



# **Sustainable Sourcing of Organic Skincare Ingredients: A Critical Analysis of Ethical Concerns and Environmental Implications**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## ABSTRACT

This study presents a comprehensive analysis of the organic skincare and cosmetics industry, focusing on the sourcing practices of ingredients and their implications for consumer health, ethical considerations, and environmental impact. The research employs a quantitative approach, utilizing data from 700 working-class women, analyzed through descriptive statistics, correlation, and regression methods. The findings highlight a critical need for enhanced transparency and ethical accountability in sourcing practices within the industry. A significant correlation was identified between the geographical proximity of organic skincare producers to consumers and an increased risk of unethical and unsafe skincare products, underscoring the importance of stringent quality control and ethical oversight. Additionally, the research explored the environmental aspects of sourcing practices and found that, while there is a relationship with ecological footprints, the impact is less substantial than initially presumed. This points towards the necessity for a broader and more comprehensive approach to sustainability in the organic skincare industry. Another key finding is the strong correlation between the cost of sourcing ingredients and the likelihood of small-scale producers compromising on product safety and ethical standards. This reveals a fundamental challenge in balancing economic viability with ethical and safety considerations. Based on these findings, the study recommends that industry regulators adopt a holistic approach to sustainability, focusing on sustainable farming practices and reducing carbon footprints, especially for small-scale producers. Future studies are suggested to further investigate the long-term health and environmental impacts of organic skincare ingredients.

*Keywords: Organic skincare; sourcing practices; consumer health; ethical considerations; environmental impact; sustainability; small-scale producers; cosmetic industry.*

## 1. INTRODUCTION

There has been a growing concern about environmental and health-related issues within the global cosmetics industry, especially for skin care and beauty products [1]. This is demonstrated by the trend towards more organic skincare products and cosmetics considered more favorable to skin care than synthetically produced products containing high levels of artificial ingredients and chemicals. Consequently, this trend necessitates properly examining how these ingredients are obtained to make organic skincare and beauty products [2].

Bouslimani et al. [3], highlighted the significant impact of environmental consciousness on individual behavior, particularly fostering a positive inclination toward green consumption. This shift is underpinned by three key pillars: economic balance, health awareness, and protection. Consequently, the organic skincare market has transitioned from a niche category to one of substantial importance. This evolution reflects a growing trend among consumers prioritizing products with less environmental impact and greater health benefits.

The evolving awareness of health directly influences consumer behavior. In recent years, skincare products perceived as beneficial to both

health and beauty have gained popularity. Supporting this notion, [4] points out that health-conscious consumers modify their consumption patterns to express their views on the interplay between wellness and beauty, contributing to the increasing preference for organic skincare. Hence, ethical sourcing and consumption have become increasingly pressing in the cosmetics industry. But what exactly are "green cosmetics"?

According to Surber & Kottner [5] Green Cosmetics are formulated with ingredients sourced from natural resources, such as fruits and plants. These products, characterized by their natural composition, have seen a rise in demand accompanied by increasing prices. As highlighted by Liao et al. [6] green cosmetics are distinguished by being natural and devoid of chemicals, additives, or involvement in cruelty during production. To reduce the carbon footprint, González-Minero et al. [7] recommend cultivating active ingredients near production sites. Environmental considerations form a central aspect of green cosmetics. Nonetheless, as noted by Abdul-Talib & Japeri [8] while green cosmetics offer environmental and health advantages, they may come at a higher cost than counterparts made with petroleum products. Despite this, Kim & Seock [9] argue that the market is witnessing a gradual rise in the popularity of natural, sustainable, and environmentally friendly cosmetics.

Moreover, it is crucial to investigate health problems and implications stemming from the production practices of organic skincare product producers, especially those operating on a small scale. These concerns potentially jeopardize consumer health in both the short and long term and may also foreshadow future environmental pressures. Given the prevailing trends toward conscious consumption and responsible buying, subjecting the sourcing methods of organic skincare and cosmetics to careful scrutiny is imperative.

As organic skincare and cosmetics experience unrivaled demand, driven by factors like heightened environmentalism, as Li et al. [10] noted, and increased health consciousness, a substantial blind spot has emerged in managing the sourcing system for ingredients. As highlighted in the review of the green cosmetics market trend by Kim & Seock [11], consumers now pay more attention to products perceived as beneficial for health and beauty or, at the very least, not harmful to the environment. However, beneath this enthusiasm for 'green' ingredients lies a network of opaque supply channels with limited oversight in terms of verification. This gap prompts us to question these products' true sustainability, healthiness, and morality.

Production methods are not consistently standardized or universally controlled on an international scale. This lack of uniformity exposes consumers to potential health hazards and contributes to environmental issues. Assessing the lasting effects of these sourcing practices on the environment and human health becomes increasingly critical. Despite the intention to reduce carbon footprints and promote environmentally friendly practices, realizing these goals is not always evident. Currently, the industry stands at a juncture, prompting the need for reconciliation between organic-natural principles and environmentally responsible sourcing practices that authentically benefit consumers.

## 2. LITERATURE REVIEW

According to Choi et al. [12] the sudden surge in the popularity of organic skincare products is undoubtedly linked to a growing consumer awareness of environmental issues. It's not just about individual choices but reflects a broader societal response to global trends, such as the depletion of natural resources and a heightened environmental consciousness. Consumers are

now more insistent on adopting sustainable consumption practices. Life Cycle Assessment (LCA) takes on a particularly crucial role in the cosmetics sector, emphasizing the comprehensive evaluation of environmental impact throughout the entire product life cycle [13]. Beyond environmental considerations, a heightened focus on health consciousness drives the organic skincare trend. Synthetic cosmetics are falling out of favor as contemporary consumers express concerns about potential harmful effects [14]. This shift in consumer values, from prioritizing aesthetic advantages to emphasizing long-term health and beauty, is reinforced by the demand for non-toxic, skin-preserving products [15]. Studies further indicate increasing consumer awareness regarding issues like bioaccumulation or adverse biological effects associated with certain cosmetic ingredients [16].

Furthermore, the inclination towards using natural ingredients signals a shift in how we perceive what's beneficial or detrimental and brings forth numerous inquiries regarding safety, effectiveness, and scientific certification (or lack thereof) for consumers' guidance. Scientists have not agreed on these issues; research in this domain remains preliminary and inconclusive [17]. There's a notable absence of rigorous and in-depth studies supporting the assertions of natural skincare advocates. Moreover, the need for longer-term studies to assess the lasting impact of such products remains evident. The scientific uncertainty creates an opportunity for the skincare industry to delve into research in this area, ensuring that concerns about one's health are addressed seriously rather than being driven solely by marketing narratives [18].

In addition, the surge in environmentally and health-conscious consumer trends has significantly reshaped the skincare market. This shift has led to a rapid expansion in product variety, with green cosmetics gaining particular traction, especially in regions like Asia-Pacific [19]. However, the flourishing market validates that high product costs can impact consumer accessibility and purchasing motivation as the industry pivots toward green marketing and sustainable production attempts to align with consumer preferences [20]. A closer examination of these practices reveals that the actual outcomes don't always align with marketing claims, raising questions about the true sustainability and effectiveness of these products [21]. The evident gap signals a need for industry

regulation and practice enhancement. Moreover, prevailing market trends highlight challenges around inclusivity and accessibility for green cosmetics, attributed to their high prices and exclusive positioning, which calls for a more balanced approach advocate considering both the environmental and health benefits of green cosmetics, coupled with economic feasibility [22]. The suggestion is to make these products more widespread, allowing the average citizens of society to reap their advantages.

### **2.1 The Health Ethics of Ingredient Transparency in Organic Skincare**

Chin et al. [23] assert that ethical concerns related to organic skincare primarily revolve around the impact of chemical components on health. Consumers are increasingly worried about potential adverse effects associated with certain chemicals used in cosmetic products. Ethical considerations in this sector encompass ingredient transparency, safety, and a brand's responsibility to provide accurate information. Even if products are labeled as organic, it doesn't guarantee that all ingredients used are necessarily healthful. Terms like "natural" and "organic," commonly found in product names without official definitions, can be employed misleadingly. Even if a subjective term is combined with a negative descriptor like "danger" or "poison," it may still hide the threat posed by excessive levels of various chemicals known to carry health risks [24]. These issues underscore ethical concerns regarding the clarity and honesty of labeling practices and ensuring consumers are fully informed about what they apply to their skin [25].

According to Janany & Shanmugathas [26] many skincare products include various compounds, such as fragrances, preservatives, and stabilizers, commonly known to irritate the skin or trigger allergic reactions. Over the long term, these compositions can potentially contribute to more serious illnesses [27]. The ethical gap widens as cosmetics companies are not mandated to test for ingredient safety. They often have flexibility in their ingredient choices with limited well-founded evidence regarding a comprehensive understanding of long-term effects. This *laissez-faire* approach results in a lack of understanding and knowledge for the consumer, posing obstacles for those seeking to make healthy choices [28].

### **2.2 Chemical Implications and Consumer Health in Organic Skincare**

Cervellon & Carey [29] contends that even the organic skincare market may not be as healthful or safe as commonly perceived; the complexity of cosmetic chemistry suggests a nuanced reality. Natural ingredients, at times, undergo extensive processing, potentially yielding toxic byproducts or impurities along the way [30]. A major concern revolves around the potential endocrine-disrupting effects of certain chemicals found in skincare products. These disruptors can mimic or suppress naturally produced hormones, leading to a range of physiological disorders, from reproductive issues to cancer [31]. Take parabens, for instance. Commonly used as preservatives in cosmetics, they can also function as endocrine disruptors. While their use is regulated and deemed safe in small doses, cumulative exposure from many products on the market may surpass what one might imagine.

Burlando & Cornara [32] highlight another significant concern: the presence of carcinogenic compounds in skincare products. Some chemicals, even within legal limits, may pose long-term harm. This becomes particularly alarming for daily products, such as moisturizers and sunscreens. Using these products introduces a conflict between effectiveness and preservation on the one hand and potential long-term health risks on the other [33]. Additionally, considerations for skin sensitivities and allergies are crucial. Some natural ingredients may not be suitable for certain skin types, causing irritation, redness, allergies, or other reactions [34]. This underscores the responsibility of organic skincare brands to conduct proper testing and assess the suitability of their products for sensitive skin [35].

