improve a variety of psychosocial factors, such as self-esteem and quality of life, as previous studies have consistently shown that women who undergo cosmetic procedures experience improved body image. They also highlighted the scarcity of knowledge regarding the effects of nonsurgical procedures like chemodenervation and soft-tissue augmentation on psychosocial functioning, despite their growing popularity. This significance is particularly relevant because elective procedures have minimal impact on morbidity

and mortality, unlike other medical interventions. Therefore, understanding the psychosocial effects of these procedures is critical in light of the Patient Protection and Affordable Care Act's emphasis on patient-centered outcomes and effectiveness.

### The third layer of aesthetic and cosmetic modifications' benefits, improving social perceptions

The title "The Third Layer of Benefits of Aesthetic Modification, Improving Social Perceptions" suggests that the articles will discuss an additional layer of benefits that aesthetic and/or cosmetic procedures can provide, beyond just improving physical appearance and mental well-being. Specifically, the articles will likely focus on how these modifications can positively impact a person's social perceptions, including how they are viewed by others and their interactions with society.

The studies reviewed shed light on various aspects of the aesthetic medicine industry and its relationship with social media and psychosocial health. McKeown's study [23] examined the impact of aesthetic injection interventions on psychosocial health in clinical practice and found significant improvements in patient-reported psychological and social functioning, as well as reduced distress related to appearance. On the other hand, Shah, *et al.* [24] conducted a meta-analysis of 24 studies involving 686 patients and 8,257 observer evaluations, concluding that cosmetic interventions consistently improve observer-reported outcomes (ORO) domains such as age, attractiveness, sociability, relationship success, and occupational and financial competency; indicating that cosmetic modification can have benefits beyond anatomical and patient-centered outcomes by improving social perceptions.

Additionally, social media has become a powerful tool for promoting and educating about cosmetic procedures, as well as sharing information and reviews about them. For instance, websites like "RealSelf" allow users to rate and review cosmetic treatments. Concerning the impact of social media on the aesthetic medicine industry, Chopan, *et al.* [25] investigated social media sentiment toward plastic surgery. They analyzed over one million tweets gathered from the Twitter Gardenhose feed between 2012 and 2016 and found that negative associations with the term "plastic surgery" were rising, while positive phrases were associated with terms like "aesthetic" and "cosmetic." This suggests a shifting perception of plastic surgery and a growing emphasis on cosmetic

modifications that enhance appearance rather than reconstructive procedures that address medical issues. Furthermore, Arab, *et al.* [26] conducted a study in Saudi Arabia to investigate the impact of social media on the decision-making process of individuals considering cosmetic surgery. They found that social media platforms are increasingly used for marketing and education on cosmetic procedures and that social media influencers are emerging as reliable sources of information for prospective patients. However, the study also found that there haven't been enough studies done to figure out what aspects patients consider when deciding whether or not to get cosmetic surgery after seeing social media marketing.

Mello's study [27] focused on the marketing of BOTOX Cosmetic by Allergan, which is a type of botulinum toxin type A that has significantly changed contemporary cosmetic medicine. The research found that Allergan's marketing of BOTOX Cosmetic heavily emphasizes social norms of ideal beauty, which emphasize youthfulness and self-realization, and suggests that not using the product carries greater social and psychological risks. This creates a meta-message that may minimize consumers' perception of physical hazards and increase risk-taking in their pursuit of idealized beauty. The study also noted that the drug's cosmetic purpose can sometimes be confused with its medicinal uses, leading to its classification as a "super cosmeceutical." These findings have significant implications for how risks are represented in society, potentially resulting in consumers overlooking the physical hazards associated with these products.

Moreover, Pearlman, *et al.* [28] studied the factors influencing the acceptance and approval of cosmetic surgery among younger people in the US, finding that women show greater interest in these procedures than men, and that body satisfaction, the impact of appearance on self-worth, concerns for social status and beauty, investments in appearance, media's effect on body image, and favorable attitudes toward celebrities all contribute to this trend. Interestingly, the study found that those who had already undergone cosmetic procedures reported higher levels of body satisfaction and were more likely to consider additional procedures in the future. The authors also found that social media has played a significant role in shaping the attitudes of young people towards cosmetic surgery. Platforms like Instagram and TikTok are increasingly popular among younger generations,

and they often showcase images and videos of people who have undergone cosmetic procedures. This exposure to cosmetic surgery content on social media may contribute to the normalization of these procedures and increase their acceptance among younger generations. Furthermore, the study revealed that the COVID-19 pandemic has had a significant impact on the attitudes of younger people towards cosmetic surgery. With the increase in remote work and virtual meetings, people have become more aware of their appearance on camera, leading to a rise in demand for cosmetic procedures that can enhance their appearance on video calls. In brief, Pearlman, *et al.* [28] concluded that cosmetic surgery has become increasingly popular among younger generations, and social media has played a crucial role in shaping their attitudes towards these procedures. The authors suggest that further research is needed to better understand the impact of social media on the acceptance of cosmetic surgery and to identify potential risks associated with this trend.

Overall, the studies summarized above provide insight into the complex and multifaceted factors that influence the decision to undergo aesthetic and/or cosmetic procedures and the impact of social media on the aesthetic medicine industry and public perception of cosmetic surgery, highlighting the closely intertwined relationship between the industry and the pursuit of idealized beauty standards, emphasizing the need for plastic surgeons and other stakeholders to remain mindful of the impact of their language and messaging on patients and consumers.

### Safety of aesthetic and cosmetic procedures

Facial aesthetic procedures have gained immense popularity over the years, with more people seeking to improve their facial appearance [29]. These medical procedures can be classified into two main types: invasive and non-invasive. Invasive procedures require incisions and are typically more complex, leading to a longer recovery time. Non-invasive procedures, on the other hand, do not require any incisions and are generally less complex, resulting in a shorter recovery time. While these procedures can significantly improve one's facial appearance, they also carry certain risks that must be taken into account.

Invasive procedures such as facelifts and rhinoplasty carry the risk of bleeding, infection, scarring, and other complications. Facelift procedures exhibited a complication rate of 1.8%, which was on par

with the 2% complication rate observed in other cosmetic surgeries [30]. The most prevalent issues were hematoma, occurring at a rate of 1.1%, and infection, at 0.3%. When facelifts were combined with other procedures, the complication rate rose to 3.7%, in contrast to the 1.5% rate for facelifts performed in isolation [30]. As mentioned previously, these Invasive procedures require longer recovery times and have higher costs. Non-invasive procedures such as Botox and fillers have become increasingly popular due to their minimal risks, fewer complications, and shorter recovery time [29]. Despite the straightforward and dependable nature of office-based procedures, complications can still arise, even when administered by a skilled and experienced practitioner [31]. The most frequently encountered issues following the injection of BoNT (Botulinum Toxin) and soft-tissue fillers include bruising, erythema (redness), and pain. In the case of chemical peels, it is not uncommon to experience erythema, irritation, and a burning sensation. Fortunately, these side effects are typically temporary and can be easily addressed. More severe complications include muscle paralysis resulting from BoNT injections (reportedly 3% [32] to 5.4% [33], depending on the point of injection), vascular occlusion due to the placement of soft-tissue fillers (estimated to occur in only 0.001% of injections according to Narins, *et al.* [34], and scarring caused by chemical peels (reportedly less than 1% according to Brody [35]). Thankfully, these complications are infrequent and can be prevented through precise procedural techniques, a deep understanding of facial anatomy, careful patient selection, and appropriate pre- and post-procedure skincare.

According to the American Society of Plastic Surgeons (ASPS), skin rejuvenation, while less invasive than surgical aesthetic procedures, still qualifies as a medical procedure, accompanied by inherent risks [36]. Factors like skin type, underlying medical conditions, allergies, and medications play a pivotal role in determining the likelihood of severe complications for certain patients. Hence, it becomes imperative that skin rejuvenation treatments are exclusively administered by highly trained and certified professionals within a medical setting, under the direct oversight of a board-certified plastic surgeon. The potential risks associated with skin rejuvenation and resurfacing procedures encompass a spectrum of concerns. These include the activation of herpes zoster infections in susceptible patients, the risk of burns and scarring, delays in wound healing, hypersensitivity or allergic reactions, heightened vulnerability to sunburn, potential infection,

pigmentation irregularities, and surface irregularities of the skin [36]. Consequently, it is paramount that these risks, along with any others, are thoroughly and comprehensively discussed with patients before obtaining their consent for the procedure. Patients are strongly advised to engage in direct communication with their plastic surgeon to ensure that they can make well-informed decisions by addressing all their inquiries and apprehensions [36].

In both invasive and non-invasive facial aesthetic procedures, the selection of a qualified and experienced provider is of utmost importance as it substantially reduces the associated risks. Patients should be fully apprised of the potential risks and complications associated with the specific procedure they are considering, and they should be provided with comprehensive pre-procedure and post-procedure care to ensure their well-being throughout the process.

#### Previous studies on topical cosmeceuticals

The human body's organs, including the skin, gradually decline in function with age, which is an irreversible process. In a recent cross-sectional study conducted by Evangelista, *et al.* [37], 260 women aged 25 to 64 who used anti-aging products and/or aesthetic treatments were examined. This study aimed to investigate the relationship between the use of various anti-aging cosmetic products, sociodemographic factors, beauty standards, psychological morbidity, perfectionism, aging perceptions, and self-esteem. The findings revealed that cosmetics designed for firming the face had a positive correlation with self-worth, while psychological morbidity and perfectionism had negative impacts on self-esteem. Additionally, factors such as marital status, career status, and positive aging beliefs positively influenced self-esteem. This study suggests that intervention programs targeting women's self-esteem should prioritize reducing psychological morbidity, promoting adaptive perfectionism, and addressing attitudes towards aging. It also recommended conducting longitudinal studies to gain a better understanding of the complex relationship between anti-aging cosmetics and psychological factors, particularly women's self-esteem [37].

The development of 'anti-aging' products has been driven by recent advancements in the cosmetics industry. Muise and Desmarais [38] conducted a survey of 354 Canadian women to explore their perceptions of the anti-aging market and the factors

influencing their product choices. The study examined various aspects, including anti-aging product use, body satisfaction, aging anxiety, the importance of appearance, sociocultural pressures, self-esteem, and open-ended responses regarding their views on anti-aging products. The results indicated that purchases of anti-aging products were associated with higher levels of aging anxiety and the significance placed on appearance. Interestingly, women admitted to using these products while simultaneously rejecting media messaging and embracing the concept of natural aging.

