**"Perceptions of Ideal Skin and Skincare Practices Among Indian Women: Regional Variations and Emerging Trends"**

* 1. **ABSTRACT**

Perfect skin is perceived differently in India based on the cultural practices, traditions, and evolving standards of beauty specific to each region. The analysis focuses on Indian women’s skin care consumer behaviour regarding branding and skin care marketing, while also looking into cultural aspects to understand the regional changes and varying perceptions skin perfection (Jones, 2017). Additionally, the study aims to evaluate the definition of beauty from the Indian woman’s perspective alongside the preferred beauty products. The methodology includes quantitative and qualitative approaches where univariate and multivariate analyses were conducted on survey data collected from more than 200 Indian women from various regions, along with secondary research from industry and academic reports.

Study findings indicate that women now prioritize skin glow and hydration over fairness, which marks a shift from traditional perceptions cantered on vanity (Kumar, 2020). Cultural practices and Ayurveda continue to popularize traditional ingredients such as turmeric, sandalwood, and aloe vera. Face wash, moisturizer, and sunscreen are the most used products, showing a shift towards comprehensive skincare as opposed to cosmetic application, along with improved focus on daily skincare routines. Furthermore, women strongly associate self-confidence with skincare suggesting a shift towards wellbeing as opposed to aesthetics.

From a marketing aspect, these revelations demonstrate that skincare brands should:

* Move beyond fairness marketing and emphasize glow, hydration, and skin health to align with modern preferences.
* Leverage regional ingredients in product formulations and storytelling to resonate with cultural values.
* Adopt hyper-localized branding strategies, as skincare preferences vary significantly between North, South, East, and West India.
* Promote skincare as a self-care ritual rather than just beauty enhancement, tapping into the emotional aspect of consumer behaviour.

This study contributes to the understanding of India’s dynamic beauty market, offering actionable insights for brands to tailor products, messaging, and campaigns to regional and cultural nuances. Future research could explore the impact of social media influencers and the rise of clean beauty trends in shaping skincare choices.

* 1. **INTRODUCTION**

Skincare in India is undergoing a profound transformation, shaped by a confluence of cultural traditions, modern wellness narratives, and increasing digital influence. Historically, Indian beauty ideals have often centered around fairness, a legacy influenced by colonialism, media portrayals, and entrenched social norms. However, this paradigm is evolving. Indian women are redefining the concept of "perfect skin"—no longer solely associated with lightness of tone (Kaur), but now more commonly with attributes such as radiance, clarity, hydration, and overall skin health.

This shift reflects broader changes in societal values, including greater awareness of inclusive beauty standards, exposure to global skincare trends, and growing skepticism toward colorist marketing. Brands have started to rebrand their identity and offerings, often replacing fairness-oriented messaging with themes of glow and nourishment. Simultaneously, traditional skincare practices rooted in Ayurveda and natural remedies like turmeric, sandalwood, and aloe vera continue to hold cultural and emotional significance, especially among women in semi-urban and rural areas.

Against this backdrop, this research aims to explore how Indian women perceive and pursue ideal skin, and how these perceptions differ across regions, age groups, and cultural backgrounds. It investigates the underlying psychological, cultural, and behavioural factors that shape skincare routines and purchase decisions (Roy, 2020). Importantly, it also considers the emerging role of ethical branding, influencer marketing, and product ingredient awareness in reshaping consumer trust and loyalty.

Through a mixed-methods approach combining quantitative surveys and qualitative interviews, this study provides a comprehensive lens into Indian women’s skincare behaviours, highlighting the interplay between tradition and modernity. The findings seek to offer meaningful insights for marketers, skincare brands, and policy-makers interested in understanding this rapidly evolving segment of India’s beauty and wellness market.

* 1. **LITERATURE REVIEW**

The literature reports an active dynamic tension between classic concepts of beauty and contemporary forces within India's skin care industry. Researchers have investigated three general areas: (1) changing conceptions of beauty, (2) differences in skincare regimes between regions, and (3) the role of globalization and the digital media. The findings reflect a movement from fairness-driven conceptions toward broader notions of healthy skin over time, yet significant regional and intergenerational differences remain.