### **2.3 Ethical Consumption**

In the context of production, while consumers desire ethically produced goods, the reality suggests that such concerns aren't consistently implemented [36]. Research indicates this might be attributed to a mismatch between stated values and practical considerations like availability and price. Brand loyalty and a general lack of information about the ethical nature of consumption choices further contribute to this disparity [37]. This raises questions about the effectiveness of ethical branding methods and whether they align with consumers' values and needs [38]. A more sensitive perspective towards

how consumers navigate their conflicting ethical values and desires is crucial throughout this process, from consideration to decision-making to action or abstention [39].

In addition, navigating the terrain of reconciling ethical ideals with practical business realities poses a significant challenge for the cosmetics industry [40]. Despite considerable efforts by most companies to enhance their ethical practices, achieving full implementation of ethical production remains a formidable task [41]. The challenges lie in the intricacies of supply chains and conflict control strategies essential for maintaining a balance between profitability, return on investment, market competitiveness, and fostering education about responsible behavior [42]. This conflict between ethical ideals and economic necessities necessitates finding creative solutions that integrate ethics into everyday business without compromising product quality or impacting profitability [43].

## 2.4 Sourcing Practices

The cosmetics industry has faced increased scrutiny for its sourcing practices, drawing attention to the need for ethical and sustainable sources. Given the industry's diverse range of ingredients, its global supply chains often involve opaque and complex sourcing networks [44]. The challenge of overseeing such unity poses significant issues for upholding ethics, fair labor practices, environmental protection, and sustainable resource utilization along the supply chain [45]. While sustainable and ethical sourcing models are gradually emerging, they involve incorporating more ingredients from eco-farms, supporting biodiversity for minimal environmental impact, and seeking alternative sources from discarded materials in other industries (byproducts) for sustainable, cost-effective use [46]. However, these developments are often uneven, varying from company to company and product to product [47].

Ehlinger-Martin et al. [48] assert that finding a delicate equilibrium between ecology and consumer demand poses a considerable challenge in ethical sourcing. Despite the growing preference for natural and organic ingredients, ensuring their sustainable sourcing isn't always straightforward [49]. The cosmetics industry grapples with balancing exploiting natural resources and preserving them for future generations. Achieving this fundamental balance becomes even more intricate when considering

the necessity for product quality and consistency, a challenge with all-natural ingredients that vary based on availability [50].

Furthermore, sourcing practices lack the transparency needed. While some companies have made strides in disclosing their products' origins and supply chains, systematic reporting remains largely absent in the industry [51]. This lack of transparency hinders consumers' ability to make informed and responsible choices, and it constrains stakeholders from holding companies accountable for their sourcing methods [52].

## 2.5 Environmental Implications of Organic Skincare Ingredient Sourcing

Gabriel [53] emphasizes that when acquiring ingredients for organic skincare, it's crucial to prioritize ecological concerns, emphasizing sustainable practices and conservation. Organic skincare products often highlight their natural components and are deeply connected to environmentally friendly production methods [54]. This means steering clear of harmful synthetic pesticides or fertilizers, aligning closely with the principles of organic farming. By embracing these practices, organic skincare companies preserve soil fertility and encourage diverse ecosystems. This approach underscores a commitment not only to personal well-being but also to the broader health of the planet [55].

Pawestriningrum & Roostika [56] assert that sustainability transcends mere avoidance of harmful chemicals in organic skincare. Central to this is the imperative to conserve biodiversity, a cornerstone of sustainable agriculture. Ingredients for organic skincare must be cultivated in a manner that actively contributes to preserving and enriching biodiversity. This entails safeguarding natural habitats, abstaining from genetically modified seeds, and implementing ecologically mindful practices such as crop rotation [57].

However, the challenge arises when addressing the escalating demand for organic skincare products while upholding these biodiversity and sustainability ideals [58]. The intricate balance required becomes evident as even in organic cultivation, over-cultivation and monocropping can result in soil exhaustion and biodiversity loss if not meticulously managed. This intricate interplay highlights the importance of navigating the delicate equilibrium between meeting

consumer demands and upholding ecological principles in the organic skincare industry [59].

Furthermore, the organic skincare industry grapples with ethical concerns regarding land utilization and its impact on local communities and wildlife [60]. In certain regions, the demand for organic ingredients has led to significant changes in land use, risking the destruction of local ecologies and potentially displacing the indigenous population [61]. Ethical sourcing must, therefore, adopt a broader perspective on sustainability, considering not only the environmental implications of farming operations but also potential socio-economic side effects that may impact local communities and ecosystems [62].

## 2.6 Carbon Footprint and Transportation

The environmental impact of transporting ingredients for organic skincare products is a notable concern. The globalization of the skincare industry often entails importing ingredients from various regions, necessitating transportation and contributing to a significant carbon footprint [63]. The entire process, from farm to product, involves multiple stages of movement, assembly, and packaging, each contributing to the emission of greenhouse gases. Addressing the environmental footprint throughout this supply chain is crucial for holistic sustainability in the organic skincare industry [64].

Addressing this problem, certain organic skincare companies are actively working to minimize their carbon footprints. This includes a shift towards using local ingredients, thereby reducing the distance and emissions associated with transportation. In cases where local sourcing isn't feasible, brands explore efficient transportation and supply routes and invest in carbon offset programs [65]. Another crucial aspect is the packaging and distribution of the finished products. Companies are implementing recyclable or biodegradable packaging materials, adopting efficient packing methods, and incorporating green shipping practices to lessen their environmental impact. Some firms are innovating new formulations and packaging designs to reduce material use and waste [66].

However, there's a delicate balance between the desire for a diverse range of global ingredients and the commitment to reducing environmental impact. Many consumers seek exotic flavors

from distant locations, increasing transportation emissions. Brands are navigating the challenge of meeting consumer expectations for variety while staying true to their environmental responsibility pledges [67].

## 2.7 Health Implications and Safety of Organic Skincare Products

Azmi [68] accentuates that while organic skincare products are often considered harmless, it's crucial to recognize that natural doesn't guarantee safety for all. The misconception that organic or natural implies universal safety can be misleading. Even natural ingredients can cause allergies, skin sensitivities, and other dermatological issues in certain individuals. Essential oils, commonly found in organic products, can be potent allergens for some consumers.

Additionally, the composition of natural ingredients varies based on factors like harvest time and geographical origin. These unpredictable variations can result in uneven product performance and unforeseen skin reactions. The natural label doesn't necessarily equate to being universally healthy or safe for everyone. It underscores the importance of individual considerations and awareness, acknowledging that even organic skincare may pose risks for certain skin types or conditions [69].

According to Guan [70] the variability in natural ingredients undermines the perception of organic products as universally safe. Consequently, consumers should know that the 'organic' label doesn't automatically ensure safety and should not be unquestioningly accepted, much like conventional products. This caution is particularly crucial for individuals with skin sensitivities regarding cosmetics-style items. For instance, skincare lacks consistent regulations for terms like 'organic,' leading to products labeled as such that may not conform to organic certification standards. This inconsistency can potentially mislead consumers regarding the quality and safety of the products they choose, emphasizing the need for vigilance and informed decision-making in organic skincare [71].

Furthermore, the absence of synthetic preservatives in organic skincare contributes to shorter shelf life and increased risk of bacterial contamination. While aligned with the organic skincare ethos, this poses a safety concern,

especially for products applied to sensitive areas like around the eyes or on sores. Proper storage and usage guidelines exist to mitigate these risks, emphasizing the need to inform consumers [72]. Another challenge impacting the standardization of organic skincare lies in the variability of ingredient quality. Natural ingredients can significantly differ in the concentration of active compounds, influencing the product's efficacy and safety. Without standardized quality control measures, consumers may not receive the expected value for their purchase and, in some cases, might be exposed to excessive concentrations. Establishing clear standards for ingredient quality is crucial for ensuring the safety and effectiveness of organic skincare products [73].

In addition, ensuring the safety of organic skincare goes beyond organic ingredients; it requires control over the manufacturing process. While ingredients may be organic, the extraction and combination processes can introduce contaminants that alter ingredient composition, potentially harming the skin [74]. To enhance the safety of organic skincare products, relevant bodies must implement stricter and consistently applied standards. This includes imposing tougher labeling requirements to provide comprehensive information about ingredients, establishing quality control standards for natural substances, and conducting safety testing that considers the unique formulations used in organic products [75]. These measures are essential for maintaining the integrity and safety of organic skincare, addressing potential risks introduced during the manufacturing phase [76].

## 2.8 Global Regulatory Landscape and its Impact on Health and Safety

The global cosmetics industry, marked by rapid development and international reach, poses a significant challenge in establishing consistent standards for health and safety. The disparities in regulatory systems among different countries have profound implications for organic skincare [77]. For instance, in the European Union, cosmetics are regulated under (EC) No.1223/2009, a framework succeeding the earlier 76/768 EC Directive. This harmonized approach ensures consumer protection uniformly across EU member states, offering similar levels of product safety throughout Europe. The framework reflects a commitment to technical advancement, scientific knowledge, and consumer safety [78].

According to Samper et al. [79] in the United States, cosmetics are regulated under the Federal Food, Drug & Cosmetic Act (FD&C Act) and the Fair Packaging and Labeling Act (FPLA), which have governed the industry since 1938 and 1966, respectively. However, compared to the EU's regulatory framework, these laws have undergone minimal revisions over the years, indicating a slower evolution and progress in regulatory standards. This lag may impact the industry's ability to keep up with advancements and global consumer expectations. In Canada, the Cosmetic Regulation Act (1977) and Food and Drugs Act (1985) have seen only marginal revisions, indicating a need for updates to align with contemporary scenarios, particularly in the context of organic skincare and cosmetic production [80].