While numerous tactics and treatments have been developed to slow down the natural aging process, the effectiveness of many popular anti-aging products may not live up to their claims. A study by Barnawi and Barnawi [39] aimed to evaluate the effectiveness of cosmetic anti-aging products and methods by reviewing previous research in this field. The researchers conducted a thorough search of the Google Scholar database for publications related to anti-aging methods, efficacy, misconceptions surrounding anti-aging products, usage by women, women's perspectives on anti-aging strategies, and related terms. Their criteria for inclusion were original research and full-text papers on anti-aging cosmetic products and approaches. Out of the 40 articles retrieved, only three met the criteria, involving a total of 192 participants. The study concluded that while some anti-aging products reduced the appearance of coarse and fine wrinkles, their effectiveness was limited, and they should not be expected to work like magic.

Shah, *et al.* [40] conducted a study to assess the effectiveness of different dermatological products with anti-aging properties through consumer self-evaluation. Their research aimed to identify the factors driving women's purchases of these products and gain insights into their perceptions and knowledge. The study focused on anti-aging cosmetic product usage, consumer satisfaction, age-related skin issues, the importance of younger-looking skin, and socioeconomic status. The results indicated that these products could help improve skin conditions but did not completely eliminate wrinkles as claimed. Participants also highlighted discrepancies between the advertised and actual effects of anti-aging products. Despite the high cost of these products, many women were willing to invest in them in hopes of achieving a younger-looking appearance [40].

In a study by Shin and Lee [41], the authors examined Korean consumers' interest in cosmeceuticals, their usage, and satisfaction, with a focus on an aging population. The goal was to provide valuable marketing insights as the cosmeceuticals market continued to expand due to the desire to maintain a youthful and healthy appearance. The study employed self-questionnaires for consumers over the age of 20. The findings indicated that the market for cosmeceuticals was expanding as people sought to appear younger and healthier than their actual age. However, the study also revealed that despite Korean consumers' high level of skin knowledge, with an average score of 79.0%, the definition of cosmeceuticals was not well understood, and a significant proportion of users (23.2%) were unaware of using such products due to a lack of promotion and understanding of the product's definition. The study also emphasized that the high cost of cosmeceuticals was attributed to their professionalism and suggested that a marketing strategy should focus on reducing the cost. Furthermore, Korean consumers who used moisturizing cosmetics reported relatively high satisfaction levels, particularly those using cosmeceuticals with anti-wrinkle or moisturizing properties [41].

Assawavichairoj and Taghian [42] conducted a study in 2017 that examined the impact of cultural differences on female consumers' decisions to purchase anti-aging products. The study involved focus groups with Thai and Australian women aged 25-45 who frequently used anti-aging products. The findings highlighted variations in the drive to improve appearance among participants, ranging from a desire to address perceived signs of diminishing youthfulness to a quest for maintaining youth and high social acceptance to create an ideal self. The use of anti-aging products was seen as a means to enhance self-care, social acceptance, and self-image, with motives influenced by the individual's social context and responses from others. Each participant had a unique perspective influenced by their cultural background.

In a qualitative study by Williams [43], intentional sampling was employed to include women in their 50s who were Caucasian, from the Midwest, married with children, and using one or more anti-aging products. The study aimed to gain insights into the steps women take, if any, to address the challenges of aging in American society. The findings were categorized into four main themes: Perceptions of Aging, Influences on Views of Aging, What

Women Do About Aging, and Women's Overall Suggestions About Aging. The study revealed that media messages about aging had a minor impact on the participants, and support systems provided by friends, family, and spouses helped alleviate the pressures and concerns associated with aging. Participants' decisions to purchase anti-aging products were influenced by price and ingredients, with the majority using the same product for over 20 years. It appears that many women in the study exhibited brand loyalty, driven by factors such as product effectiveness and affordability. Notably, five women have remained devoted to a specific anti-aging product for over two decades, underscoring their enduring commitment to the brand. These experiences, combined with factors influencing purchasing decisions and product longevity, contribute significantly to their overall satisfaction with anti-aging products.

The study emphasized the importance of self-acceptance for women struggling with the aging process and encouraged them to join a support network. Additionally, the study recommended including younger women and individuals from diverse racial or ethnic backgrounds in future research to gain fresh perspectives on how aging affects women's lives [43].

#### Safety of topical cosmeceuticals

The term 'cosmeceutical' lacks official recognition in legal terms, yet it is a widely used concept within the cosmetic industry to denote products that exhibit medicinal or drug-like qualities [44]. In terms of regulatory classification, products can be designated as either drugs, cosmetics, or both. The FD&C Act defines drugs as products that assert claims of curing, treating, mitigating, or preventing diseases or influencing the structure or function of the human body, thereby placing them under regulatory oversight [44]. In contrast, cosmetics are primarily designed to enhance beauty, promote attractiveness, alter appearance, or cleanse, and they do not undergo FDA approval for sale, nor are they intended to affect the body's structure or function. This regulatory framework helps ensure consumer safety and product effectiveness [44].

The realm of cosmeceuticals constitutes a field marked by a lack of clear definition, classification, and regulatory oversight. Regulatory agencies such as the FDA play a crucial role in ensuring the safety and quality of cosmeceuticals by establishing guidelines and requirements for manufacturers to adhere to. In the United States, cosmeceuticals fall under the regulation of cosmetic products

and are subject to the requirements outlined in the Federal Food, Drug, and Cosmetic Act [44]. The FDA mandates that manufacturers ensure the safety of their products through appropriate safety testing, monitoring adverse events, and providing accurate labeling information to consumers. However, it's essential to note that cosmeceuticals do not undergo the same level of testing and evaluation as drugs. The safety of cosmeceuticals hinges on factors such as the quality and purity of the ingredients used, the product's formulation, and the conditions of its use [44].

Cosmeceuticals, which contain bioactive ingredients capable of providing therapeutic benefits alongside their primary cosmetic effects, have seen a notable increase in global usage in recent years [45]. These products now incorporate a variety of compounds, such as preservatives, fragrances, and surfactants, to enhance their performance, quality, value, and durability. However, many of these chemical additives carry potential health risks, ranging from mild hypersensitivity to severe anaphylactic reactions or even life-threatening poisoning. Consequently, the widespread use of cosmeceuticals has emerged as a growing public health concern [46].

In their 2019 review, Bilal and Iqbal extensively explored exposure to a wide range of toxic substances commonly found in cosmetic formulations [46]. These substances include 1,4-dioxane, formaldehyde, paraformaldehyde, benzalkonium chloride, imidazolidinyl urea, diazolidinyl urea, trace heavy metals, paraben derivatives, phthalates, isothiazolinone derivatives (such as methylchlorisothiazolinone and methylisothiazolinone), methylidibromo glutaronitrile, and phenoxyethanol. The review also addresses the potential biological risks associated with these substances, including cytotoxicity, genotoxicity, mutagenicity, neurotoxicity, estrogenic effects, and others.

Guertin's research highlights the growing concerns about the safety of cosmetic and cosmeceutical products, as the industry continues to employ numerous potentially harmful ingredients for reasons like color, scent, chemical stability, or shelf-life extension [47]. New products claiming to use safer, greener, and organic ingredients are constantly introduced in the market. Yet, several of these supposedly 'improved' products lack substantial safety data to support their claims. Notably, some companies are now avoiding the use of phthalates, dyes, parabens, and fragrances, and are

adopting innovative packaging technologies like airless dispensers and ultra-pure water to reduce the need for preservatives. Nonetheless, the commercialization of cosmetic products lacking proper safety evidence in humans must be rejected to safeguard public health. Making claims of safety without conducting rigorous clinical studies can lead to a well-known scientific error – the type II error (or false negative), which involves failing to detect existing effects or adverse events that could be uncovered through proper testing [47].

Guertin emphasizes the need for continuous efforts by researchers from various sectors, including academia, consultancy firms, governmental organizations, and cosmetic companies, to keep consumers informed about the potential drawbacks and health-related concerns associated with cosmetics [47]. Additionally, industry-driven initiatives aimed at reducing environmental impact through the development of green, sustainable, and eco-friendly products hold significant promise.

## Methodology

This research project aims to compare consumer behavior trends towards facial rejuvenating procedures and topical cosmeceuticals in the United States, Brazil, and South Korea. These countries were selected based on ranking lists published in 2023 on the countries that spend the most on cosmetic surgery [7] and cosmetic products [48]. The United States was chosen as the representative country for North America, while Brazil and South Korea were selected from South America and Asia, respectively, based on their high rankings on the list reported by the International Society of Aesthetic Plastic Surgery [7]. The study also employs qualitative research methodology to gather data from participants located in Dubai, located in the United Arab Emirates in the Middle East.

## Research design

A Non-Experimental Mixed Approach was selected, fusing quantitative and qualitative research techniques.

## Conceptual framework explanation

The conceptual framework proposes that social media marketing and influencer campaigns directly shape consumer behavior and choices. Through quantitative analysis, this study examines how these strategies impact consumer perceptions and



interest in facial rejuvenation treatments and cosmetic products. Qualitative insights delve into consumer perspectives, enriching the understanding of their motivations. By applying an individualistic and cultural value framework, the research uncovers both variations and commonalities in consumer motivations across diverse cultural contexts. Overall, this study offers thorough insights into consumer demand within the beauty industry, aiding the development of cosmetic products that resonate with consumer preferences.

## Research participants and sampling procedure

### Research participants

- **Industry Experts:** The research enriched its breadth by engaging domain experts with specialized knowledge and extensive experience in cosmetic procedures.
- **Dubai-Based Consumers:** Detailed pilot qualitative discussions with consumers in Dubai fortified the study with insights unique to the Middle Eastern region.

### Sampling procedure

- **Random and Purposive Sampling Fusion:** A fusion of random and purposive sampling techniques ensured a well-rounded participant cohort:
- **Random Sampling for Consumers:** This impartial approach ensured the inclusion of a diverse demographic, contributing to the study's potential for broader applicability.
- **Purposive Sampling for Industry Experts:** Purposeful selection identified and recruited experts with extensive knowledge.
- **Informed Consent:** The research adhered to ethical standards with all participants providing explicit informed consent, signifying their voluntary engagement and data confidentiality.

## Data collection methods and instruments

### Data collection methods

#### Quantitative data collection

- **Social Media Listening Tools:** SEM Rush served as a crucial tool for systematically monitoring and analyzing consumer behavior trends across various websites and social media platforms. It efficiently gathered diverse data, forming a central repository that facilitated robust cross-country quantitative analysis.

#### Qualitative data collection

In-Depth pilot discussions: Structured in-depth pilot discussions were conducted with industry experts and Dubai-based consumers, providing rich qualitative data. These pilot qualitative discussions delved deep into consumer attitudes, beliefs, emotions, and personal experiences.