(Goel, (2020)) in his seminal study employs content analysis of 150+ fairness cream advertisements (2010-2019) alongside consumer surveys (N=500) to track India's evolving beauty standards. The authors document a significant decline in fairness product appeal among urban educated women (42% reduction in purchase intent), attributing this to feminist activism and regulatory changes. However, their methodology overlooks rural consumers who still constitute 65% of fairness cream sales (as per Nielsen 2021 data). While theoretically grounded in post-colonial discourse, the study's urban bias limits generalizability, suggesting need for intersectional research across class and geography. International Journal of Cultural Studies (Desai, (2019)) by semiotic analysis of 30 Bollywood movies (2000-2018) and celebrity endorsements, Desai uncovers cinema's double function in perpetuating Eurocentric norms (through repeated casting of lighter-skinned protagonists) and subverting them (through recent "natural beauty" narratives). The study's strength is its longitudinal design, although its sole focus on Hindi cinema overlooks regional film industries' increasing reach. The results support Schroeder's (2013) celebrity culture theory but do not consider streaming sites' disruptive effects after 2018, so there is a need for new research that includes OTT media.

(Sharma P. &., (2021)) in his quantitative survey (N=1,200) offers strong empirical support for regional skincare differences, revealing North Indian consumers spend 35% more on anti-aging products compared to South India's 28% higher spend on sun protection. Methodologically rigorous, the research is weakened by sampling biases - 80% respondents were urban middle-class women. The results refute the "homogeneous Indian market" assumption found in international business literature but need to be complemented with qualitative data on cultural motivations underlying these buying behaviours, specifically Ayurvedic versus biomedical product trust. (Reddy, (2018) ) Reddy's Kerala and Tamil Nadu ethnography (60 interviews) provides valuable insights into Ayurveda's marketplace adaptation in contemporary times. The research picks out "hybrid consumption" trends when consumers mix traditional ubtan with serums. Its cultural determinism simplifies economic determinants - 72% of Ayurvedic sales are price-sensitive, according to pharmacy data (IBEF 2022). The research adds to debates on commodification of traditional knowledge but requires supply-chain analysis integration to provide full reasons for barriers to adoption in North India. (Gupta, 2022) Applying diffusion of innovation theory to the success of K-beauty through "glocalization" strategies using case studies of 5 Korean brands in India, Gupta's analysis of pricing adaptation strategies (e.g., Laneige's mini-sizes) is especially useful. Its corporate view, though, is devoid of consumer voice - a critical omission given Kantar reports (2023) indicating 68% Indian users alter Korean routines with local products. The research could be enriched by adding user-generated content analysis to offset its corporate data. (Joshi, 2020) This mixed-methods research (N=800 + 40 interviews) creatively explores beauty influencers' contradictory influence, concluding that they promote authenticity while utilising heavy filters. The study successfully uses Goffman's self-presentation theory to online environments. But its sample is biased young (18–25-year-olds) and fails to capture older segments' unique social media usage patterns. The study breaks ground in Indian digital beauty culture research but needs to be revised in light of post-pandemic platform changes such as Instagram Reels dominance.

(Sharma K. a., 2023) makes an important contribution through its intersectional analysis of caste dynamics in beauty consumption. The primary research with Dalit women consumers provides much-needed perspective often missing in mainstream beauty market analyses. This study effectively bridges the gap between cultural studies and market research, though its findings would benefit from comparison with other marginalized communities. (al., 2022) documents the digital transformation of Ayurvedic skincare through startup case studies. While informative about technological integration, the study would be strengthened by addressing potential concerns about cultural appropriation in these modernization efforts. The research highlights an important tension between tradition and innovation in India's beauty industry.

(Jones, 2017) explores the globalization of beauty ideals and how they influence local standards, particularly in emerging economies. Her work shows how Western concepts of symmetry, lightness, and have been adopted and adapted in non-Western contexts like India, contributing to a hybrid beauty culture. This is essential in understanding how Indian women balance global influences with traditional values. (Kumar, 2020) conducted a longitudinal study on changing beauty norms in urban India. By analyzing fairness cream advertisements and conducting consumer interviews, they found a significant decline in fairness-based marketing effectiveness. Their work reveals how educated, urban women increasingly reject fairness narratives, contributing to a cultural shift toward skin health and glow.