Conversely, Japan and China have recently revised their cosmetic regulations. In 2014, Japan's Pharmaceutical and Medical Devices Law (PMDL) succeeded the Pharmaceutical Affair Law (PAL) of 1960. In China, institutional reforms have been underway since 2018, culminating in the implementation of the Cosmetic Supervision and Administration Regulation (CSAR) in 2021, succeeding the Cosmetics Hygiene Supervision Regulations (CHSR) of 1990, [81]. The latter introduced verification processes such as good manufacturing practices (GMPs).

According to SUMANTO [82] in Brazil, the cosmetic sector is regulated by three authorities—the Ministry of Health, the Brazilian Health Regulatory Agency (ANVISA), and the Hygiene, Perfume, Cosmetics, and Sanitizing Products Management (GHCOS). Each authority has its areas of expertise, demonstrating consistent progression over the years in legislating Brazil's cosmetic industry. The variations in different regulatory environments highlight the global challenge of establishing consistent safety standards for organic skincare products. These differences impact everything from how ingredients are collected and analyzed to product labeling, influencing drug safety. An ingredient approved and legalized in one area may face restrictions or prohibitions in another, creating double standards that hinder international companies from developing products with consistent quality across countries [83].

Furthermore, these regulatory mismatches make it challenging for consumers to identify genuinely

safe and high-quality organic skincare products. The lack of standardized global standards can lead to confusion and mistrust among consumers, who may struggle to assess the impact of varying regulations on product safety. Achieving greater harmonization in regulatory frameworks is essential for promoting transparency, consumer confidence, and the consistent quality of organic skincare products globally [84].

In addition, to overcome the multifaceted challenges surrounding organic skincare product safety, an emerging body of research emphasizes the need for enhanced coordination among global cosmetic regulations [85]. This strategic approach seeks to streamline regulatory processes and cultivate heightened consumer confidence in organic skincare. The advocacy for coordination becomes particularly crucial in certifying the adoption of the highest safety standards across the industry.

## **2.9 Economic Considerations, Accessibility, and Ethical Challenges in Organic Skincare**

According to Saeed [86] a challenge arises when skincare product producers struggle to obtain affordable organic ingredients, posing an ethical dilemma. Under the pressure of maintaining profitability, some producers might be tempted to compromise on standards. This is particularly evident in sourcing organic ingredients, which can often be significantly more expensive than their non-organic counterparts. To counterbalance these costs and keep prices competitive, there's a risk that some producers may resort to using lower-quality ingredients or offering products with less organic content than they claim [87]. Beyond misleading consumers, such practices present a tangible threat to health. When standards are not met, products may contain more chemicals or non-organic materials than advertised, posing a genuine risk to consumers' health [88]. This raises ethical concerns and contradicts the fundamental principle of organic skincare—to provide products that are safer and more natural than mainstream skincare. From a purification and processing standpoint, small-scale organic skincare producers may find it challenging to ensure their ingredients meet safety standards for regular use. This technical challenge can arise, especially for those operating on a limited budget or lacking expertise in this domain. In such cases, important safety measures may be

overlooked, jeopardizing the overall safety of the products they offer and putting consumers' health at risk [89].

Rossolatos [90] asserts that these problems are exacerbated by the direct links between producers and consumers via the Internet. Producers often evade traditional supervision, utilizing online platforms to reach consumers directly. This situation poses a significant risk—products not reviewed by required government agencies can still be sold. Consumers face challenges in determining whether these products meet safety standards without regulatory oversight. This raises the crucial issue of consumer responsibility. Are consumers inadvertently purchasing harmful products due to this lack of oversight?

## **2.10 Literature Gap Analysis**

According to Doh et al. [91] the burgeoning enthusiasm for the organic lifestyle is fueling demand in skincare markets. Yet, a notable gap exists with the absence of uniform global standards governing these products. Consequently, the quality of organic skincare products varies widely—some may be safe but inconsistent, while others, touted as panaceas, may ultimately do more harm than good.

Furthermore, the expense of organic production hinders accessibility and equity in health-conscious consumer choices. Supervising small-scale producers poses another significant loophole, compounded by the challenges presented by online e-commerce venues with minimal official oversight. This lack of regulation is detrimental to both consumer safety and the proper consumption of skincare products [92].

The synthesis of these findings delves into the intricate interplay between economics, public safety, and ethics in organic skincare. While organic products are often promoted as healthier and more environmentally friendly than their industrial counterparts, the combination of inadequate quality maintenance standards and exorbitant costs renders them unattainable for most consumers, posing a health threat. The global disparity in regulations and the struggle of small-scale producers to meet safety standards without compromising profitability further compound these challenges [93]. What is imperative is a pragmatic solution that considers both consumer safety and economic sustainability concurrently. By charting a course



toward the casual accessibility of organic topical products, we can ensure that the benefits of such products extend to all members of society.

## 2.11 Research Aim

This study hopes to analyze ingredients sourcing practices of organic skincare and cosmetics products to address those consumers' concerns and know what can be done environmentally and ethically that places human beings at the center.

### 2.11.1 Research objectives

1. To examine and evaluate the current sourcing practices of ingredients used in organic skincare cosmetics.
2. To analyze the ethical concerns associated with the use of organic skincare and cosmetics and implications on consumers health
3. To assess the environmental issues related to the sourcing of organic skincare ingredients.
4. To provide recommendations for improving responsible ingredient sourcing practices and healthy organic skincare products consumptions for stakeholders in the cosmetics industry.

### 2.12 Research Hypothesis

**H<sub>1</sub>:** Current sourcing practices of ingredients in organic skincare cosmetics are significantly associated with ethical concerns, impacting consumer health.

**H<sub>2</sub>:** There is a significant relationship between proximity of organic skin care producers to cosmetic consumers and increased risk of unethical and unsafe skin care products.

**H<sub>3</sub>:** Environmental issues related to the sourcing of organic skincare ingredients significantly affect the ecological footprint of these products.

**H<sub>4</sub>:** There is a positive correlation between the cost of sourcing organic skincare ingredients and the likelihood of small-scale producers compromising on product safety and ethical standards.

## 3. METHODS

This study adopted a quantitative approach, utilizing a survey research strategy to gather primary data. The survey design was specifically structured to explore the intricate relationships between various factors in the organic skincare industry, including consumer perceptions,

economic considerations, and health implications. The choice of a quantitative approach was driven by the need to obtain measurable and statistically analyzable data that could provide a robust basis for testing the formulated hypotheses. The questionnaires used as the research instrument were meticulously developed to ensure comprehensive coverage of the study's themes. Questions were designed to be clear, concise, and unbiased, ensuring that they effectively captured respondents' experiences and perceptions. The questionnaire encompassed a range of question types, including Likert-scale items for attitudes and experiences. Purposive sampling was employed to select the sample of working-class women. This method was chosen to target a specific demographic that was presumed to have unique insights into the intersection of economic factors with health and ethical considerations in organic skincare. The criteria for selection included socioeconomic status (working-class) and gender (women). The survey was disseminated online across various platforms frequented by the target demographic. These platforms were selected based on their popularity and accessibility among the intended respondents. Online distribution was chosen for its wider reach and cost-effectiveness, allowing for the collection of a sizable amount of data within a relatively short period. The responses were collected and stored with a strong emphasis on data integrity and privacy. Respondents were informed about the purpose of the study, and their consent was obtained. Confidentiality was assured, with data being used solely for research purposes. The initial step in data analysis involved descriptive statistics to understand the demographic characteristics of the sample and gain preliminary insights into their attitudes and experiences. For hypothesis testing, both correlation and regression analyses were utilized. Correlation analysis helped identify patterns and associations between various variables. Regression analysis was employed to understand the causal relationships and the strength of these relationships between independent variables (such as cost of sourcing and proximity of producers to consumers) and dependent variables (like consumer health risks and ecological footprint).

## 4. RESULTS

The demographic analysis unveils a diverse participant distribution, highlighting the predominant age group of 26-30 (32.4%). This

diversity becomes pivotal in comprehending the spectrum of perspectives within our surveyed population.

How often do you purchase organic skincare and cosmetics products?

The research underscores a noteworthy frequency of organic skincare product purchases, with a substantial cohort (33.3%) displaying a recurring "Always" purchase pattern. Addressing the prevalence of adverse effects, it is noteworthy that 58% of respondents experience these effects, highlighting the urgency for concentrated efforts on product safety and potential health implications. This insight, derived from a sample of 700 respondents, underscores profound implications for consumer safety and ethical considerations within the skincare industry.

Question 6: Do you feel that organic skincare products sourced locally are generally safer?

The data suggests that most respondents view locally sourced organic skincare products as safe, with 62.7% expressing positive sentiments (SA + A). However, it's noteworthy that 15.7% hold a neutral or negative stance (N + D + SD). This divergence in opinions could spark an interesting discussion at the table, exploring

factors influencing perceptions of safety in organic skincare.

Question 7: Have you ever experienced adverse effects from using organic skincare products?

The survey results show that a majority (57.6%) of respondents have experienced adverse effects from using organic skincare products. This raises an interesting point for discussion, exploring the nature of these adverse effects and the potential reasons behind them.

Question 8: Regarding any adverse effects you may have experienced from using organic skincare products, please rate the severity of these effects?

The analysis of adverse effects severity indicates a spectrum of experiences among respondents. Noteworthy findings include that 29.3% reported no adverse effects, while others detailed mild to severe experiences. This nuanced perspective underscores the importance of understanding the diverse impacts of organic skincare products, contributing valuable insights for user satisfaction and safety considerations.

Question 11: How does the cost of organic skincare products influence your purchasing decisions.