#### Data collection instruments

The research employed SEMrush's suite of tools tailored for insightful analysis in the cosmeceuticals and facial rejuvenation procedures industries [49]. This involved several key steps:

- **Market Explorer:** SEMrush's Market Explorer provided specific 2022 industry data, offering comprehensive insights into market trends, key players, and emerging opportunities within the sector.
- **Website Selection Criteria:** Selecting 30 cosmeceuticals and 30 aesthetic procedures websites based on prominence, relevance, and diversity within the industry segments. The aim was to represent reputable brands offering a wide array of products and services.
- **Keyword Selection Criteria:** Curating 40 keywords for each field ensured a thorough analysis of online presence and marketing strategies. These keywords mirrored consumer queries, industry trends, and product categories.
- **Audience Demographics:** Leveraging SEMrush's tools facilitated the collection of crucial visitor demographics, including age, gender, location, and interests. Understanding the audience profile was crucial for accurate assessments of consumer preferences.
- **Engagement Metrics:** Assessing engagement metrics like website visits, backlinks, authority scores, and social media interactions helped gauge user engagement and interest in the content and products offered on these websites.
- **Influencer Analytics:** Utilizing SEMrush's Influencer Analytics tool, insights on influencers, primarily from YouTube, within both industries were gathered. This included metrics like views, likes, and engagement rate on influencer-generated content, providing a deeper understanding of influencer marketing impact.

**Results**

**Quantitative data analysis**

**Aesthetic procedures and cosmeceuticals youtube influencer analytics data worldwide**

Influencer Analytics, a potent marketing discovery and competitive intelligence tool, offers agencies and brands crucial insights into influencer and competitor campaigns, primarily on YouTube [49]. Utilizing this method, the data in subsequent tables is derived through the app’s “Search by Keywords” function, streamlining the identification of videos, posts, reels,

and streams associated with specific keywords and products. The feature supports multiple keyword searches, utilizing “and” and “or” operators for enhanced precision and flexibility. Table 1: “YouTube General Views Worldwide” comprehensively analyzes global YouTube video viewership, specifically focusing on cosmeceutical products or aesthetic procedures. This examination is based on a set of specific keywords, allowing for an exploration of average views, variability, and potential significant differences between videos related to cosmeceutical products and aesthetic procedures. The list of keywords used in this research article is located in Table 1 in the appendix, titled “Keywords List”.

**Table 1:** YouTube Videos’ General Views Worldwide.

Category of Video	YouTube Videos’ General Views Worldwide			t Value	Pr >  t
	N (number of videos)	Mean (number of general views)	Std Dev		
Cosmeceuticals	94	32,816	134,683		
Aesthetic Procedures	500	6,039	15,906		
Difference		26,777	55,343	4.30	<.0001 <sup>a</sup>

a. Highly Significant difference between Cosmeceuticals and Aesthetic Procedures Group at P< .0001.

The study contrasts Cosmeceuticals and Aesthetic Procedures, focusing on their “YouTube General Views Worldwide.” In the Cosmeceuticals group (94 videos), the average views are approximately 32,816, notably higher than Aesthetic Procedures. Aesthetic Procedures (500 videos) average about 6,039 views, although covering a wider product range, leading to fewer views per video due to dilution. Cosmeceuticals receive significantly more global views, likely due to focused interest (t = 4.30, p < .0001). Comparing total views, Cosmeceutical (3,084,704) and Aesthetic Procedures (3,019,500) videos suggest similar audience sizes. However, the disparity in average views per video hints at content quantity differences. Cosmeceuticals’ limited selection may drive higher average viewership, with viewers consuming more of the available content. This doesn’t imply varying interest but highlights differing video distribution. Factors like content specifics, trends, and engagement levels could influence this variance.

Table 2: “YouTube Videos’ Like Count Worldwide” presents a global analysis of likes distribution on YouTube. Differences in “Likes Count” data (N\*) and previous “General Views” data (N) occur due to missing likes count for specific videos. These entries were excluded, ensuring the analysis relies on complete data, maintaining result integrity.

In examining “YouTube Likes Count” between Cosmeceuticals and Aesthetic Procedures, a notable distinction surfaces. Cosmeceuticals (78 videos) average 781 Likes, indicating robust visibility and endorsement, while Aesthetic Procedures (458 videos) average 150 Likes, potentially due to more diverse representation (t = 4.21, p < .0001).

**Table 2:** YouTube Videos’ Like Count Worldwide.

Category of Video	YouTube Videos’ Like Count Worldwide				
	N (number of videos)	Mean (number of likes)	Std Dev	t Value	Pr >  t
Cosmeceuticals	78	781	2,916		
Aesthetic Procedures	458	150	567		
Difference		631	1,225	4.21	<.0001 <sup>a</sup>

a. Highly Significant difference between Cosmeceuticals and Aesthetic Procedures Group at P < .0001.

Table 3: “YouTube Engagement Rates Worldwide” investigates viewer engagement dynamics for Cosmeceuticals and Aesthetic Procedures content globally on YouTube. Calculating the “Engagement Rate” involves determining the ratio of likes,

reposts, and comments to the average views. This process uses median likes, shares, comments, and views count to ensure a robust and accurate engagement analysis.

**Table 3:** YouTube Engagement Rates Worldwide.

Category of Video	YouTube Engagement Rates Worldwide				
	N (number of videos)	Mean	Std Dev	t Value	Pr >  t
Cosmeceuticals	94	5.0	6.7		
Aesthetic Procedures	500	6.1	5.8		
Difference		-1.1	5.9	-1.7	0.0991

Table 3 analysis shows no significant difference in “YouTube Engagement Rate” between Cosmeceuticals and Aesthetic Procedures, suggesting similar interaction and reception for both product categories.

is instrumental in identifying opportunities, tracking gained links, and optimizing search engine ranking [49]. This approach aids in competitive SEO analysis and efficient consumer outreach initiatives, derived from targeted keywords and competitor analysis. Table 4: “Link Building Worldwide Data” analyzes key metrics for Aesthetic Procedures and Cosmeceuticals websites, indicating website prominence and connectivity in the digital landscape as well as a nuanced evaluation of the website’s visibility, credibility, and engagement. The list of websites analyzed in this research article is located in Table 2 in the appendix, titled “Websites List”.

**Aesthetic procedures and cosmeceuticals link building data worldwide**

Link building, an element of Search Engine Optimization (SEO), involves creating links to drive website traffic. Search engines utilize these links to ascertain one’s site’s presence and determine its ranking in search results. The “Link Building Tool”

**Table 4:** Link Building Worldwide Data.

	Authority Score	Backlinks	Follow links	No-follow links	Text links	Image links	Visits
Aesthetic Procedures Mean	22	46,472	43,284	3,225	25,830	17,411	15,383
Cosmeceuticals Mean	44	497,226	483,646	13,386	226,167	257,733	300,632
Aesthetic Procedures Std Dev	12	125,725	119,518	7,854	105,688	54,448	59,964
Cosmeceuticals Std Dev	8	1,150,048	1,149,193	11,660	548,229	1,005,409	631,423

An analysis of key metrics reveals distinct differences.

### Authority score

This metric reflects the website's overall credibility, quality, and influence. A higher authority score signifies greater recognition and reputation in the online domain. Cosmeceuticals have a higher average Authority Score [44] compared to Aesthetic Procedures [22], indicating greater credibility online. For Aesthetic Procedures, a higher standard deviation in the authority score indicates a varied range of credibility levels among websites or webpages. This suggests differences in the perceived trustworthiness and quality, with some sources having significantly higher authority scores and others lower.

### Backlinks

Backlinks, crucial for website prominence, represent recommendations from other sites, endorsing the content's value. They reflect instances where external websites endorse and suggest the analyzed website's content. Cosmeceuticals tend to have significantly more backlinks (497,226 mean) than Aesthetic Procedures (46,472 mean).

### Follow links

Follow Links, a subset of Backlinks, hold weight in search engine rankings, particularly Google's. They're high-quality endorsements, showing active recommendations from other websites, greatly boosting a website's credibility and ranking. Cosmeceuticals notably show more Follow Links (483,646 mean) compared to Aesthetic Procedures (43,284 mean), emphasizing higher authority.

### No-follow links

No-follow Links, though still mentions, lack the weight of Follow Links, offering a nuanced insight into a website's online presence. They represent links that search engines aren't intended to track for ranking purposes. Cosmeceuticals exhibit a notably higher average of No-follow links (13,386) compared to Aesthetic Procedures (3,225), indicating more utilization.

### Text links

Text Links, a category of Backlinks, utilize text to link to the target. These links, derived from textual content, represent the most common form of endorsements, underscoring the value of the website's content. Cosmeceuticals display a notably higher average of Text links (226,167) compared to Aesthetic Procedures (25,830), indicating a stronger connection through text-based links.

### Image links

Image Links, another type of Backlinks, use visuals as clickable elements to connect to a particular target. These links provide an

alternative way of endorsing a website, conveying information visually. Cosmeceuticals have notably more Image links (257,733 mean) than Aesthetic Procedures (17,411 mean), indicating differing content presentation.

### Visits

Visits quantify the number of website visits or page views offering insights into the website's popularity and user engagement. This metric provides a tangible measure of the actual traffic impact resulting generated by the acquired Backlinks. Cosmeceuticals drive substantially more visits (300,632 mean) than Aesthetic Procedures (15,383 mean) through backlinks, highlighting superior website traffic and engagement.

Overall, the disparities in the mentioned metrics underscore Cosmeceuticals' superior online presence and visitor engagement relative to Aesthetic Procedures. Additionally, the higher standard deviations suggest a greater variability in the presence of these links for Cosmeceuticals, indicating a diverse and dynamic online footprint. The research enhanced its findings by conducting a Pearson Correlation test to examine the interrelation among 'Likes Count', 'General Views', and 'Engagement Rate' in both Cosmeceuticals and Aesthetic Procedures.

### Beauty and cosmetics market explorer

The Market Explorer tool offers an extensive analysis of online niche markets, simplifying assessments of market size and competitor benchmarks. It provides demographic details, regional insights, and historical data, enabling confident market entry, strategic alliances, and thorough competitive analyses.

### Beauty and cosmetics market explorer: Brazil

The Market Audience Summary section provides a concise overview of key characteristics in the online audience of the Beauty and Cosmetics market, including Demographics, Socioeconomics, and Behavior. It delves into significant segments such as age, gender, employment status, education level, household income, household size, most visited domain categories, and the preferred social media platform. It emphasizes the importance of recognizing its focus on dissecting online audience demographics specific to the industry or custom market, with adjustments in the report leading to corresponding changes in demographic insights.

Figure 1 illustrates the online market audience for the Beauty and Cosmetics sector in Brazil throughout January to December 2022. It provides key demographic and socioeconomic insights, shedding light on the characteristics and preferences of the audience within this industry segment.



Figure 1: Brazilian Beauty and Cosmetics Market Online Audience Summary.

### Demographics

- **Age:** The largest segment of the Beauty and Cosmetics online population falls within the age range of 25-34 years, constituting almost 30% of the total online audience.
- **Gender:** The majority of the Beauty and Cosmetics online population is female, accounting for almost 64% of the total audience.