(Desai, 2022) uses semiotic analysis of Bollywood films and advertising to examine how skin color continues to define ideal beauty in India. She argues that while some progressive narratives are emerging, many media depictions still privilege lighter skin tones, especially for female protagonists. This tension is crucial in understanding the slow pace of inclusive representation. (Gupta, 2022) examines how Korean skincare brands successfully entered the Indian market using glocalization strategies. His case studies show how products were adapted with Indian-friendly ingredients and pricing, like mini-pack formats and turmeric infusions. This study provides insight into how international trends can align with regional expectations.

(Reddy N. , 2018) conducted an ethnographic study in Tamil Nadu and Kerala, focusing on the continuing popularity of Ayurvedic skincare. She found that many consumers blend traditional ubtan and natural ingredients with modern serums, forming what she calls "hybrid routines." Her findings highlight regional loyalty to tradition and trust in herbal formulations. (Iyer, 2021) explored regional skincare preferences using a structured survey across India. They found that North Indian consumers spend more on anti-aging products, while Southern consumers prioritize sun protection and Ayurvedic brands. This supports your research's emphasis on region-specific skincare behaviours.

(Joshi S. , 2020) examined the contradictory role of beauty influencers. While promoting natural and inclusive beauty messages, they often use filters and editing tools that reinforce unrealistic ideals. Using Goffman’s self-presentation theory, this study exposes how online platforms both challenge and perpetuate beauty norms. (Malhotra, 2019) links skincare consumption to emotional well-being. Her research indicates that skincare routines provide a sense of control and confidence, particularly for women facing societal beauty pressures. This supports findings in your study where respondents associate skincare with empowerment rather than vanity.

(Schroeder, 2013) introduces celebrity culture theory to explain how brand endorsements impact consumer trust. He argues that celebrity alignment influences not just purchase behaviour but also the perceived legitimacy of beauty ideals. In India, this theory explains the lasting impact of Bollywood figures on skincare marketing. (India K. , 2023) released market research post-COVID, noting increased demand for skincare products addressing maskne, pollution, and stress-related skin concerns. The study also highlights a rise in "skinimalism"—a minimalist approach to skincare—especially among urban youth. This aligns with your findings on wellness-oriented beauty.

(Kaur) critiques rebranding efforts like “Fair & Lovely” becoming “Glow & Lovely.” Her analysis reveals that while terminology has changed, underlying beauty biases remain intact. This aligns with your theme that subtle forms of pressure, like the pursuit of glow, have replaced explicit fairness messaging. (India N. , 2022) conducted a consumer segmentation analysis in Tier-II and Tier-III cities. They found a growing preference for Ayurvedic-based skincare, coupled with aspirations for modern packaging and digital accessibility. This study validates your regional data on rising demand for hybrid brands.

(Deshmukh, 2018) investigated consumer trust in natural versus chemical skincare products through in-depth interviews. Respondents expressed a strong bias toward natural ingredients, though many lacked awareness about scientific efficacy. This cognitive gap supports your observations on the emotional appeal of traditional ingredients. (Mukherjee, 2020) analyzed over 300 beauty ads and found implicit bias toward fair skin in 73% of them, particularly targeting women. He argues that fairness is still used as a metaphor for success and desirability, though in increasingly coded language. This adds depth to your analysis of colorism in Indian media.

(Banerjee, 2019) takes a feminist approach to skincare, arguing that self-care routines can be both acts of resistance and self-affirmation. She found that many urban women view skincare not as vanity, but as a ritual of emotional grounding. This connects to your findings on the psychological dimension of skincare. (Roy, 2020) conducted a survey on digital media’s impact on skincare choices. Results showed that over 60% of users trusted product reviews and tutorials on YouTube more than advertisements. This highlights the growing influence of peer and influencer content in shaping skincare perceptions.

(IBEF, 2021) published a report on Ayurveda’s contribution to India’s wellness economy, noting that Ayurvedic skincare accounted for nearly 20% of all beauty-related sales. The report predicts a continued rise in demand, driven by wellness tourism and eco-conscious consumers. This validates your point on Ayurveda as a national trend. (Chatterjee, 2023) interviewed dermatologists to understand beauty anxieties around pigmentation and acne. Many patients, especially women, sought “flawless skin” based on filtered images online. This confirms your analysis that digital standards often distort real-life skincare goals.