**Table 1. Age distribution**

	<b>N</b>	<b>%</b>
20-25years	197	28.1%
26-30years	227	32.4%
31-35years	127	18.1%
36-40Years	93	13.3%
41-45Years	56	8.0%
Total	700	100%

**Table 2. Purchase of organic skincare and cosmetics products**

	<b>N</b>	<b>%</b>
Always	233	33.3%
Occasionally	260	37.1%
Often	104	14.9%
Rarely	64	9.1%
Others	39	5.6%
Total	700	100%

**Table 3. Organic skincare products sourced locally are generally safer**

	<b>N</b>	<b>%</b>
SA	201	28.7%
A	238	34.0%
N	151	21.6%
D	49	7.0%
SD	61	8.7%
Total	700	100%

**Table 4. Adverse effects from using organic skincare products**

	N	%
YES	403	57.6%
NO	297	42.4%
Total	700	100%

**Table 5. Severity of the effects**

	N	%
No adverse effects experienced	205	29.3%
Mild (Barely noticeable and did not require any treatment)	194	27.7%
Moderate (Noticeable but managed with over-the-counter treatment or self-care)	176	25.1%
Severe (Required professional medical treatment or consultation)	68	9.7%
Very Severe (Led to significant health issues or long-term effects)	57	8.1%
Total	700	100%

**Table 6. Cost of organic skincare products influence purchasing decisions**

	N	%
Significantly	271	38.7%
Moderately	252	36.0%
Slightly	123	17.6%
Not at all	54	7.7%
Total	700	100%

**Table 7. Small-scale producers of organic skincare products are more likely to compromise product safety**

	N	%
SA	198	28.3%
A	244	34.9%
N	145	20.7%
D	52	7.4%
SD	61	8.7%
Total	700	100%

Question 12: Do you believe that small-scale producers of organic skincare products are more likely to compromise product safety?

The data highlights that a significant proportion of respondents (38.7%) are significantly influenced in their purchasing decisions by the cost of organic skincare products. Additionally, 36% are moderately influenced, suggesting that cost is a substantial factor for a majority. Meanwhile, a substantial portion (63.2% with SA + A) believes that small-scale producers of organic skincare products are likely to compromise product safety. This duality in perspectives reveals the impact that uncensored production of organic skincare products could have on health and environmental indices.

#### 4.1 Hypothesis Testing

**Hypothesis 1:** Current sourcing practices of ingredients in organic skincare cosmetics are significantly associated with ethical concerns, impacting consumer health.

The regression analysis explored the relationship between the dependent variable (Ethical concerns) and independent variables (Sourcing for Organic Skincare Products) revealing a positively significant relationship between these two variables ( $r=.961$ ,  $p=.000$ ). This relationship was further shown to be very strong with a beta value close to 1 (Beta =.961) This means that sourcing for organic Skincare Products raises some ethical concerns; hence we accept the hypothesis and state that the

current ingredients used for the creation of organic Skincare Products raise some ethical concerns about its usage.

**Hypothesis 2:** There is a significant relationship between the proximity of organic skin care producers to cosmetic consumers and the increased risk of unethical and unsafe skin care products.

The regression analysis between the dependent variable (increased risks) and independent variables (Proximity) reveals a positively significant relationship between these two variables ( $r=.910$ ,  $p=.000$ ). This relationship was further shown to be very strong, with a beta value close to 1 (Beta  $=.910$ ). This means there is an increase in the risk of using the organic product due to proximity; hence we accept the hypothesis and state that proximity to organic product increases the risk of being affected by its usage.

**Hypothesis 3:** Environmental issues related to sourcing organic skincare ingredients significantly affect the ecological footprint of these products.

The regression analysis result above provides understanding to the relationship between the dependent variable (Ecological Footprint) and

independent variables (Sourcing Practice of organic skincare products). It was observed that a positive weak significant relationship exists between these two variables ( $r = .231$ ,  $p=.000$ ). This relationship was further shown to be very weak with a beta value far from (Beta  $=.231$ ), this means that although there is a significant relationship, it seems to be very weak. Hence, we reject the hypothesis and state that sourcing for organic products has little to no effect on the area's ecological footprint.

**Hypothesis 4:** There is a positive correlation between the cost of sourcing organic skincare ingredients and the likelihood of small-scale producers compromising product safety and ethical standards.

A Pearson correlation was carried out to understand the relationship between cost and ethical standards of respondents who use organic products. It was observed that a very strong significant relationship ( $r=.962$  and  $p=.000$ ) exists. This shows that the cost of the product has a huge role in the type of organic products accessed by the respondent. For this reason, we accept the hypothesis and state that cost has a significant role in the ethical standards and accessibility to organic skincare products.

**Table 8. Data statistics**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3657.989	1	3657.989	8534.552	.000 <sup>b</sup>
	Residual	299.169	698	.429		
	Total	3957.159	699			

a. Dependent Variable: Ethical Concerns

b. Predictors: (Constant), Sourcing for Organic Skincare Products

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.961 <sup>a</sup>	.924	.924	.65468

a. Predictors: (Constant), Sourcing for Organic Skincare Products

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.311	.053		5.897	.000
	Sourcing for Organic Skincare Products	1.989	.022	.961	92.383	.000

a. Dependent Variable: Ethical Concerns

**Table 9. Model summary (Hypothesis 2)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.910 <sup>a</sup>	.827	.827	1.04646		
<i>a. Predictors: (Constant), Proximity</i>						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3661.588	1	3661.588	3343.694	.000 <sup>b</sup>
	Residual	764.361	698	1.095		
	Total	4425.949	699			
<i>a. Dependent Variable: Increase Risk</i>						
<i>b. Predictors: (Constant), Proximity</i>						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.279	.109		2.562	.011
	Proximity	1.422	.025	.910	57.825	.000
<i>a. Dependent Variable: Increase Risk</i>						

**Table 10. Model summary (Hypothesis 3)**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	.231 <sup>a</sup>	.054	.052	1.190		
<i>a. Predictors: (Constant), Sourcing practices of Organic Skincare Products</i>						
ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.933	1	55.933	39.474	.000 <sup>b</sup>
	Residual	989.031	698	1.417		
	Total	1044.964	699			
<i>a. Dependent Variable: Ecological Footprint</i>						
<i>b. Predictors: (Constant), Sourcing practices of Organic Skincare Products</i>						
Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.643	.115		14.299	.000
	Sourcing Practices of Organic Skincare Products	.369	.059	.231	6.283	.000
<i>a. Dependent Variable: Ecological Footprint</i>						
<i>b.</i>						

**Table 11. Correlations results**

		<b>Cost</b>	<b>Ethical Standards</b>
Cost	Pearson Correlation	1	.962**
	Sig. (2-tailed)		.000
	N	700	700
Ethical Standards	Pearson Correlation	.962**	1
	Sig. (2-tailed)	.000	
	N	700	700

\*\**. Correlation is significant at the 0.01 level (2-tailed).*

## 5. DISCUSSION

The current sourcing practices of ingredients in organic skincare cosmetics are found to be significantly associated with ethical concerns, thereby exerting a tangible impact on consumer health [94]. Identifying ethical concerns as the dependent variable in this study sheds light on the intricate relationship between ingredient sourcing and broader ethical considerations within the cosmetics industry [95]. In alignment with the research questions, the findings reveal a discernible connection between sourcing practices and ethical implications. Organic skincare products, often marketed as sustainable and health-conscious, exhibit variations in ethical sourcing standards. The acceptance of this relationship underscores the need for a comprehensive evaluation of ingredient supply chains in the skincare sector [96].

Comparatively analyzing these results with existing literature exposes a critical gap in ethical considerations within the organic skincare domain. While previous research has explored the health benefits of organic cosmetics, the ethical dimensions of ingredient sourcing have been relatively understudied. By linking sourcing practices to ethical concerns, this study contributes to a more holistic understanding of the organic skincare industry [97]. Interpreting the observed patterns, it becomes evident that consumers' health is intricately tied to the ethical choices made by cosmetic companies. Ethically sourced ingredients align with consumers' growing awareness of sustainability and contribute to the overall well-being of individuals using these products [98]. Conversely, lax ethical standards in ingredient sourcing pose potential risks to consumer health and challenge the presumed benefits associated with organic skincare [99].

It is essential to recognize the complexity of the cosmetics supply chain and the potential

influence of critical factors such as investigating specific sourcing practices, exploring the impact of certifications, and assessing consumer awareness of ethical considerations in skincare [100]. The findings of this study emphasize the importance of transparent ingredient-sourcing practices within the organic skincare industry [101]. This knowledge is pertinent for consumers making informed choices and for industry stakeholders aiming to cultivate trust and credibility. Theoretical implications lie in integrating ethical dimensions into existing frameworks for evaluating skincare product attributes, providing a more comprehensive model for industry analysis [102].

This study elucidates the substantial association between current sourcing practices of ingredients in organic skincare cosmetics and ethical concerns, ultimately influencing consumer health. The finding reveals a critical correlation between the geographical proximity of organic skincare producers and cosmetic consumers, indicating a heightened risk associated with unethical and unsafe skincare products [103]. This insight has profound implications for consumer safety and ethical considerations within the skincare industry. The pronounced relationship between proximity and increased risk is substantiated, suggesting that as consumers approach the source of organic skincare products, the likelihood of encountering items with ethical and safety concerns significantly rises [104]. This elevated risk underscores the intricate interplay between geographical location and the ethical standards skincare producers uphold. Consumers residing close to these producers face a tangible impact on the safety and ethical considerations associated with the skincare products they use. Notably, the study accepts Hypothesis 2, asserting that proximity to organic skincare producers increases the risk of being affected by product usage. The empirical evidence resonates with the

expectation that geographical proximity can serve as a critical determinant of skincare products' ethical and safety sector.

These findings have far-reaching consequences for both consumers and industry stakeholders. Consumers, particularly those close to production centers, are urged to exercise heightened diligence in scrutinizing the ethical practices and safety standards of the skincare products they choose [105]. Simultaneously, industry players are prompted to recognize the geographical dimension as crucial in shaping consumer perceptions of product safety and ethical sourcing. The study uncovers a compelling account—geographical proximity to organic skincare producers is intricately linked to an increased risk of encountering skincare products with ethical and safety concerns [106]. This finding accentuates the need for a more than subtle understanding of the geographical dynamics influencing consumer health and ethical considerations in the skincare industry.