### Socioeconomics

- **Employment Status:** A significant proportion of the Beauty and Cosmetics online population is engaged in full-time work (39%) vs the total online population in Brazil (100%).
- **Education Level:** More than half of the Beauty and Cosmetics online population possesses only a compulsory or high school level education, with (55%) falling into this category vs the total online population in Brazil (100%).
- **Household Income:** The majority of the Beauty and Cosmetics online population falls within the low household income bracket, comprising 69%.

- **Household Size:** A considerable portion of the Beauty and Cosmetics online population belongs to households with 3-4 persons, accounting for 43%.

### Behavior

- **Interests:** An overwhelming majority of the audience exhibits a keen interest in Beauty and Cosmetics website category, with 89% displaying an affinity for this category.
- **Social Media:** The YouTube platform plays a pivotal role in engaging the audience, with 89% of the audience active on this channel.

The following demographics section offers a detailed examination of the online market audience’s Age and Gender distribution. The left graph visually outlines the audience distribution across various age segments, while the right graph illustrates the audience breakdown by gender, using distinct colors to represent proportions of females and males. These visual representations provide clear insights into the demographic makeup of the audience.

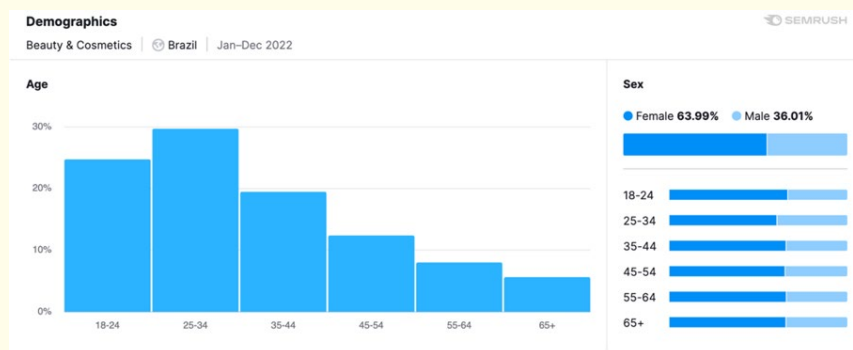


Figure 2: Online Brazilian Beauty and Cosmetics Market Demographics Overview.

Figure 2 illustrates the demographic distribution of the online audience within the Beauty and Cosmetics sector in Brazil for the period spanning January to December 2022.

### Age

A substantial proportion of the audience, constituting 30%, falls within the age range of 25-34, suggesting that consumers in this age group are high users of internet information sources and hold significant influence in the online Brazilian consumer base for the Beauty and Cosmetics market.

### Gender

The data reveals that female audience significantly dominate the Beauty and Cosmetics sector in Brazil, accounting for 64% of the total online audience.

Male representation in the online audience is notable, though comparatively lower, with 36% of the total audience.

This demographic breakdown offers valuable insights into understanding consumers' online information sources use. However, caution should be exercised in extrapolating these demographic data to profile overall product purchasers, as internet usage varies significantly across demographics. While beneficial for refining social media strategies, a more nuanced approach is required for comprehensive insights into the broader consumer base.

The undermentioned Social Media Preferences figure showcases a bar graph that systematically categorizes the primary social media platforms employed by the audience within the Beauty and Cosmetics market. The percentage values associated with each platform signify the proportion of the total audience that engaged with the respective platform.

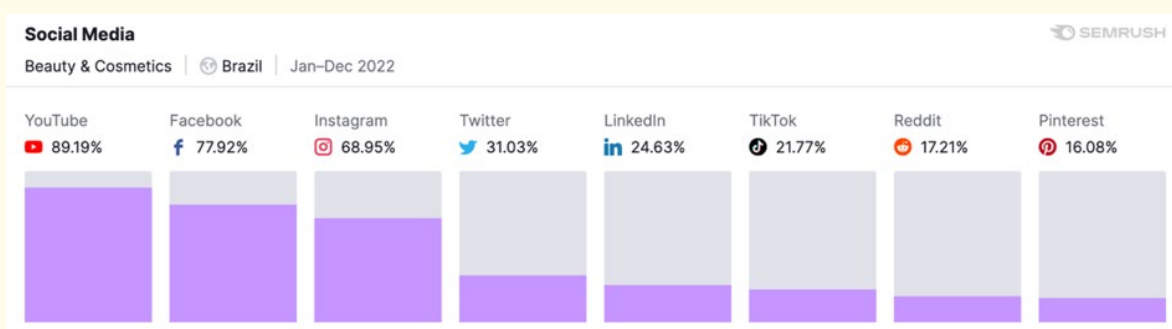


Figure 3: Brazilian Beauty and Cosmetics Market Social Media Platforms Analysis.

Figure 3 provides a comprehensive summary of the online audience's preferred social media platforms within the Beauty and Cosmetics sector in Brazil for the period from January to December 2022.

### YouTube

- The data highlights that a significant 89% of the online audience in Brazil within the Beauty and Cosmetics sector prefers YouTube as their go-to social media platform.
- This substantial preference for YouTube suggests the potential for content marketing, advertising, and influencer collaborations on this platform to effectively reach and engage with the target audience.

### Facebook

- Facebook remains a popular social media platform among the Brazilian online audience, with 78% of individuals actively using it.
- The substantial presence on Facebook signifies the platform's relevance for marketing campaigns and brand promotions within the Beauty and Cosmetics sector.

### Instagram

- Instagram is also a prominent choice among the audience, with 69% of Brazilian individuals actively using this platform.

- The strong presence on Instagram indicates that visual content and storytelling can be particularly effective in engaging with the audience.

**Twitter, LinkedIn, TikTok, Reddit, and Pinterest**

- While the aforementioned platforms dominate the audience’s preferences, other platforms such as Twitter, LinkedIn, TikTok, Reddit, and Pinterest still have notable user engagement.
- Tailoring marketing strategies to these platforms may be relevant for specific marketing goals or audience segments within the Beauty and Cosmetics sector.

In summary, the results presented in Figure 3 emphasize the prominence of YouTube as the preferred social media platform

within the Beauty and Cosmetics sector’s online audience in Brazil. However, a diverse range of social media platforms still enjoys considerable user engagement, providing marketers with the opportunity to craft multi-platform strategies that cater to different preferences and objectives. Understanding the dynamics of these platforms is vital for developing successful digital marketing campaigns in the Beauty and Cosmetics sector in Brazil.

**Beauty and Cosmetics Market Explorer: South Korea**

This section offers a brief summary of the critical characteristics of the South Korean Beauty and Cosmetics online market audience, covering Demographics, Socioeconomics, and Behavior.



**Figure 4:** South Korean Beauty and Cosmetics Market Online Audience Summary.

Figure 4 illustrates the online market audience for the Beauty and Cosmetics sector in South Korea throughout January to December 2022. It provides key demographic and socioeconomic insights, shedding light on the characteristics and preferences of the audience within this industry segment.

**Demographics**

- **Age:** The most prominent segment within the audience belongs to the age group of 25-34 years, constituting 45% of the total audience.
- **Gender:** The majority of the audience is female, accounting for 61% of the total audience.

**Socioeconomics**

- **Employment Status:** A considerable proportion of the audience is involved in full-time work, representing 40%.

- **Education Level:** Over half of the audience holds a university or college-level education, with 52% falling into this category.
- **Household Income:** A substantial portion of the audience falls within the low household income bracket, comprising 58%.
- **Household Size:** A substantial portion of the audience resides in households with 3-4 persons, accounting for 47%.

**Behavior**

- **Interests:** The audience exhibits a notable interest in Information Technology, with 94% displaying an affinity for this category.
- **Social Media:** The YouTube platform plays a crucial role in engaging the audience, with 93% of the audience active on this channel.

The following demographics section provides a comprehensive analysis of the South Korean online market audience, with a specific emphasis on Age and Gender.

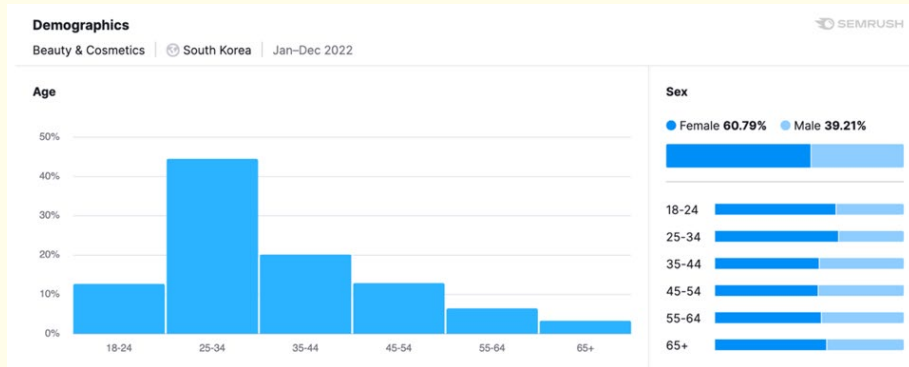


Figure 5: Online South Korean Beauty and Cosmetics Market Demographics Overview.

Figure 5 presents a comprehensive depiction of the demographic composition of the online audience within the Beauty and Cosmetics sector in South Korea during the period of January to December 2022:

**Age**

A significant portion of the audience, constituting 45%, belongs to the age group of 25-34, signifying the substantial influence of this demographic in the consumer landscape for Beauty and Cosmetics in South Korea.

**Gender**

The data highlights the prevalence of female audience members, encompassing 61% of the total audience within the online Beauty and Cosmetics sector in South Korea.

Male representation, while lower, is still notable, accounting for 39% of the total online audience.

The undermentioned Social Media Preferences figure showcases a bar graph that systematically categorizes the primary social media platforms employed by the online audience within the South Korean Beauty and Cosmetics market. The percentage values associated with each platform signify the proportion of the total online audience that engaged with the respective platform.

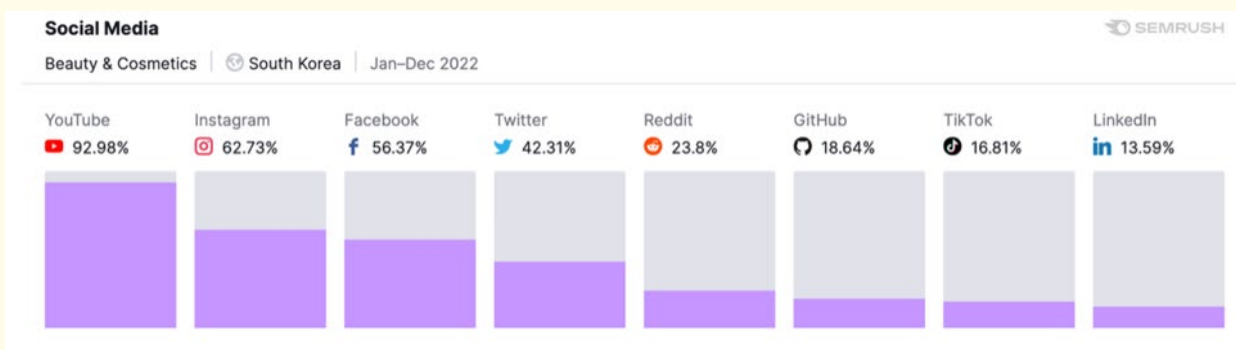


Figure 6: South Korean Beauty and Cosmetics Market Social Media Platforms Analysis.