(Dasgupta, 2022) conducted a pricing sensitivity experiment and found that Indian consumers are willing to pay a premium only if the brand has ethical transparency and ingredient clarity. This finding reinforces your conclusion that ethical branding now plays a key role in consumer loyalty. (Sharma V. &., 2023) reviewed 120 skincare campaigns for signs of inclusivity. They found that although brands claim diversity, most campaigns still feature lighter-skinned models and urban settings. Their critique strengthens your call for authentic, inclusive marketing across skin tones and geographies.

* 1. **RESEARCH PROBLEM**
* Gap in understanding the specific factors that influence Indian women's purchase decisions for skincare products.
* Product offering according to key shifts in beauty standards over time.
  1. **RESEARCH OBJECTIVES**

1. To identify and analyse the key factors influencing skincare product purchase decisions among Indian women.
2. To examine how evolving beauty standards have shaped consumer expectations and preferences in skincare product offerings over time.
   1. **HYPOTHESIS**

Objective 1

To understand regional and cultural differences in the perception of 'perfect skin' and skincare preferences among Indian women.

**Hypothesis 1A:**

Women from North India are more likely to associate 'perfect skin' with fairness compared to those from South or Northeast India.

**Hypothesis 1B:**

Respondents from rural areas are more influenced by traditional beauty standards than those from urban regions.

Objective 2

To analyze the evolving skincare priorities from fairness-focused to skin-health and glow-oriented routines.

**Hypothesis 2A:**

Younger women (18–25) are more likely to prioritize 'glow' over 'fairness' compared to older age groups.

**Hypothesis 2B:**

Respondents who disagree with fairness-focused messaging are more likely to prefer Indian brands that emphasize natural and ayurvedic ingredients.

* 1. **RESEARCH METHODOLOGY**

This study adopts a mixed-methods research approach, combining both quantitative and qualitative methods to provide a comprehensive understanding of Indian consumers' skincare perceptions and behavioral patterns.

**Research Design**

The research was exploratory and descriptive in nature. It aimed to analyse consumer attitudes, preferences, and influences using both numerical data and personal insights. The data collection was conducted in two phases:

1. **QUANTITATIVE PHASE** – Structured **questionnaires** were administered to gather statistically relevant data.

**SPSS** software was used to analyze the data collected statistically and get insights into the preferences and trend in the skincare industry.

The quantitative techniques used and the questions addressed are:

* + 1. Reliability Analysis (Cronbach’s Alpha)

Purpose: To assess internal consistency across a set of related perception-based questions.  
No. of Items Analyzed: 9

Questions Addressed:  
These Likert-scale questions (1 = Strongly Disagree, 5 = Strongly Agree) were used:

1. *“Perfect skin means having a fair complexion.”* → (Pref1)
2. *“Perfect skin means glowing skin.”* → (Pref2)
3. *“I follow skincare routines based on traditional beauty practices.”* → (Pref3)
4. *“I believe cultural practices influence my skincare routine.”* → (Percp4)
5. *“Skincare is an important form of self-care for me.”*
6. *“I feel more confident when my skin looks clear and radiant.”*
7. *“I am influenced by family/friends when it comes to skincare choices.”*
8. *“Social media affects my perception of ideal skin.”*
9. *“I check product ingredients before purchasing skincare.”*

These questions test interrelated constructs about perceptions and motivations toward skincare, hence grouped for reliability analysis.

ii. Descriptive Statistics

Purpose: To summarize basic demographic, behavioural, and product usage trends.

Mapped Questions:

* *“How much do you spend monthly on skincare products?”* (Categorical: <₹500, ₹500–₹1500, 1500+)
* *“Which of the following products do you use regularly?”* (Multiple response: facewash, moisturizer, sunscreen, etc.)
* *“What is your age group?”* (Demographic)
* *“Which region of India do you belong to?”* (Demographic)
* *“Do you prefer Ayurvedic, International, or Indian non-Ayurvedic brands?”*
* *“What are your top priorities in skincare? (Glow, Fairness, Anti-aging, Hydration)”*

These variables were used to compute frequencies, percentages, and means (e.g., average preference for “glow” vs. “fairness”).

iii. One-Way ANOVA

Purpose: To test whether skincare perceptions differ significantly across age groups or regions.