The study further explains the intricate relationship between sourcing practices of organic skincare ingredients and their consequential impact on the ecological footprint of these products [107]. The study reveals a statistically significant connection between sourcing practices and the ecological footprint, suggesting that the environmental implications extend beyond the immediate production phase of organic skincare products. However, it's crucial to note that the magnitude of this impact indicates a subtle influence on the overall ecological footprint [108]. The rejection of the hypothesis, asserting a significant impact of sourcing on the ecological footprint, underscores the need for a balanced understanding, as highlighted by Chen and Wang [109]. This implies that, although a relationship exists, it might be more nuanced and less pronounced than initially assumed. This insight has implications for both the skincare industry and environmental sustainability advocates. Industry stakeholders may need to consider a holistic approach to mitigating the environmental impact, addressing factors beyond sourcing practices. Environmental advocates, on the other hand, might find the results an opportunity to encourage comprehensive sustainability practices rather than focusing solely on sourcing.

The study prompts a thoughtful reflection on the complex interplay between environmental issues related to sourcing practices and the resulting ecological footprint of organic skincare products [110]. While present, the significance of this relationship calls for a nuanced understanding, recognizing the multifaceted nature of environmental impacts within the skincare industry. A compelling positive correlation exists between the cost of sourcing organic skincare ingredients and the likelihood of small-scale producers compromising on product safety and ethical standards [111]. This study implies that as the cost of sourcing organic skincare ingredients increases, there is a pronounced tendency for small-scale producers to compromise on both product safety and ethical standards. The acceptance of the hypothesis, asserting the significant role of cost in ethical standards and accessibility to organic skin care products, aligns with empirical evidence [112] affirming economic factors plays a pivotal role in shaping the ethical dimensions of the products accessed by consumers.

These findings hold implications for producers and consumers within the organic skincare industry. Small-scale producers may need to strike a delicate balance between cost considerations and aligning towards a robust ethical and safety standard. Consequently, consumers are encouraged to discern and understand the potential trade-offs associated with lower-cost organic skincare products. The study provides robust evidence that the cost of sourcing organic skincare ingredients is intricately linked to the ethical standards upheld by small-scale producers. This insight prompts a nuanced consideration of the economic factors influencing the ethical context of organic skincare products, offering valuable guidance for industry stakeholders and consumers alike [113-116].

## 6. CONCLUSION AND RECOMMENDATIONS

The study conducted a comprehensive exploration of the organic skincare and cosmetics industry, scrutinizing the sourcing practices of ingredients and their subsequent impact on consumer health, ethical considerations, and environmental implications. The research findings show the necessity for increased transparency and ethical accountability in sourcing practices. The study

also highlights the correlation between the geographical proximity of organic skincare producers to consumers and the heightened risk of encountering unethical and unsafe products. This finding is critical, as it stresses the need for vigilant quality control and ethical oversight, especially for small-scale producers who are directly accessible to consumers via online platforms. Also, the research sheds light on the environmental considerations related to sourcing practices. Although the study observed a relationship between sourcing practices and ecological footprints, the impact was found to be less significant than anticipated. This suggests that a broader approach encompassing various sustainability aspects is essential to truly minimize the environmental impact of organic skincare products. Finally, the study reveals a strong correlation between the cost of sourcing ingredients and the tendency of small-scale producers to compromise on product safety and ethical standards. This points to a critical challenge in balancing economic viability with ethical and safety obligations in the skincare industry.

The study recommends that industry regulators should engage a holistic approach to regulating the sustainability and sourcing of ingredients used in the production of organic skin care products, by encouraging sustainable farming practices and implementing measures that reduce the carbon footprint through local sourcing (especially for small scale producers).

This study was limited in respect to data collection which focused on the working-class women demographic. While this group provided valuable insights, it's important to note that their perspectives may not fully represent the broader population's views on organic skincare and cosmetics. The focus on a particular socioeconomic and gender group limits the extent to which these findings can be generalized to other demographics, including men, other age groups, and different socioeconomic classes. Also, the survey was distributed through online platforms, which might have influenced the type of respondents who participated. Individuals with more access to and familiarity with the internet and these platforms might be overrepresented in the data. This mode of distribution may have inadvertently excluded potential respondents who lack regular internet access or are not

active on these platforms, potentially biasing the sample.

Further studies should be conducted to examine the long-term health and environmental impacts of organic skincare ingredients, to provide deeper insights into the sustainability of these products. Also, future research should aim to include a more diverse range of demographics, encompassing different genders, age groups, and socioeconomic backgrounds. This broader inclusion would enable a more comprehensive understanding of varying perspectives on organic skincare and cosmetics, enhancing the generalizability of the findings.

## CONSENT

As per international standards or university standards, respondents' written consent has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## REFERENCES

1. Thibane VS, Ndhala AR, Abdelgadir HA, Finnie JF, Van Staden J. The cosmetic potential of plants from the Eastern Cape Province traditionally used for skincare and beauty. *South African Journal of Botany*. 2019;122:475–483. Available: <https://doi.org/10.1016/j.sajb.2018.05.003>
2. Rubin CB, Brod B. Natural Does Not Mean Safe—The Dirt on Clean Beauty Products. *JAMA Dermatology*. 2019;155(12). Available: <https://doi.org/10.1001/jamadermatol.2019.2724>
3. Boulimani A, Da Silva R, Kosciolk T. The impact of skin care products on skin chemistry and microbiome dynamics. *BMC Biology*. 2019;17(1). Available: <https://doi.org/10.1186/s12915-019-0660-6>
4. Kokoi I. Female Buying Behaviour Related to Facial Skin Care Products;2011. [www.theseus.fi](http://www.theseus.fi). Available: <https://www.theseus.fi/handle/10024/26464>



5. Surber C, Kottner J. Skin care products: What do they promise, what do they deliver. *Journal of Tissue Viability*. 2017;26(1):29–36. Available: <https://doi.org/10.1016/j.jtv.2016.03.006>
6. Liao C, Lee W, Lai Y. The relationship between container colors and the beauty benefits of skin care products. *Color Research & Application*. 2017;43(2):279–290. Available: <https://doi.org/10.1002/col.22191>
7. González-Minero F, Bravo-Díaz L. The use of plants in skin-care products, cosmetics and fragrances: Past and present. *Cosmetics*. 2018;5(3):50. Available: <https://doi.org/10.3390/cosmetics5030050>
8. Abdul-Talib AN, Japeri N. Brand consciousness and brand loyalty: A study on foreign brand beauty and skin care products. *Www.igi-Global.com; IGI Global*;2020. Available: <https://www.igi-global.com/chapter/brand-consciousness-and-brand-loyalty/250543>
9. Kim S, Seock Y-K. Impacts of health and environmental consciousness on young female consumers' attitude towards and purchase of natural beauty products. *International Journal of Consumer Studies*. 2009;33(6):627–638. Available: <https://doi.org/10.1111/j.1470-6431.2009.00817.x>
10. Li Lall N, Kishore N. Are plants used for skin care in South Africa fully explored? *Journal of Ethnopharmacology*. 2018;153(1):61–84. Available: <https://doi.org/10.1016/j.jep.2014.02.021>
11. Kim S, Seock YK. Impacts of health and environmental consciousness on young female consumers' attitude towards and purchase of natural beauty products. *International Journal of Consumer Studies*, 2009;33(6):627–638. Available: <https://doi.org/10.1111/j.1470-6431.2009.00817.x>
12. CHOI JW, YOO HG, KWON YE. Women's skin care factors affecting korean women's skin and beauty industry market. *Journal of Industrial Distribution & Business*. 2019;10(8):25–32. Available: <https://doi.org/10.13106/ijidb.2019.vol10.no8.25>
13. Rahmaniar R, Ilham RN, Sinta I. Analysis of factors affecting customer satisfaction with ms glow skin care In Kota Tebing Tinggi. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAS)*. 2022;2(5):773–782. Available: <https://doi.org/10.54443/ijebas.v2i5.411>
14. Febriyanti DE, Arifin S. Analisis strategi pemasaran secara online melalui tiktok dan instagram terhadap volume penjualan skincare justmine beauty pada agen yuyun di lamongan. *Neraca: Jurnal Ekonomi, Manajemen Dan Akuntansi*. 2023;1(1):344–352. Available: <https://jurnal.kolibi.org/index.php/neraca/article/view/72>
15. Abalaka AI, Olaniyi OO, Adebisi OO. Understanding and Overcoming the limitations to strategy execution in hotels within the small and medium enterprises sector. *Asian Journal of Economics, Business and Accounting*. 2023;23(22):26–36. Available: <https://doi.org/10.9734/ajeba/2023/v23i221134>
16. McKelvey W, Jeffery N, Clark N, Kass DJ. Population-Based inorganic mercury biomonitoring and the identification of skin care products as a source of exposure in New York City. *Environmental Health Perspectives*. 2010;119(2):203–209. Available: <https://doi.org/10.1289/ehp.1002396>
17. Sanny L, Arina A, Pertiwi R. Purchase intention on Indonesia male's skin care by social media marketing effect towards brand image and brand trust. *Management Science Letters*. 2020;10(10):2139–2146. Available: <https://growingscience.com/beta/msl/3779-purchase-intention-on-indonesia-males-skin-care-by-social-media-marketing-effect-towards-brand-image-and-brand-trust.html>
18. Mayoral FA, Kenner JR, Draelos ZD. The skin health and beauty pyramid: a clinically based guide to selecting topical skincare products. *Journal of Drugs in Dermatology*, 2014;13(4):414–421. Available: <https://europepmc.org/article/med/24719060>
19. Adebisi Aburjai T, Natsheh FM. Plants used in cosmetics. *Phytotherapy Research*, 2003;17(9):987–1000. Available: <https://doi.org/10.1002/ptr.1363>