Figure 6 provides an insightful overview of the preferred social media platforms within the Beauty and Cosmetics sector in South Korea for the period from January to December 2022.

### YouTube

- YouTube emerges as the dominant platform among the South Korean online audience, with an overwhelming preference of 93%.
- This substantial preference for YouTube implies that it is the primary platform for marketers and brands to focus on when planning digital marketing campaigns in the Beauty and Cosmetics sector in South Korea.

### Instagram

- Instagram is the second most popular social media platform, with a preference rate of 63% among the South Korean online audience.
- Its significant presence highlights the importance of visual content and storytelling in engaging with the target audience.

### Facebook

- Facebook maintains a strong presence, with 56% of South Koreans actively using the online platform.
- This suggests that Facebook is still relevant for marketing campaigns and brand promotions within the Beauty and Cosmetics sector in South Korea.

### Twitter, Reddit, GitHub, TikTok, and LinkedIn

- While YouTube, Instagram, and Facebook lead in audience preference, other platforms like Twitter, Reddit, GitHub, TikTok, and LinkedIn still have a substantial user base.
- South Korea stands out among the analyzed countries due to its inclusion of GitHub, a platform primarily for software development [50]. Despite not being a conventional social media platform, GitHub's relevance in the Beauty and Cosmetics industry, particularly in sharing beauty-related software innovations, adds a unique facet to South Korea's social media landscape analysis.
- Tailoring marketing strategies to these platforms may be relevant for specific marketing goals or for reaching distinct audience segments within the Beauty and Cosmetics sector.

In summary, the results from Figure 6 underscore YouTube as the overwhelmingly preferred social media platform within the Beauty and Cosmetics sector's online audience in South Korea. This insight is invaluable for marketers, allowing them to concentrate their digital marketing efforts on the most impactful online platform.

### Beauty and Cosmetics Market Explorer: United States of America (U.S.A)

This section provides a concise overview of the U.S Beauty and Cosmetics market online audience's key characteristics, encompassing Demographics, Socioeconomics, and Behavior.



Figure 7: U.S. Beauty and Cosmetics Market Online Audience Overview.

Figure 7 illustrates the online market audience for the Beauty and Cosmetics sector in the United States throughout January to December 2022. It provides key demographic and socioeconomic insights, shedding light on the characteristics and preferences of the audience within this industry segment.

### Demographics

- **Age:** The age group of 25-34 years makes up a substantial portion of the audience, accounting for 28%.
- **Gender:** The majority of the audience is female, representing 65% of the total audience.

### Socioeconomics

- **Employment Status:** A considerable proportion of the Beauty and Cosmetics online population is engaged in full-time work, comprising 42%.
- **Education Level:** Nearly half of the Beauty and Cosmetics online population holds a university or college-level education, with 47% falling into this category.

- **Household Income:** The majority of the Beauty and Cosmetics online population falls within the low household income bracket, with 62% in this category.
- **Household Size:** A considerable portion of the Beauty and Cosmetics online population resides in households with 3-4 persons, accounting for 42%.

### Behavior

- **Retail Preferences:** The vast majority of the online audience, specifically 97%, displays an inclination towards retail-related websites.
- **Social Media:** The YouTube platform is instrumental in engaging the audience, with 90% of the audience actively participating on this channel.

The following demographics section provides a comprehensive analysis of the American online market audience, with a specific emphasis on Age and Gender.

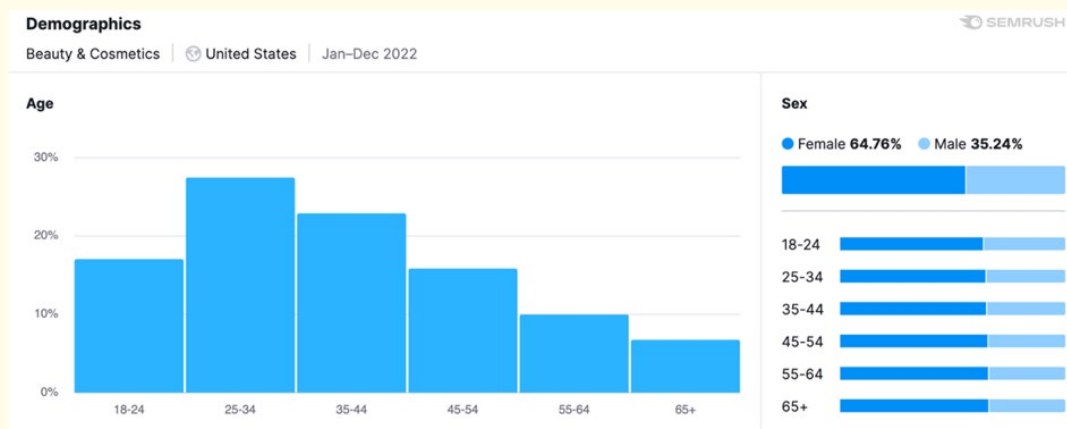


Figure 8: Online U.S. Beauty and Cosmetics Market Demographics Overview.

Figure 8 presents a comprehensive overview of the demographic composition of the online audience within the Beauty and Cosmetics sector in the United States for the period spanning January to December 2022.

### Age

- A substantial proportion, representing 30% of the audience, falls within the age group of 25-34, signifying the considerable influence of this demographic segment on the consumer landscape within the Beauty and Cosmetics sector in the United States.

- While the 25-34 age group stands out, the audience is also distributed across various age brackets, each contributing to the overall market.

### Gender

- The data underlines the significant representation of female audience, accounting for 65% of the total audience within the online Beauty and Cosmetics sector in the United States.
- Male representation, while somewhat lower, remains noteworthy, contributing to 35% of the total online audience.

The undermentioned Social Media Preferences figure showcases a bar graph that systematically categorizes the primary social media platforms employed by the American audience within

the U.S Beauty and Cosmetics market. The percentage values associated with each platform signify the proportion of the total online audience that engaged with the respective platform.

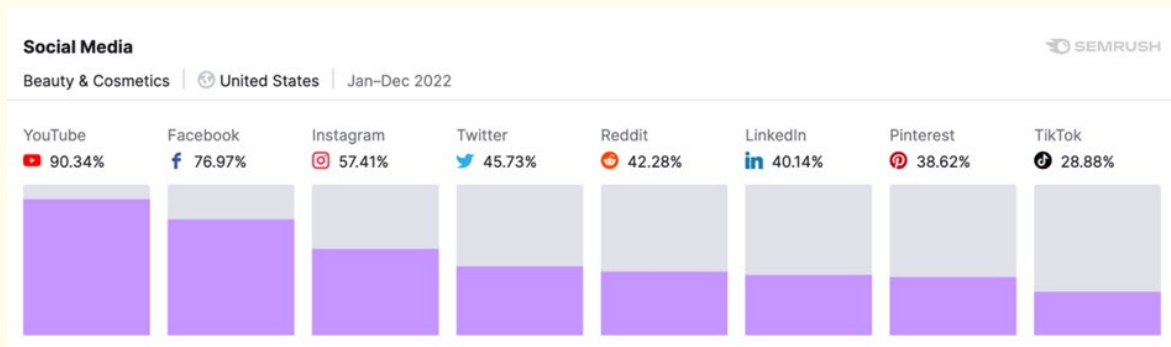


Figure 9: U.S. Beauty and Cosmetics Market Social Media Platforms Analysis.

Figure 9 offers a comprehensive overview of the preferred social media platforms within the Beauty and Cosmetics sector in the United States for the period spanning January to December 2022.

### YouTube

- YouTube stands out as the most favored social media platform among the online American audience, with a substantial preference rate of 90%.
- This highlights the dominance of video content in engaging with the audience within the Beauty and Cosmetics sector in the United States.

### Facebook

- Facebook maintains a significant presence with a preference rate of 77%.
- The enduring popularity of Facebook emphasizes its relevance for marketing campaigns and brand promotions in this sector in the United States.

### Instagram

Instagram follows closely behind with a preference rate of 57%, making it a critical platform for visual content and brand storytelling.

### Twitter, Reddit, LinkedIn, Pinterest, and TikTok

- While YouTube, Facebook, and Instagram lead in audience preference, other platforms such as Twitter, Reddit, LinkedIn, Pinterest, and TikTok continue to maintain substantial user bases.
- This diverse landscape presents opportunities to tailor marketing strategies based on distinct platforms that align with specific marketing objectives or audience segments within the Beauty and Cosmetics sector in the United States.

In conclusion, Figure 9 highlights the strong preference for YouTube as the leading social media platform within the Beauty and

Cosmetics sector in the United States. This knowledge is invaluable for marketers, enabling them to concentrate their digital marketing endeavors on a platform that has a strong influence on the online audience. Additionally, the presence of various other social media platforms indicates the potential for crafting varied marketing strategies to cater to different preferences and objectives, enhancing the overall impact of digital marketing campaigns in the Beauty and Cosmetics sector in the United States.

### Qualitative data

This section encapsulates comprehensive summary insights derived from in-depth pilot discussions with the seven participants recruited from Dubai. It provides a condensed yet insightful overview of their perceptions, experiences, and preferences related to cosmetic procedures, topical skincare products, and the beauty industry. These insights provide a nuanced understanding of the factors influencing their choices and behaviors within the beauty and cosmetics domain:

- Sawsan, a 23-year-old Syrian woman, expresses skepticism about cosmetic procedures, considering them potentially trapping individuals in a cycle of continuous alteration. She employs the term “victims” to describe those undergoing procedures, hinting at her concerns about associated risks. Sawsan highlights the industry’s commercial aspect, illustrating the multifaceted nature of decision-making in the beauty sector.
- Sarah, an Egyptian/Emirati female adult, provides a comprehensive understanding of the effectiveness of procedures and topical products. She seeks an “instant glow,” indicating her desire for rapid and noticeable outcomes. The phrase “seduced them too much” suggests the powerful influence of marketing campaigns and influencers on consumer choices. Sarah also uses the term “victim,” underscoring her cautious approach and reluctance to rush into trying new products.