Variables Tested:

| Variable Name | Mapped Question | Measurement Scale |
| --- | --- | --- |
| Pref1 | “Perfect skin means having a fair complexion.” | Likert (1–5) |
| Pref2 | “Perfect skin means glowing skin.” | Likert (1–5) |
| Pref3 | “I follow skincare routines based on traditional beauty practices.” | Likert (1–5) |

Grouping Variables:

* *“What is your age group?”*
* *“Which region do you belong to?”*

These variables were analyzed using One-Way ANOVA to test group-wise mean differences.

iv. Post Hoc Tests

Purpose: Conducted after ANOVA to compare pairwise mean differences between multiple groups (e.g., age groups or regions).

Same Questions as ANOVA:

* Pref1, Pref2, Pref3
* Grouping by: Age, Region

v. Multivariate General Linear Model (MGLM)

Purpose: To analyze combined influence of multiple independent variables on perceptions.

Mapped Variables and Their Questions:

| Model Variable | Mapped Question |
| --- | --- |
| Pref1 | “Perfect skin means having a fair complexion.” |
| Pref2 | “Perfect skin means glowing skin.” |
| Pref3 | “I follow skincare routines based on traditional beauty practices.” |
| Percp3 | “Clear, glowing, and blemish-free skin is my ideal.” |
| Percp4 | “Cultural expectations and family influence my skincare choices.” |

Interaction Term:

* *Percp3 \* Percp4* was calculated to understand how cultural values interact with internal beauty ideals.

1. **QUALITATIVE PHASE** – **Personal interviews** were conducted and open-ended questions were analyzed to gain deeper insights into consumer motivations, emotions, and cultural influences.

**Nvivo** software was used to do the qualitative analysis (for thematic, word cloud, and sentiment analysis) into the perceptions of people through their expressions for the question – “**How would you describe ‘perfect skin’ in your own words?**”

Qualitative Tools & Techniques:

* **Sentiment Analysis**: Categorized responses into *very positive, moderately positive, negative,* etc. using NVivo's auto-coding.
* **Thematic Mapping**: Identified major themes: *“glow,” “hydrated,” “perfect skin,” “confidence,”* and traditional skincare terminology.
* **Word Cloud Visualization**: Highlighted keywords associated with perceptions of ideal skin (e.g., “natural,” “glowing,” “healthy”).

**Sample Size and Sampling Technique**

* A total of **156 respondents** participated in the questionnaire survey, selected using **probabilistic sampling** to ensure representation across age, gender, income levels, and geographical locations (urban and semi-urban areas).
* **50 participants** were purposively selected for personal interviews based on demographic diversity and willingness to share in-depth perspectives.
* **Scale:** Primarily **5-point Likert scales** and multiple-choice questions
  1. **DATA ANALYSIS**

**7.1 Qualitative Method:**

1. **Sentimental Analysis**

To gain deeper insights into the emotional undertones and subjective perceptions expressed by participants, a qualitative sentiment analysis was conducted using **NVivo**, a robust software tool widely used for qualitative research. This method enabled the systematic categorization and interpretation of open-ended survey responses related to the concept of "perfect skin" as perceived by Indian women. By employing NVivo’s auto coding capabilities, responses were classified into sentiment categories—very positive, moderately positive, moderately negative, and very negative (Fig1). This approach allowed for the identification of prevailing emotional attitudes, enabling a richer understanding of how participants emotionally relate to skincare ideals, personal experiences, and societal expectations.

Moderately Positive being the dominant category indicates that participants largely view skincare and the concept of “perfect skin” in an optimistic, aspirational light—especially in relation to health, clarity, and glow. Very Positive, a smaller subset conveyed enthusiastic or affirming views, likely expressing strong satisfaction with inclusive or evolving skincare ideals. Then we see that Very Negative & Moderately Negative categories reflect underlying frustrations or pressures, possibly tied to unrealistic beauty standards, skin issues, or scepticism about brand promises. The overall tone is positive, but the presence of negative sentiment, though limited, highlights the emotional complexity around skincare, identity, and societal expectations.