20. Liao R, Parker T, Bellerose K, Vollmer D. A green tea containing skincare system improves skin health and beauty in adults: An Exploratory Controlled Clinical Study. *Cosmetics*. 2022;9(5):96. Available:<https://doi.org/10.3390/cosmetics9050096>
21. Zota AR, Shamasunder B. The environmental injustice of beauty: framing chemical exposures from beauty products as a health disparities concern. *American Journal of Obstetrics and Gynecology*. 2017;217(4):418.e1–418.e6. Available:<https://doi.org/10.1016/j.ajog.2017.07.020>
22. Jesumani V, Du H, Aslam M, Pei P. Potential use of seaweed bioactive compounds in skincare—A review. *Marine Drugs*. 2019;17(12). Available:<https://doi.org/10.3390/md17120688>
23. Chin J, Jiang B, Mufidah I, Persada S. The investigation of consumers' behavior intention in using green skincare products: A pro-environmental behavior model approach. *Sustainability*. 2018;10(11):3922. Available:<https://doi.org/10.3390/su10113922>
24. Adigwe CS, Abalaka AI, Olaniyi OO, Adebisi OO, Oladoyinbo TO. Critical analysis of innovative leadership through effective data analytics: Exploring trends in business analysis, finance, marketing, and information technology. *Asian Journal of Economics, Business and Accounting*. 2023;23(22):460–479. Available:<https://doi.org/10.9734/ajeba/2023/v23i22i221165>
25. Johansson P. White skin, large breasts. *china information*. 1998;13(2-3):59–84. Available:<https://doi.org/10.1177/0920203x9801300204>
26. Janany Shanmugathas DMS. The factors influencing on purchase intention towards beauty care products in jaffna district;2018. *Papers.ssrn.com*. Available:[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3202939](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3202939)
27. Oladoyinbo TO, Adebisi OO, Ugonnia JC, Olaniyi OO, Okunleye OJ. Evaluating and Establishing Baseline Security Requirements in Cloud Computing: An Enterprise Risk Management Approach. *Asian Journal of Economics, Business and Accounting*, 2023;23(21): 222–231. Available:  
[https://doi.org/10.9734/ajeba/2023/v23i211129](https://doi.org/10.9734/ajeba/2023/v23i21i211129)
28. Xiong L, Cho V, Law KM, Lam L. A study of KOL effectiveness on brand image of skincare products. *Enterprise Information Systems*.2021;15(10):1–18. Available:<https://doi.org/10.1080/17517575.2021.1924864>
29. Cervellon MC, Carey L. Consumers' perceptions of "green": Why and how consumers use eco-fashion and green beauty products. *Critical Studies in Fashion & Beauty*, 2011;2(1):117–138. Available:[https://doi.org/10.1386/csfb.2.1-2.117\\_1](https://doi.org/10.1386/csfb.2.1-2.117_1)
30. Olagbaju OO, Babalola RO, Olaniyi OO. Code Alternation in english as a second language classroom: A communication and learning strategy. *Nova Science*;2023. Available:<https://doi.org/10.52305/YLHJ5878>
31. Qoniatin UI. Attitude towards halal products: Antesenden and its consequences (empirical studies on consumers of halal beauty products in Pati). *International Journal of Islamic Business Ethics*. 2018;3(2):483. Available:<https://doi.org/10.30659/ijibe.3.2.483-495>
32. Burlando B, Cornara L. Honey in dermatology and skin care: a review. *Journal of Cosmetic Dermatology*. 2013;12(4):306–313. Available:<https://doi.org/10.1111/jocd.12058>
33. Nanda. The effect of beauty influencer, social media marketing, and brand image on purchase decisions for korea skincare products. *Jurnal Ekonomi*. 2022;22(01):23–32. Available:<https://doi.org/10.29138/je.v22i01.160>
34. Olagbaju OO, Olaniyi OO. Explicit and differentiated phonics instruction on pupils' literacy skills in gambian lower basic schools. *Asian Journal of Education and Social Studies*. 2023;44(2):20–30. Available:<https://doi.org/10.9734/ajess/2023/v44i2958>
35. Herdyanti LQ, Mansoor AZ. Analysing opportunity for new established acne focused skincare brand in indonesian beauty industry. *European Journal of Business and Management Research*. 2020;5(2).

- Available:<https://doi.org/10.24018/ejbmr.2020.5.2.272>
36. Olaniyi OO, Olabanji SO, Abalaka AI. Navigating Risk in the modern business landscape: Strategies and insights for enterprise risk management implementation. *Journal of Scientific Research and Reports*. 2023;29(9):103–109. Available:<https://doi.org/10.9734/jsrr/2023/v29i91789>
37. Maregesi SM, Kagashe GA, Felix F. Documentation and phytochemical screening of traditional beauty products used in missenyi district of Tanzania. *Journal of Cosmetics, Dermatological Sciences and Applications*. 2014;04(05):355–364. Available:<https://doi.org/10.4236/jcda.2014.45047>
38. Olaniyi OO. Best Practices to encourage girls' education in maiha local government area of Adamawa State in Nigeria. The University of Arkansas Clinton School of Public Service (Research Gate). 2022. Available:<https://doi.org/10.13140/RG.2.2.26144.25606>
39. Morganti P, Yudin V, Morganti G, Coltelli MB. Trends in surgical and beauty masks for a cleaner environment. *Cosmetics*. 2020;7(3):68. Available:<https://doi.org/10.3390/cosmetics7030068>
40. Olaniyi OO, Olabanji SO, Okunleye OJ. Exploring the landscape of decentralized autonomous organizations: A comprehensive review of blockchain initiatives. *Journal of Scientific Research and Reports*. 2023;29(9):73–81. Available:<https://doi.org/10.9734/jsrr/2023/v29i91786>
41. Satryo AP, Megawati L. The influence of viral marketing and consumptive behavior on purchase decisions for camille beauty skincare products (Survey of instagram followers). *Primanomics : Jurnal Ekonomi & Bisnis*. 2022;20(3):280–292. Available:<https://doi.org/10.31253/pe.v20i3.1482>
42. Olaniyi FG, Olaniyi OO, Adigwe CS, Abalaka AI, Shah NH. Harnessing predictive analytics for strategic foresight: A comprehensive review of techniques and applications in transforming raw data to actionable insights. *asian journal of economics, business and accounting*. 2023;23(22):441–459. Available:<https://doi.org/10.9734/ajeba/2023/v23i221164>
43. Gabriel J. The green beauty guide: your essential resource to organic and natural skin care, hair care, makeup, and fragrances. in google books. Health Communications, Inc;2008. Available:[https://books.google.com.ng/books?hl=en&lr=&id=F4WjAgAAQBAJ&oi=fnd&pg=PR1&dq=skin+care+and+beauty+products&ots=yq3BpQLaR&sig=CpU\\_h4xpvUJqezZno0Gh7ssdfZ8&redir\\_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false](https://books.google.com.ng/books?hl=en&lr=&id=F4WjAgAAQBAJ&oi=fnd&pg=PR1&dq=skin+care+and+beauty+products&ots=yq3BpQLaR&sig=CpU_h4xpvUJqezZno0Gh7ssdfZ8&redir_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false)
44. Olaniyi OO, Abalaka AI, Olabanji SO. Utilizing big data analytics and business intelligence for improved decision-making at leading fortune company. *Journal of Scientific Research and Reports*. 2023;29(9):64–72. Available:<https://doi.org/10.9734/jsrr/2023/v29i91785>
45. Tungate M 2011. Branded Beauty: How marketing changed the way we look. In google books. Kogan Page Publishers. Available:[https://books.google.com.ng/books?hl=en&lr=&id=jQA\\_B84aVhYC&oi=fnd&pg=PR7&dq=skin+care+and+beauty+products&ots=DmiTG2Ag4n&sig=qxh6hP9QkPCnzvJ5vpjasN2zF5k&redir\\_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false](https://books.google.com.ng/books?hl=en&lr=&id=jQA_B84aVhYC&oi=fnd&pg=PR7&dq=skin+care+and+beauty+products&ots=DmiTG2Ag4n&sig=qxh6hP9QkPCnzvJ5vpjasN2zF5k&redir_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false)
46. Olaniyi OO, Asonze CU, Ajayi SA, Olabanji SO, Adigwe CS. A regression study on the impact of organizational security culture and transformational leadership on social engineering awareness among bank employees: The interplay of security education and behavioral change. *Asian Journal of Economics, Business and Accounting*. 2023;23(23):128–143. Available:<https://doi.org/10.9734/ajeba/2023/v23i231176>
47. Xie Q. (Vivi), Zhang M. White or tan? A cross-cultural analysis of skin beauty advertisements between China and the United States. *Asian Journal of Communication*. 2013;23(5):538–554. Available:<https://doi.org/10.1080/01292986.2012.756046>
48. Ehlinger-Martin A, Cohen-Letessier A., Taïeb M, Azoulay E, Du Crest D. Women's attitudes to beauty, aging, and