- Inas, 28-years-old Moroccan female, stands out for her dedication to skincare routines and topical products. She values comfort and confidence in her daily regimen, with “addict” indicating the allure and potential addiction to skincare procedures. Her emotional response to visible signs of aging, described as “depressing,” emphasizes the personal and emotional dimension of the aging process. Inas emphasizes authenticity and natural looks over exaggerated beauty trends, highlighting her preference for subtle, genuine results.
- Nibras, a 45-years-old Iraqi female, contributes a wealth of insights. She prefers natural and subtle improvements, using terms like “pillow-faced” and “Ducky lips” to describe overfilled facial appearances. Her consideration of cultural values and environments suggests the need for a nuanced understanding of beauty ideals across societies. Nibras acknowledges both the positive and negative impacts of social media on the beauty industry, emphasizing the importance of a logical, medically grounded approach to aesthetic procedures.
- Manar, a 40-years-old Iraqi female, initially favored topical creams but later experimented with procedures, including Profiller injections and fillers. Negative experiences with fillers led her to abandon further procedures. She believes cosmetic procedures should be based on medical or psychological needs rather than purely aesthetic desires. She emphasizes the influence of social media on beauty ideals and preferences. She also discussed the perception of women feeling compelled to undergo procedures to enhance their beauty, driven by a concern that their husbands might leave them. This poignant, albeit unfortunate, statement suggests that men in that culture could be significantly influenced by the portrayal of ideal beauty standards prevalent online.
- Shruti, a 33-years-old Indian female, who is a medical professional herself, emphasizes that aesthetic procedures and topical products are complementary, not mutually exclusive. She highlights the “wow effect” of injectables like Botox and the importance of patient compliance. Shruti also points out the influence of social media, especially in the promotion of prescription-based products, and stresses the need for ethical marketing practices.
- Fatima, a 35-years-old Jordanian/British female, discusses the importance of sunscreen and minimal makeup in her skincare routine. She has mixed feelings about social media’s influence on beauty and advises caution, particularly regarding social media filters like the ones found in Snapchat

or Instagram, as they create unrealistic beauty expectations. Fatima values natural beauty and acknowledges the impact of culture and upbringing on individual preferences.

Collectively, the qualitative data provides a multifaceted view of the beauty and cosmetics industry, highlighting the interplay between individual experiences, emotions, and industry dynamics. The emotive terminology used by participants underscores the emotional dimensions of beauty choices, from fear and apprehension to comfort, confidence, and even potential addiction. The data also reveals a balance between the desire for immediate results and the appreciation of long-term maintenance, with cosmetic procedures delivering swift changes and topical products offering gradual enhancements. Participants’ preferences vary, with some leaning toward procedures and others emphasizing the importance of natural and homemade skincare products. Moreover, the qualitative data emphasizes the significance of individualized approaches and an awareness of cultural values, indicating the need to account for diverse cultural and environmental factors when addressing beauty-related decisions. Readers are encouraged to refer to Table 3 in the appendix, which contains the Discussion Guide, for a deeper understanding of how the qualitative discussion was guided and conducted.

## Discussion and Conclusion

### Discussion of Findings and Implications

The social media quantitative analysis, complemented by qualitative data, unveils insights into regional and cultural nuances, offering valuable implications for industry stakeholders and marketers aiming to refine strategies for diverse consumer bases. The ensuing discussion highlights the implications across audience demographics, social media platform preferences, online visibility, and engagement.

### Audience demographics

The data reveals both commonalities and disparities in audience demographics across Brazil, South Korea, and the United States. The age group of 25-34 emerges as influential, emphasizing the need to cater to this bracket in product development and marketing efforts. Notably, the unexpected substantial male percentages, such as 35% in the United States, 36% in Brazil, and 39% in South Korea, underscore the significance of the male consumer demographic. Understanding and acknowledging this gender dynamic is imperative for effective marketing strategies and tailored product offerings in these regions, aligning with the emphasis on male grooming’s role in driving demand for personalized skincare solutions [2].

Implication: Marketers should adopt a nuanced approach, recognizing diversity in age groups and ethnicities. While understanding the preferences of the 25-34 age group is crucial, a balanced strategy considers broader aspects for inclusivity and innovation. Despite the immediacy of data analysis for social media, addressing the specific needs and preferences of the 25-34 age group holds potential for driving the creation of innovative products tailored for this demographic.

### **Social media platform preferences**

YouTube emerges as the dominant social media platform in the Beauty and Cosmetics sector across analyzed regions. However, nuanced variations in preferences emphasize the need for tailored marketing strategies. While YouTube holds precedence, Instagram and Facebook maintain significant presences, albeit with varying degrees of favorability. Understanding these nuances is crucial for optimizing content distribution and engagement. The diverse utility of these platforms signifies that products and procedures might benefit uniquely based on platform choice. For instance, Instagram's focus on visual content and storytelling contrasts with Facebook's strength in marketing campaigns and brand promotions within the Beauty and Cosmetics sector. Meanwhile, YouTube's strength lies in video content and influencer collaborations highlighting the dominance of video content in engaging with the audience. This insight necessitates tailored strategies, leveraging each platform's unique strengths.

Implication: Marketers should leverage YouTube's popularity while adopting distinct strategies for Instagram and Facebook. A uniform approach may not suffice; tailoring content for each platform is vital to engage diverse audiences effectively. Embracing platform nuances is key to successful engagement, advocating for strategies customized to each platform's strengths. This multifaceted strategy ensures meaningful engagement across diverse audiences, surpassing limitations of a one-size-fits-all approach.

### **Online visibility and engagement**

Analyzing backlinks and online engagement uncovers insights into online authority and credibility. Cosmeceuticals exhibit a higher Authority Score and a more robust online presence compared to Aesthetic Procedures, emphasizing the importance of online authority.

Implication: Businesses should prioritize enhancing online authority and credibility. Tailored marketing strategies can enhance viewer engagement for niche products like cosmeceuticals. In contrast, diversified product categories such as aesthetic procedures may need unique approaches to sustain online visibility. For aesthetic procedures, emphasizing trust and credibility is crucial. This involves providing detailed procedure explanations, recovery insights, and patient testimonials, potentially through platforms like YouTube or dedicated website blogs featuring in-depth procedure explanations, Frequently Asked Questions (FAQs), and surgeon interviews. These customized strategies aim to address audience concerns, offer informative insights, and demonstrate procedure efficacy and safety to attract the target audience.

### **Qualitative insights**

The qualitative data provides rich insights into consumer perceptions, experiences, and preferences. Participants express varying attitudes and emotions, from skepticism to the desire for rapid results. The influence of marketing campaigns, social media, and cultural values is evident.

Implication: Understanding the emotional dimensions of consumer choices is crucial. Marketers should craft campaigns that resonate with these emotions, acknowledging the impact of marketing and cultural factors on individual choices.

### **Theory of attribution and theory of planned behavior**

The integration of findings with the Theory of Attribution and the Theory of Planned Behavior enriches our understanding of consumer behavior. Attribution theory highlights the interplay between internal and external attributions, cultural influences, and attributional biases. The Theory of Planned Behavior emphasizes the role of attitudes, subjective norms, and perceived behavioral control in shaping intentions and behavior.

Implication: These psychological theories provide a framework for understanding consumer behavior. Marketers can use these theories to craft more effective strategies that align with consumers' internal and external attributions, cultural values, and behavioral intentions.

## Consumer behavior psychology theory

In order to interpret and contextualize the findings from the integration of quantitative and qualitative data, two prominent consumer behavior psychological theories, the Theory of Attribution and the Theory of Planned Behavior (TPB), offer valuable frameworks. These theories help shed light on how individuals perceive, explain, and plan their choices and behaviors, particularly within the Beauty and Cosmetics sector.

### Theory of attribution

The Theory of Attribution, initially proposed by Fritz Heider in the 1950s and further developed by Harold Kelley and Bernard Weiner, is fundamental in understanding how consumers attribute the causes of their preferences, choices, and behaviors [51]. This theory is particularly relevant when exploring how individuals interpret their decisions in the context of the Beauty and Cosmetics sector:

- **Attribution of Product Preferences and Choices:** According to the attribution theory, individuals tend to make attributions based on internal or external factors [51]. In the case of the Beauty and Cosmetics sector, the integrated data highlights that consumers often attribute their preferences for specific products or procedures to a combination of internal and external factors. For instance, participants in the qualitative data from Dubai, such as Sawsan and Sarah, attribute their skepticism or preference for certain procedures to personal beliefs and perceptions, reflecting internal attributions. Additionally, the influence of marketing campaigns and social media platforms, as observed in both the quantitative and qualitative data, reflects external attributions. Participants' references to being "seduced" by marketing efforts indicate that external stimuli play a significant role in shaping consumer choices.
- **Cultural Attribution and Preferences:** The integrated data further underscores the importance of cultural values in influencing consumer behavior within the Beauty and Cosmetics sector. Insights from Fatima and Nibras regarding the qualitative data highlight the necessity for a nuanced understanding of beauty ideals across different societies. They acknowledged the substantial influence of cultural values and environments on preferences for aesthetic

procedures and cosmetic products, noting diverse beauty ideals and perceptions of aging across cultures. They also emphasize the importance of awareness, community values, and medical guidance in facilitating informed decisions among patients. This aligns with the attribution theory's recognition of cultural influences on attributions. Participants' preferences and choices are not solely determined by individual perceptions but are also shaped by broader cultural norms and values.

- **Online Engagement and Brand Perception:** Attribution theory also sheds light on how consumers attribute their engagement with online content and their perception of brands. The analysis of online visibility and engagement in both the quantitative and qualitative data indicates that consumers attribute credibility and authority to brands based on factors such as backlinks, social media presence, and viewer interaction. This aligns with the theory's concept of attributional biases, where individuals tend to attribute positive outcomes to internal factors (e.g., brand credibility) and negative outcomes to external factors (e.g., competitor influence) [51].

### Theory of planned behavior (TPB)

The TPB posits that behavioral intentions are influenced by three key factors: Attitude Toward Behavior (ATB), Subjective Norms (SN), and Perceived Behavioral Control (PBC) [52].

- **Attitude Toward Behavior (ATB):** Consumers' attitudes toward a specific behavior significantly impact their intentions and actual behavior. The integrated findings reveal that participants' attitudes are shaped by various factors, including personal beliefs, the influence of marketing campaigns, and cultural values, influencing their choices within the Beauty and Cosmetics sector.
- **Subjective Norms (SN):** The social context and perceived norms play a substantial role in shaping consumer behavior. Participants acknowledged the impact of the opinions of others, especially influencers and social media campaigns, reflecting the influence of subjective norms.
- **Perceived Behavioral Control (PBC):** The integrated findings highlight the significance of perceived behavioral control. Participants express concerns about potential risks or the addictive nature of skincare procedures, indicating their perception of control over their decisions.

In summary, the integration of quantitative and qualitative data offers a path to a comprehensive perspective on consumer behavior in the Beauty and Cosmetics sector, informed by the Theory of Attribution and the Theory of Planned Behavior. This dual theoretical approach enhances our understanding of the complex interplay of internal and external factors, cultural influences, and behavioral intentions. Such insights are essential for achieving success in the Beauty and Cosmetics industry on a global scale, tailored to diverse consumer bases across different regions and cultural contexts.

### Theoretical contributions

This study offers substantial theoretical contributions to consumer behavior within the Beauty and Cosmetics sector:

- **Integrated Data Approach:** Integrating quantitative and qualitative data from diverse regions like Dubai enriches the understanding of consumer behavior. This methodological fusion provides a nuanced perspective on preferences and decision-making processes.
- **Role of Attribution Theory:** Exploring the potential of Attribution Theory within this sector presents promising avenues for new insights into consumer behavior. This emphasizes its potential for future exploration and insights into decision-making processes.
- **TPB in Beauty Sector:** Incorporating the Theory of Planned Behavior (TPB) aids in understanding consumer behavioral intentions, including attitudes, subjective norms, and perceived control. Its application in this industry context demonstrates its relevance.
- **Emotional Dimensions:** Qualitative data reveals varied emotions impacting consumer choices, highlighting the influence of marketing, social media, and cultural values. This underlines a dimension that has received limited attention in existing literature between the aesthetic procedures and cosmeceuticals fields, offering new insights.
- **Global Perspective:** The study's global outlook acknowledges the interconnectedness of Beauty and Cosmetics markets across regions. It advocates for tailored strategies, recognizing diverse market needs.

In summary, these theoretical contributions support the use of methodological advancements in data integration, apply psychological theories effectively, and acknowledge emotional aspects in consumer behavior. They enrich understanding, paving the way for further research and strategic enhancement within the Beauty and Cosmetics industry.

### Practical implications

For industry professionals, marketers, and researchers, several practical suggestions emerge from this study to refine strategies and address diverse consumer bases across regions and cultures.

#### Tailored marketing strategies

- Customize social media campaigns targeting the dominant 25-34 age group in Brazil, South Korea, and the USA, recognizing the strong influence of social media within this demographic.
- Acknowledge and cater to the substantial male consumer base (35% in the USA, 36% in Brazil, 39% in South Korea) within skincare marketing, challenging traditional perceptions of gender balance ratios, despite the prevalent dominance of females in these regions' cosmetics markets.

#### Social media platform optimization

- Prioritize YouTube for engagement in the Beauty and Cosmetics industry.
- Adapt content for varied platforms to suit regional platform preferences, recognizing their strengths—Instagram for visuals and storytelling, and Facebook for campaigns and promotions.

#### Cultural adaptability

- Conduct research to harmonize marketing strategies with varied cultural values that shape consumer preferences across regions, recognizing the potential differences in beauty standards and aging perceptions among societies.
- Tailor products and services to resonate with each region's unique cultural characteristics.

#### Online credibility and ethics

- Prioritize enhancing online credibility and ethical marketing practices, highlighting brand authenticity and credibility, particularly in regions such as Dubai where concerns about commercial aspects are expressed.

- Invest in ethical marketing practices to address consumer awareness regarding brand authenticity and credibility, fostering trust and credibility among the target audience.

### Emotional connection

Understand emotional dimensions influencing choices and integrate these insights into marketing materials.

### Behavioral-Based strategies

- Apply TPB to understand consumer attitudes and control factors shaping consumer behavior.
- Modify or reinforce strategies based on consumer attitudes toward products or procedures.

### Product-Specific strategies

Craft specific marketing strategies for niche and diversified product categories based on audience engagement needs.

### Social media influence

Acknowledge social media's impact on consumer choices and align marketing strategies with trending influencers to maximize audience reach and engagement.

### Individualized approach and ethics

Emphasize individualized approaches considering cultural factors and promote ethical practices in prescription-based topical cosmetic products and aesthetic procedures.

These recommendations offer industry players actionable insights to refine strategies, create effective offerings, and stay competitive in the ever-evolving Beauty and Cosmetics sector. Implementation can lead to enhanced consumer engagement, brand recognition, and alignment with diverse global consumer bases.

### Limitations

While meticulously designed to glean insights into consumer behavior regarding facial rejuvenating procedures and topical cosmeceuticals across the United States, Brazil, South Korea, and qualitative data from Dubai, this research does have several limitations that warrant acknowledgment.

- **Channel Exclusivity:** The study primarily focuses on social media marketing and influencer campaigns, omitting insights from traditional advertising channels. This exclusive focus may limit a holistic understanding of consumer behavior in these industries.
- **Limited Sample Representation:** Relying heavily on social media data for quantitative analysis could introduce bias, as these platforms might attract a specific subset of users,

potentially skewing the overall representation of consumer preferences.

- **Data Reliability:** The accuracy and reliability of social media data can fluctuate due to user-generated content, fake accounts, or the influence of advertising, potentially impacting the authenticity of the collected information.
- **Cultural and Linguistic Variance:** Cross-country variations in language and cultural nuances might affect the interpretation of consumer behavior trends, impacting the universality of the findings.
- **Analytical Tools' Constraints:** The effectiveness of data analysis tools, like manual content analysis for qualitative data, might be limited by the researcher's interpretive skills, potentially missing subtle consumer behavioral cues.
- **Unaddressed External Factors:** External influences such as economic conditions, governmental policies, and broader societal dynamics, which significantly shape consumer behavior, were not comprehensively considered in this research.
- **Scope of Data Collection:** The study's reliance on specific data repositories might not entirely cover the entire spectrum of aesthetic procedures websites, potentially limiting the inclusivity of the dataset.

Despite these limitations, this study offers a robust foundational understanding of consumer behavior trends regarding facial rejuvenating procedures and topical cosmeceuticals. It provides valuable insights that can shape future research endeavors and inform strategic marketing initiatives within the cosmetics industry.

### Conclusion

This study offers a comprehensive examination of consumer behavior within the Beauty and Cosmetics sector, specifically focusing on Topical Cosmeceutical products and Surgical/Non-surgical procedures. By analyzing demographics, social media trends, and consumer perceptions through a combination of quantitative and qualitative data, this research provides valuable insights into consumer choices and behaviors, guided by the Theory of Attribution and the Theory of Planned Behavior (TPB). In terms of its contributions to Beauty and Cosmetics marketing, this study presents integrated insights from diverse geographical regions such as Brazil, South Korea, the US, and qualitative data from Dubai, offering a nuanced global understanding of consumer behavior. Furthermore, by employing the Theory of Attribution and TPB, it elucidates how internal and external factors, cultural norms, and social contexts influence consumer preferences, behaviors and perceptions.



Qualitative discussions reveal the emotional dimensions of consumer decision-making, highlighting the importance of balancing immediate results with long-term maintenance and acknowledging cultural values. These insights have implications for both academia and industry, enriching theoretical understanding in consumer behavior research and emphasizing the need for a holistic view of consumers that considers emotional aspects alongside demographics. Additionally, the recognition of cultural values' impact on preferences contributes to understanding cross-cultural variations in beauty standards, suggesting avenues for further exploration. Despite its value, this study acknowledges limitations and suggests avenues for future research to expand samples, explore specific marketing strategies, and delve deeper into cultural influences for a more comprehensive understanding of the industry.

In conclusion, this research provides a pathway to comprehensively grasp consumer behavior within the Beauty and Cosmetics sector, which is pivotal for industry success amid evolving trends. Understanding the interplay of internal-external factors, culture, and attitudes is crucial in navigating this competitive domain and informing effective marketing strategies.

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**Appendix 1:** Keywords List.

Category	Keyword
Aesthetic Procedures	Facelift
Aesthetic Procedures	Brow Lift
Aesthetic Procedures	Thread Lift
Aesthetic Procedures	Buccal Fat Removal
Aesthetic Procedures	Chin Implant
Aesthetic Procedures	Rhinoplasty
Aesthetic Procedures	Lip Lift
Aesthetic Procedures	Jowl Lift
Aesthetic Procedures	Temple Lift
Aesthetic Procedures	Eyelid Lift
Aesthetic Procedures	Forehead Lift
Aesthetic Procedures	Autologous Fat Injection
Aesthetic Procedures	Botox Injection
Aesthetic Procedures	Chemical Peel
Aesthetic Procedures	Dermabrasion Facial
Aesthetic Procedures	Collagen Injection
Aesthetic Procedures	Facial Fat Injection
Aesthetic Procedures	Facial Filler
Aesthetic Procedures	Facial Liposuction
Aesthetic Procedures	Fox Eyes procedure
Aesthetic Procedures	Laser Skin Resurfacing
Aesthetic Procedures	Lip Flip
Aesthetic Procedures	Liquid Nose Job
Aesthetic Procedures	Microneedling
Aesthetic Procedures	Skin Boosters
Aesthetic Procedures	Radiofrequency Microneedling
Aesthetic Procedures	Liquid Facelift
Aesthetic Procedures	PRP Facial
Aesthetic Procedures	Facial Threads
Aesthetic Procedures	Facial Injections
Aesthetic Procedures	Lip Filler
Aesthetic Procedures	Cheek Filler
Aesthetic Procedures	Jawline Filler
Aesthetic Procedures	Nonsurgical Facelift
Aesthetic Procedures	Lip Augmentation
Aesthetic Procedures	Tear Trough Filler
Aesthetic Procedures	Temple Filler
Aesthetic Procedures	Non-Surgical Rhinoplasty
Aesthetic Procedures	Jawline Contouring
Aesthetic Procedures	Texas Face