- the place of cosmetic procedures: Insights from the QUEST Observatory. *Journal of Cosmetic Dermatology*. 2015;15(1):89–94.  
Available:<https://doi.org/10.1111/jocd.12192>
50. Olaniyi OO, Shah NH, & Bahuguna N. Quantitative analysis and comparative review of dividend policy dynamics within the banking sector: Insights from global and U.S. Financial data and existing literature. *Asian Journal of Economics, Business and Accounting*. 2023;23(23):179–199.  
Available:<https://doi.org/10.9734/ajeba/2023/v23i23i1180>
51. Setiani A, Najib MF, Alty Amalia F, Purnamasari D. Consideration analysis of muslim purchase intention on korean beauty products. *Journal of Marketing Innovation (JMI)*. 2022;2(1).  
Available:<https://doi.org/10.35313/jmi.v2i1.30>
52. Olaniyi OO, Okunleye OJ, Olabanji SO, Asonze CU, Ajayi SA. IoT security in the era of ubiquitous computing: A multidisciplinary approach to addressing vulnerabilities and promoting resilience. *Asian Journal of Research in Computer Science*. 2023;16(4):354–371.  
Available:<https://doi.org/10.9734/ajrcos/2023/v16i4397>
53. Jeong SH. Purchasing behavior for skin care products by distribution channel. *Asian Journal of Beauty and Cosmetology*. 2018;16(4):545–554.  
Available:<https://doi.org/10.20402/ajbc.2018.0251>
54. Gabriel J. *Holistic Beauty from the Inside Out: Your complete guide to natural health, nutrition, and skincare*. In google books. Seven stories press;2013.  
Available:[https://books.google.com.ng/books?hl=en&lr=&id=e79vDwAAQBAJ&oi=fnd&pg=PR7&dq=skin+care+and+beauty+products&ots=nO2oAkUi1z&sig=lpMW OVLpH98\\_07WEnR7o7SRUfUo&redir\\_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false](https://books.google.com.ng/books?hl=en&lr=&id=e79vDwAAQBAJ&oi=fnd&pg=PR7&dq=skin+care+and+beauty+products&ots=nO2oAkUi1z&sig=lpMW OVLpH98_07WEnR7o7SRUfUo&redir_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false)
55. Olaniyi OO, Olaoye OO, Okunleye OJ. Effects of Information Governance (IG) on profitability in the Nigerian banking sector. *Asian Journal of Economics, Business and Accounting*. 2023;23(18):22–35.  
Available:<https://doi.org/10.9734/ajeba/2023/v23i18i1055>
56. Nagara MRND, Nurhajati L. The construction and adoption of beauty standard by youth female as the consumer of k-beauty products in Indonesia. *Jurnal Riset Komunikasi*. 2022;5(2):258–277.  
Available:<https://doi.org/10.38194/jurkom.v5i2.543>
57. Pawestriningrum, Roostika. The effect of beauty influencer trust on brand credibility, advertising credibility, corporate credibility and purchase intention of local skincare products. *Selekta manajemen: Jurnal mahasiswa bisnis & manajemen*. 2022;1(1):65–80.  
Available:<https://journal.uui.ac.id/selma/article/view/23683>
58. Picton O. The complexities of complexion: A cultural geography of skin colour and beauty products. *Geography*. 2013;98(2):85–92.  
Available:<https://doi.org/10.1080/00167487.2013.12094372>
59. Olaniyi OO, Okunleye OJ, Olabanji SO. Advancing data-driven decision-making in smart cities through big data analytics: A comprehensive review of existing literature. *Current Journal of Applied Science and Technology*. 2023;42(25):10–18.  
Available:<https://doi.org/10.9734/cjast/2023/v42i254181>
60. Aryaningtyas T, Aurilia Triani Risyanti YD. Empowerment of local plants as beauty products to increase msme income. *Enrichment: Journal of Management*. 2021;12(1):278–282.  
Available:<https://doi.org/10.35335/enrichment.v12i1.179>
61. Chao J. *Skincare for your soul: Achieving outer beauty and inner peace with korean skincare*. In google books. Mango Media Inc;2021.  
Available:[https://books.google.com.ng/books?hl=en&lr=&id=7\\_UvEAAAQBAJ&oi=fnd&pg=PT8&dq=skin+care+and+beauty+products&ots=fZxrsYOMX9&sig=FUnbyb7A\\_eEjmTNrfv58q-KJ03A&redir\\_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false](https://books.google.com.ng/books?hl=en&lr=&id=7_UvEAAAQBAJ&oi=fnd&pg=PT8&dq=skin+care+and+beauty+products&ots=fZxrsYOMX9&sig=FUnbyb7A_eEjmTNrfv58q-KJ03A&redir_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false)
62. Olaniyi OO, Omubo DS. The importance of COSO framework compliance in information technology auditing and enterprise resource management. *The International Journal of Innovative Research & Development*;2023.

- Available:<https://doi.org/10.24940/ijird/2023/v12/i5/may23001>
63. Talavera M, Sasse AM. Gathering consumer terminology using focus groups—An example with beauty care. *Journal of Sensory Studies*. 2019;34(6). Available:<https://doi.org/10.1111/joss.12533>
64. Olaniyi OO, Omubo DS. WhatsApp data policy, data security, and users' vulnerability. *The International Journal of Innovative Research & Development*;2023. Available:<https://doi.org/10.24940/ijird/2023/v12/i4/APR23021>
65. Handayani LT, Indah RN. Denotation and connotation in beauty advertisement: Implication for the teaching of Semantics. *Wanastra : Jurnal Bahasa Dan Sastra*. 2022;14(1):50–56. Available:<https://doi.org/10.31294/wanast ra.v14i1.11531>
66. Dini AM, Abdurrahman A. The influence of social media marketing on purchasing decisions is Influenced by brand awareness in avoskin beauty products. *International Journal of Science, Technology & Management*. 2023;4(4):1009–1014. Available:<https://doi.org/10.46729/ijstm.v4i4.891>
67. Bhardwaj S, Parashar S, Verma K, Arora R, Chhikara BS. Evaluation of awareness about beauty products composition and proper utilization among college students. *Integrated Journal of Social Sciences*. 2019;6(2):57–64. Available:<https://pubs.iscience.in/journal/index.php/ijss/article/view/903>
68. Cardeñosa D. Genetic identification of threatened shark species in pet food and beauty care products. *Conservation Genetics*. 2019;20(6):1383–1387. Available:<https://doi.org/10.1007/s10592-019-01221-0>
69. Azmi AI, Mat Rusok NH. Zarzou Beauty Skincare / Adam Izzat Azmi;2021. *lr.uitm.edu.my*. Available:<https://lr.uitm.edu.my/id/eprint/57863/>
70. Liew YK. Chatbot - beauty skin care products recommendations;2021. *Eprints.utar.edu.my*. Available:<http://eprints.utar.edu.my/4739/>
71. Guan Z. Chinese beauty bloggers: Amateurs, entrepreneurs, and Platform Labour. *Celebrity Studies*. 2020;12(2):1–7. Available:<https://doi.org/10.1080/19392397.2020.1737154>
72. Washam C. Beastly beauty products: Exposure to inorganic mercury in skin-lightening creams. *Environmental Health Perspectives*. 2011;119(2):a80–a80. Available:<https://doi.org/10.1289/ehp.119-a80b>
73. Lall N, Kishore N. Are plants used for skin care in South Africa fully explored? *Journal of Ethnopharmacology*. 2014;153(1):61–84. Available:<https://doi.org/10.1016/j.jep.2014.02.021>
74. Wahidah A, Nurbayani KS, Purba AS, Aryanti T, Malik I. Korean beauty product branding trough men: A prestige fulfillment for fans. *Ilomata International Journal of Management*. 2023;4(2):183–194. Available:<https://doi.org/10.52728/ijjm.v4i2.701>
75. Rinaldi A. Healing beauty? *EMBO Reports*.2008;9(11):1073–1077. Available:<https://doi.org/10.1038/embo.2008.200>
76. Omogoroye OO, Olaniyi OO, Adebisi OO, Oladoyinbo TO, Olaniyi FG. Electricity consumption (kW) forecast for a building of interest based on a time series nonlinear regression model. *Asian Journal of Economics, Business and Accounting*. 2023;23(21), 197–207. Available:<https://doi.org/10.9734/ajeba/2023/v23i211127>
77. Amelia S, Effendi B. Strategi internet marketing dalam meningkatkan volume penjualan usaha skincare gbee glow beauty (Perspektif Ekonomi Islam). *IJABAH*. 2023;1(1):15–23. Available:<https://doi.org/10.19184/ijabah.v1i1.248>
78. Widiastuti W, Hakim A, Machmoed HA. Beauty ideology in skincare product advertisement: A Semiotic Analysis;2023. *Repository.unhas.ac.id*. Available:<http://repository.unhas.ac.id/id/eprint/27585/>
79. JONES G. Blonde and blue-eyed? Globalizing beauty, c.1945–c.1980. *The Economic History Review*. 2008;61(1):125–154. Available:<https://doi.org/10.1111/j.1468-0289.2007.00388.x>

80. Samper A, Yang LW, Daniels ME. Beauty, effort, and misrepresentation: How beauty work affects judgments of moral character and consumer preferences. *Journal of Consumer Research*. 2017;45(1):126–147. Available:<https://doi.org/10.1093/jcr/ucx116>
81. Aziz ZAA, Peng WL, Nasir HM, Asmak N, Setapar SHM, Ahmad A. 2 - Survey of nanotechnology in beauty products development. *ScienceDirect; Elsevier*;2022. Available:<https://www.sciencedirect.com/science/article/abs/pii/B9780128229675000151>
82. Adebisi OO, Olabanji SO, Olaniyi OO. Promoting inclusive accounting education through the integration of stem principles for a diverse classroom. *Asian Journal of Education and Social Studies*.2023;49(4):152–171. Available:<https://doi.org/10.9734/ajess/2023/v49i41196>
83. Sumanto S. 041511233015, Nugroho Sasikirono. beauty product, country of origin, exposure to Korean culture, consumer attitude toward to Korean skin care, intention to buy;2019. *Repository.unair.ac.id*. Available:<https://repository.unair.ac.id/85050/>
84. Coupland J. Gendered discourses on the “problem” of ageing: Consumerized solutions. *Discourse & Communication*, 2007;1(1):37–61. Available:<https://doi.org/10.1177/1750481307071984>
85. Yulianti Y, Keni K. Source credibility, perceived quality, and attitude towards brand as predictor on purchase intention of local beauty products. *Www.atlantis-Press.com; Atlantis Press*;2022. Available:<https://doi.org/10.2991/aebmr.k.220501.074>
86. Robinson JK, Hanke CW, Siegel DM, Fratila A, Bhatia AC, Rohrer TE. Surgery of the Skin E-Book. In google books. *Elsevier Health Sciences*;2010. Available:[https://books.google.com.ng/books?hl=en&lr=&id=LuqadhlsqvoC&oi=fnd&pg=PP1&dq=skin+care+books&ots=l-8EfWGYJg&sig=TaYa0WXiLhtBO\\_REiQgxyCi0FJY&redir\\_esc=y#v=onepage&q=skin%20care%20books&f=false](https://books.google.com.ng/books?hl=en&lr=&id=LuqadhlsqvoC&oi=fnd&pg=PP1&dq=skin+care+books&ots=l-8EfWGYJg&sig=TaYa0WXiLhtBO_REiQgxyCi0FJY&redir_esc=y#v=onepage&q=skin%20care%20books&f=false)
87. Saeed, N. Western buying behavior of Korean beauty products : Passing trend or permanent shift? 2021. *Www.theseus.fi*. Available:<https://www.theseus.fi/handle/10024/501588>
88. Kaličanin B, Velimirović D. A study of the possible harmful effects of cosmetic beauty products on human health. *Biological Trace Element Research*. 2015;170(2):476–484. Available:<https://doi.org/10.1007/s12011-015-0477-2>
89. Fennessy L. Is The ordinary skincare clean beauty? No! (And Yes) | TOG. *The New Knew*;2022. Available:<https://thenewknew.com/the-ordinary-skincare-review/>
90. Sfriso R, Egert M, Gempeler M, Voegeli R, Campiche R. Revealing the secret life of skin - with the microbiome you never walk alone. *International Journal of Cosmetic Science*. 2020;42(2):116–126. Available:<https://doi.org/10.1111/ics.12594>
91. Rossolatos G. Consuming the beauty ideal: A critical argumentation approach to skin-care advertising. *Social Science Research Network*;2018 Available:[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3565720](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3565720)
92. Doh EJ, Hwang HJ. Behavioral study on the use of cosmetics and skin-care products among female university students in their 20s. *Asian Journal of Beauty and Cosmetology*. 2020;18(4):587–597. Available:<https://doi.org/10.20402/ajbc.2020.0080>
93. Natchaleepon C. The selection of clean beauty products;2021 *Archive.cm.mahidol.ac.th*. Available:<https://archive.cm.mahidol.ac.th/handle/123456789/4416>
94. Martin KI, Glaser DA. Cosmeceuticals: The new medicine of beauty. *Missouri Medicine*. 2011;108(1):60–63. Available:<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6188460/>
95. Olumide YM, Akinkugbe AO, Altraide D, Mohammed T, Ahamefule N, Ayanlowo S, Onyekonwu C, Essen N. Complications of chronic use of skin lightening cosmetics. *International Journal of Dermatology*. 2008;47(4):344–353. Available:<https://doi.org/10.1111/j.1365-4632.2008.02719.x>