Cosmeceuticals	Advanced age-defying cosmetic products
Cosmeceuticals	Anti-aging cosmeceuticals
Cosmeceuticals	Topical Botox alternatives
Cosmeceuticals	Anti-wrinkle skincare
Cosmeceuticals	Cellular rejuvenation cosmeceuticals
Cosmeceuticals	Collagen-boosting cosmeceuticals
Cosmeceuticals	Elasticity-restoring cosmeceuticals
Cosmeceuticals	Firming and lifting serums
Cosmeceuticals	Radiance-enhancing cosmeceuticals
Cosmeceuticals	Dermal filler creams
Cosmeceuticals	Non-injectable topical alternatives
Cosmeceuticals	Instant revitalizing serums
Cosmeceuticals	Non-surgical volumizer skincare
Cosmeceuticals	Non-surgical facelift cosmeceuticals
Cosmeceuticals	Non-invasive facial rejuvenation skincare
Cosmeceuticals	Needle-free cosmetic treatments
Cosmeceuticals	Instant facelift skincare products
Cosmeceuticals	Minimally invasive skincare
Cosmeceuticals	Fuller lip cosmetics
Cosmeceuticals	Lip augmentation serums
Cosmeceuticals	Lip enhancement balms
Cosmeceuticals	Lip plumping glosses
Cosmeceuticals	Nourishing lip serums
Cosmeceuticals	Eye lift creams
Cosmeceuticals	Eye lift cosmeceuticals
Cosmeceuticals	Eye rejuvenation serums
Cosmeceuticals	Facial contouring balms
Cosmeceuticals	Jawline firming cosmeceuticals
Cosmeceuticals	Wrinkle relaxer creams
Cosmeceuticals	Bioactive cosmeceuticals
Cosmeceuticals	Epidermal renewal cosmetics
Cosmeceuticals	Dermatologist-approved cosmeceuticals
Cosmeceuticals	Sunscreen with anti-aging benefits
Cosmeceuticals	Dermal volumizing cosmeceuticals
Cosmeceuticals	Filler-enhanced skincare
Cosmeceuticals	Non-injectable anti-aging cosmeceuticals
Cosmeceuticals	Non-injectable dermal filler skincare
Cosmeceuticals	Non-injectable plumping skincare treatments
Cosmeceuticals	At-home chemical peel
Cosmeceuticals	Clinical-strength serums

**Appendix 2: Websites List.**

Category	Website
Aesthetic Procedures	galderma.com
Aesthetic Procedures	sesderma.com
Aesthetic Procedures	cynosure.com
Aesthetic Procedures	allerganaesthetics.com
Aesthetic Procedures	merz.com
Aesthetic Procedures	allergan.com
Aesthetic Procedures	sinclair.com
Aesthetic Procedures	teoxane.com
Aesthetic Procedures	fillmed.com
Aesthetic Procedures	ibsagroup.com
Aesthetic Procedures	cromapharma.com
Aesthetic Procedures	vivacy.com
Aesthetic Procedures	neauvia.com
Aesthetic Procedures	jetema.com
Aesthetic Procedures	korupharma.com
Aesthetic Procedures	revitacare.net
Aesthetic Procedures	softfil.com
Aesthetic Procedures	wiqo.com
Aesthetic Procedures	jalupro.com
Aesthetic Procedures	caregen.com
Aesthetic Procedures	cmedaesthetics.com
Aesthetic Procedures	marllor.com
Aesthetic Procedures	abglab.com
Aesthetic Procedures	hyalual.com
Aesthetic Procedures	bio-science.org
Aesthetic Procedures	pluryal.com
Aesthetic Procedures	dexlevoaesthetic.com
Aesthetic Procedures	euroresearch.it
Aesthetic Procedures	medixasrl.com
Aesthetic Procedures	btc7.kr
Cosmeceuticals	skinceuticals.com
Cosmeceuticals	obagi.com
Cosmeceuticals	skinmedica.com
Cosmeceuticals	isclinical.com
Cosmeceuticals	eltamd.com
Cosmeceuticals	revisionskincare.com
Cosmeceuticals	zoskinhealth.com
Cosmeceuticals	neocutis.com

Cosmeceuticals	vivantskincare.com
Cosmeceuticals	epionce.com
Cosmeceuticals	drdennisgross.com
Cosmeceuticals	janmarini.com
Cosmeceuticals	pcaskin.com
Cosmeceuticals	sentelabs.com
Cosmeceuticals	alastin.com
Cosmeceuticals	hydropeptide.com
Cosmeceuticals	dermaceutic.com
Cosmeceuticals	paulaschoice.com
Cosmeceuticals	theordinary.com
Cosmeceuticals	drunkelephant.com
Cosmeceuticals	tataharperskincare.com
Cosmeceuticals	medik8.com
Cosmeceuticals	skinbetter.com
Cosmeceuticals	eucerin.com
Cosmeceuticals	dermalogica.com
Cosmeceuticals	isdin.com
Cosmeceuticals	niod.com
Cosmeceuticals	peterthomasroth.com
Cosmeceuticals	murad.com
Cosmeceuticals	perriconemd.com

**Appendix 3:** Additional Information about Pilot Qualitative Consumer Research.

Discussion Guide	
Opening	
1 2-3 min	<p>Arrival/Greetings: Hey there! Thanks for making time to chat with me. Where would you feel most comfortable for us to sit down and have a conversation?</p> <p>General intro/purpose of the discussion session: Today, we're going to have a relaxed chat for about 35 minutes. I'm really interested in getting to know you better and hearing about your lifestyle, preferences, and interests. It's going to be a casual conversation, and I'll be recording it with a voice recorder app for my own use.</p> <p>Creating a rapport with the consumer: So, let's start by getting to know you a bit. Could you share a little about yourself? Your hobbies, interests, and anything you'd like to tell me?</p> <p>Use probes, to know more about the consumer for the purpose of creating a rapport with her.</p>
HEART OF DISCUSSION	
2 5-10 min	<p>Guide discussion to a topic related to her skin: Today, I'd love to talk about skincare products. I'm curious to know more about you and your skin.</p> <p>Probe to get more information about what kinds of products are used related to this topic.</p> <p>Probe about how she decides what to use... product types used, not used, occasions, etc.</p> <p>Example of the Qs that could be asked:</p> <ul style="list-style-type: none"> <li>- Let's dive into what skincare products/procedures you use/think about undergoing. Can you tell me about the types of products you typically use/procedures think about undergoing and how you decide what to use and when?</li> <li>- What's your overall impression of skincare products? Do you have any recent experiences using them that you'd like to share?</li> <li>- When it comes to buying skincare products, what factors influence your decision? Can you give me some examples of specific factors that play a role?</li> <li>- What would make you a regular user of skincare products? Are there any particular features or benefits you look for in a product?</li> </ul>

<p>3 20 min.</p>	<p>(Product/Rejuvenation Category) in Depth. Now, let's focus on facial rejuvenation procedures and topical cosmeceuticals. Example of the Qs that could be asked: "Factors Influencing Decision-making and Perspectives on Facial Rejuvenation Procedures and Topical Cosmeceuticals:" - What plays a significant role in your decision-making process when choosing between facial rejuvenation procedures and topical cosmeceuticals? Can you elaborate on the factors that influence your decision? - Let's talk about aging. How does the process of aging affect your own perspective and attitude towards facial rejuvenation procedures and topical cosmeceuticals? Can you share some thoughts or experiences related to this? - How does your personal background and values shape your thoughts and decisions about facial rejuvenation procedures and topical cosmeceuticals? Can you share any specific examples? - In your opinion, what cultural values or societal influences might explain the varying effects of social media marketing campaigns on facial rejuvenation procedures and topical cosmeceuticals? Could you share some examples or observations based on your own experiences? - How have you observed social media marketing campaigns to impact people from different racial or ethnic backgrounds when it comes to facial rejuvenation procedures and topical cosmeceuticals? Can you provide some insights into the differences you've noticed? "The Influence of Social Media Marketing Campaigns on Decision-making and Growth of Facial Rejuvenation Procedures and Topical Cosmeceuticals:" - Social media marketing is everywhere these days. In what ways do you think it tries to shape our thoughts and behaviors around facial rejuvenation procedures and topical cosmeceuticals? Can you give me some examples of how you've seen this influence? - When you're considering the use of topical cosmeceuticals versus facial rejuvenation procedures, how does the presence of social media marketing campaigns impact your decision-making process? Can you describe any specific instances where these campaigns have influenced your decision or thought process? - How do you perceive the impact of social media marketing campaigns on the growth of facial rejuvenation procedures compared to topical cosmeceuticals? What observations or experiences have led you to this perception? "The Impact of Social Media and Social Media Influencers on Consumer Perceptions and Decision-making Regarding Facial Rejuvenation Procedures and Topical Cosmeceuticals:" - Social media has had a big impact on the beauty content industry. What do you think about its influence, especially regarding facial rejuvenation procedures and topical cosmeceuticals? Can you share any thoughts or observations on this topic? - Social media influencers have become quite influential. How do they shape your perception and decision-making when it comes to facial rejuvenation procedures and topical cosmeceuticals? Can you give me some examples of how their influence has impacted you or people you know? - From your point of view, how do social media influencers impact consumer perceptions and trends related to facial rejuvenation procedures and topical cosmeceuticals? Can you give me some insights into the specific ways in which they shape these perceptions and trends? "Marketing Strategies and Bridging the Gap between Topical Cosmeceuticals and Facial Rejuvenation Procedures through Social Media:" - Based on your own experiences and insights, what do you think the cosmetic industry should consider when they're developing marketing strategies for facial rejuvenation procedures and topical cosmeceuticals? What factors or aspects do you believe are important for them to focus on? - How do you see the gap between the fields of topical cosmeceuticals and facial rejuvenation procedures? Does it feel significant to you? Can you explain why or why not? - Can you share any examples or instances you've come across where social media marketing campaigns have made attempts to bridge the gap between facial rejuvenation procedures and topical cosmeceuticals? - How do you think the beauty industry can better connect the benefits and effects of topical cosmeceuticals with those of facial rejuvenation procedures through social media marketing? What strategies or approaches do you believe would be effective? - Finally, what do you think could be the potential benefits or drawbacks of establishing a connection between topical cosmeceuticals and facial rejuvenation procedures through social media marketing? Can you provide some thoughts or considerations on this matter? Probing phrases that might help: Help me understand more about that... What would you do differently? Why is that important to you? What do you mean by that? ACTIVITY - Sorting Pre and Post Procedure/Product Skin Improvement Pictures -I would like to show you a series of pictures featuring individuals who have undergone facial rejuvenation procedures or have used topical cosmeceuticals products. Your task is to sort these pictures into two groups: one group representing the pictures where you perceive a noticeable improvement in their skin condition after the procedure or product usage (post), and the other group representing the pictures where the improvement is not as evident or minimal (pre). -As you sort the pictures, please take some time to reflect on the specific aspects or features that help you differentiate between the pre and post procedure/product images. What visual cues or indicators stand out to you as signs of improvement or lack thereof? -Once you have sorted the pictures, I would like to hear your thoughts on the factors that influenced your decision-making process. What specific characteristics or changes in the skin condition caught your attention and influenced your sorting choices? -Feel free to share any additional insights or observations you have regarding the pictures and the perceived effectiveness of the facial rejuvenation procedures or topical cosmeceuticals products depicted. -Please take your time during this activity, and feel free to ask any questions or seek clarification if needed. Your perspective on these visual representations is valuable in understanding the impact of these procedures and products on skin improvement.</p>
<p>? min</p>	<p>Other topics you'd like to cover.... The importance of claimed benefits of the procedure/cosmetic product on the customer's willingness to buy/undergo that product/procedure?</p>
<p>CLOSING - Thank the participant for their valuable insights and contributions to the discussion.</p>	

**Note: Copies of before-and-after case pictures utilized in this research are available upon request from the author**