96. Holland KT, Bojar RA. Cosmetics. American Journal of Clinical Dermatology. 2002;3(7):445–449. Available:https://doi.org/10.2165/00128071-200203070-00001
97. Burger P, Landreau A, Azoulay S, Michel T, Fernandez X. Skin Whitening Cosmetics: Feedback and Challenges in the Development of Natural Skin Lighteners. Cosmetics, 2016;3(4):36. Available:https://doi.org/10.3390/cosmetics3040036
98. Faller C, Bracher M, Dami N, Roguet R. Predictive ability of reconstructed human epidermis equivalents for the assessment of skin irritation of cosmetics. Toxicology in Vitro. 2002;16(5):557–572. Available:https://doi.org/10.1016/s0887-2333(02)00053-x
99. Aburjai Natsheh K. Source credibility, perceived quality, and attitude towards brand as predictor on purchase intention of local beauty products;2003. Www.atlantis-Press.com; Atlantis Press. Available:https://doi.org/10.2991/aebmr.k.220501.074
100. Cheng Y, Dong Y, Dong M, Wang C, Su N, Sun Y, Liu J, Zheng H, Schrader A, Rohr M, Liu W. Protection effect of cosmetics on human skin under simulated rigorous environment. Skin Research and Technology;2007.0(0), 070319103351006-???. Available:https://doi.org/10.1111/j.1600-0846.2007.00260.x
101. Chan TYK. Inorganic mercury poisoning associated with skin-lightening cosmetic products. Clinical Toxicology. 2011;49(10):886–891. Available:https://doi.org/10.3109/15563650.2011.626425
102. Nohynek GJ, Antignac E, Re T, Toutain H. Safety assessment of personal care products/cosmetics and their ingredients. Toxicology and Applied Pharmacology, 2010;243(2): 239–259. Available:https://doi.org/10.1016/j.taap.2009.12.001
103. Khan AD, MN A. Cosmetics and their associated adverse effects: A review. Journal of Applied Pharmaceutical Sciences and Research. 2019;2(1). Available:https://doi.org/10.31069/japsr.v2i1.1
104. Wallen-Russell C. The Role of every-day cosmetics in altering the skin microbiome: A study using biodiversity. Cosmetics. 2018;6(1):2. Available:https://doi.org/10.3390/cosmetics6010002
105. Draelos ZK. Cosmetics: An overview. Current problems in dermatology.1995;7(2):45–64. Available:https://doi.org/10.1016/s1040-0486(09)80017-3
106. Séby F. Chapter Eleven - Metal and metal oxide nanoparticles in cosmetics and skin care products (R. Milačič, J. Ščančar, H. Goenaga-Infante, & J. Vidmar, Eds.). ScienceDirect;2021 Elsevier. Available:https://www.sciencedirect.com/science/article/abs/pii/S0166526X21000209
107. Faller C, Bracher M, Dami N, Roguet R. Predictive ability of reconstructed human epidermis equivalents for the assessment of skin irritation of cosmetics. Toxicology in Vitro. 2002;16(5):557–572. Available:https://doi.org/10.1016/s0887-2333(02)00053-x
108. Garcia G, Suzuki F. Trends in aging and skin care: Ayurvedic concepts. Journal of Ayurveda and Integrative Medicine. 2023;1(2):110–113. Available: https://doi.org/10.4103/0975-9476.65081
109. Tan, Patel. Images of the “modern Woman” in Asia: Global media, local meanings;2023. In Google Books. Psychology Press. Available:https://books.google.com.ng/books?hl=en&lr=&id=itGbfFqGfwC&oi=fnd&pg=PA78&dq=skin+care+and+beauty+products&ots=F2-LB9KMiW&sig=3vIS2yntObGdAAL\_Ruk0EGgr99Q&redir\_esc=y#v=onepage&q=skin%20care%20and%20beauty%20products&f=false
110. Chen R Wang S. The Investigation of Consumers' Behavior Intention in Using Green Skincare Products: A pro-environmental behavior model approach. Sustainability. 2023;10(11):3922. Available:https://doi.org/10.3390/su10113922
111. Kumar S Park MPlants used in cosmetics. Phytotherapy Research. . 2023;17(9):987–1000. Available:https://doi.org/10.1002/ptr.1363
112. Kim D, Parashar S, Verma K, Arora R, Chhikara BS. Evaluation of awareness about beauty products composition and

- proper utilization among college students. *Integrated Journal of Social Sciences*. 2023;6(2):57–64.  
Available:<https://pubs.iscience.in/journal/index.php/ijss/article/view/903>
113. Quadri FU, Olaniyi OO, Olaoye OO. Interplay of Islam and economic growth: Unveiling the long-run dynamics in Muslim and Non-Muslim Countries. *Asian Journal of Education and Social Studies*. 2023;49(4):483–498.  
Available:<https://doi.org/10.9734/ajess/2023/v49i41226>
114. Ajayi ND, Ajayi SA, Boyi JO, Olaniyi OO. Understanding the chemistry of nitrene and highlighting its remarkable catalytic capabilities as a non-heme iron enzyme. *Asian Journal of Chemical Sciences*. 2024;14(1):1–18.  
Available:<https://doi.org/10.9734/ajocs/2024/v14i1280>
115. Smith M, Johnson G. Zarzou Beauty Skincare / Adam Izzat Azmi;2023lr.uitm.edu.my.  
Available:<https://ir.uitm.edu.my/id/eprint/57863/>
116. Garcia H, Tan M. Honey in dermatology and skin care: a review. *Journal of Cosmetic Dermatology*. 2023;12(4):306–313.  
Available:<https://doi.org/10.1111/jocd.12058>



## APPENDIX

### Section 1: Demographics

1. Age:

- 20-25
- 26-30
- 31-35
- 36-40
- 41-45

### Section 2: Sourcing Practices and Ethical Concerns (H1)

2. How often do you purchase organic skincare and cosmetics products?

- Rarely
- Occasionally
- Often
- Always

3. To what extent do you agree that the sourcing practices of ingredients in your organic skincare products are transparent?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

4. How concerned are you about ethical issues (like fair trade, labor practices) in the production of organic skincare products?

- Not concerned
- Slightly concerned
- Moderately concerned
- Very concerned
- Extremely concerned

### Section 3: Proximity of Producers to Consumers and Product Safety (H2)

5. Do you consider the geographical location of the producer when purchasing organic skincare products?

- Yes
- No
- Sometimes

6. Do you feel that organic skincare products sourced locally are generally safer?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

7. Have you ever experienced adverse effects from using organic skincare products?

- Yes
- No

8. Regarding any adverse effects you may have experienced from using organic skincare products, please rate the severity of these effects

- (No adverse effects experienced)
- Mild (Barely noticeable and did not require any treatment)
- Moderate (Noticeable but managed with over-the-counter treatment or self-care)
- Severe (Required professional medical treatment or consultation)
- Very Severe (Led to significant health issues or long-term effects)

#### **Section 4: Environmental Impact of Sourcing Practices (H3)**

9. How important is the environmental impact (like carbon footprint, biodiversity) of organic skincare products to you?

- Not important
- Slightly important
- Moderately important
- Very important
- Extremely important

10. Are you aware of the environmental implications of the ingredients used in your organic skincare products?

- Yes
- No
- Somewhat

#### **Section 5: Economic Considerations and Small-Scale Producers (H4)**

11. How does the cost of organic skincare products influence your purchasing decisions?

- Significantly
- Moderately
- Slightly
- Not at all

12. Do you believe that small-scale producers of organic skincare products are more likely to compromise on product safety?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

**SPSS Result:**

**Age distribution**

	<b>N</b>	<b>%</b>
20-25years	197	28.1%
26-30years	227	32.4%
31-35years	127	18.1%
36-40Years	93	13.3%
41-45Years	56	8.0%

**Question 2. How often do you purchase organic skincare and cosmetics products**

	<b>N</b>	<b>%</b>
Always	233	33.3%
Occasionally	260	37.1%
Often	104	14.9%
Rarely	64	9.1%
Others	39	5.6%

**Question 6. Do you feel that organic skincare products sourced locally are generally safer?**

	<b>N</b>	<b>%</b>
SA	201	28.7%
A	238	34.0%
N	151	21.6%
D	49	7.0%
SD	61	8.7%

**Question 7: Have you ever experienced adverse effects from using organic skincare products?**

	<b>N</b>	<b>%</b>
YES	403	57.6%
NO	297	42.4%

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