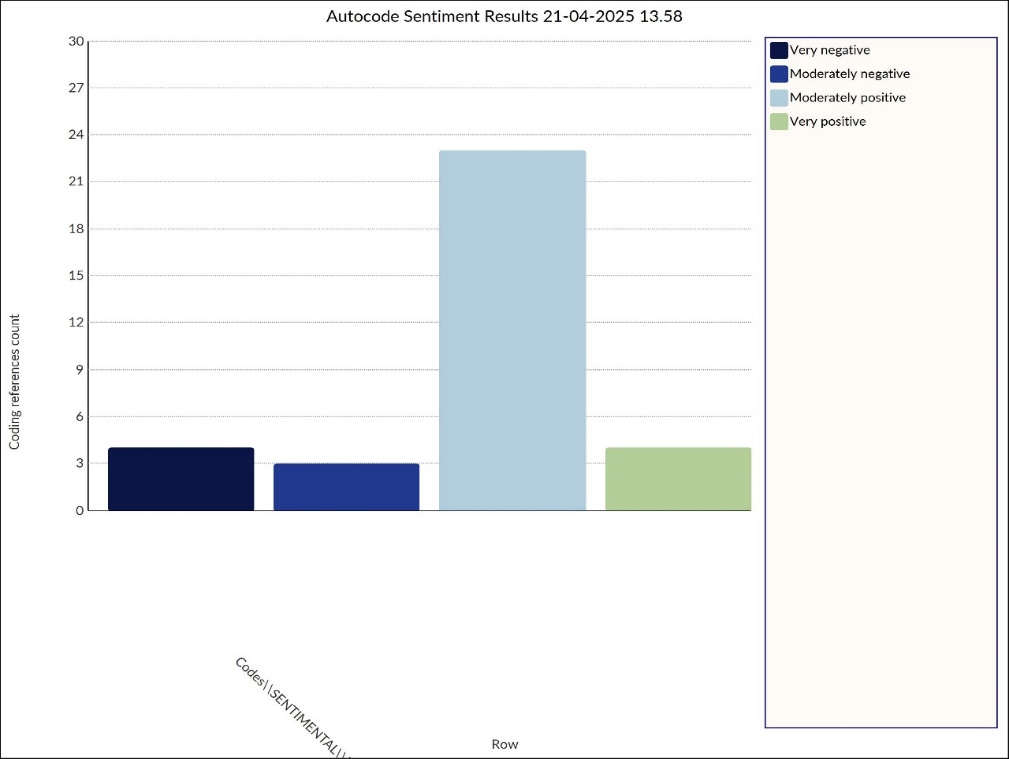
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Fig 1

1. **Word Cloud**

To visually represent the most frequently used terms associated with perceptions of perfect skin, a word cloud was generated based on participants’ open-ended responses. This qualitative visualization technique, supported by NVivo, highlights the prominence of certain keywords by increasing their size relative to frequency of occurrence. The most dominant terms “glowing,” “clear,” “healthy,” “perfect,” “hydrated,” and “natural” suggest that Indian women commonly associate ideal skin with health, clarity, and radiance, rather than fairness or cosmetic perfection (Fig 2). Additional words such as “smooth,” “texture,” “confidence,” “marks,” “acne,” and “pigmentation” reflect common concerns and aspirations, pointing to a desire for skin that is both aesthetically pleasing and emotionally empowering. The presence of terms like “within,” “naturally,” and “non-fair” implies a growing internalization of skincare as a form of self-care, rather than conforming to external beauty standards. Overall, the word cloud provides a compelling snapshot of contemporary skincare ideals, revealing a shift toward authentic, wellness-driven beauty perceptions among Indian women.

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Fig 2

1. **Thematic Analysis**

Thematic analysis was conducted using NVivo to identify and organize recurring ideas and concepts related to perceptions of perfect skin among Indian women. The analysis yielded three central themes: “skin,” “glowing,” and “perfect skin,” each containing multiple subthemes that reflect the diverse and evolving definitions of ideal skincare (Fig 3). Within the broad category of *“skin,”* participants emphasized traits such as “smooth skin,” “hydrated skin,” “healthy skin,” and “clear skin,” indicating a preference for skin that appears naturally well-maintained and free from visible blemishes or imperfections. The theme of *“glowing”* was further nuanced by subthemes like “natural glow,” “healthy glow,” and “beautiful glowing skin,” which underscore the association between radiance and overall skin health, rather than artificial or makeup-enhanced appearances. The persistence of the term *“perfect skin”* within its own category also reveals how this ideal remains aspirational, yet is increasingly interpreted in holistic terms. Notably, references to *“dark skin people”* and *“natural skin”* suggest an expanding acceptance of diverse skin tones and a rejection of narrow, fairness-focused beauty standards. This thematic structure reveals a broader cultural transition where Indian women are redefining perfection in skincare through the lens of health, authenticity, and self-acceptance.

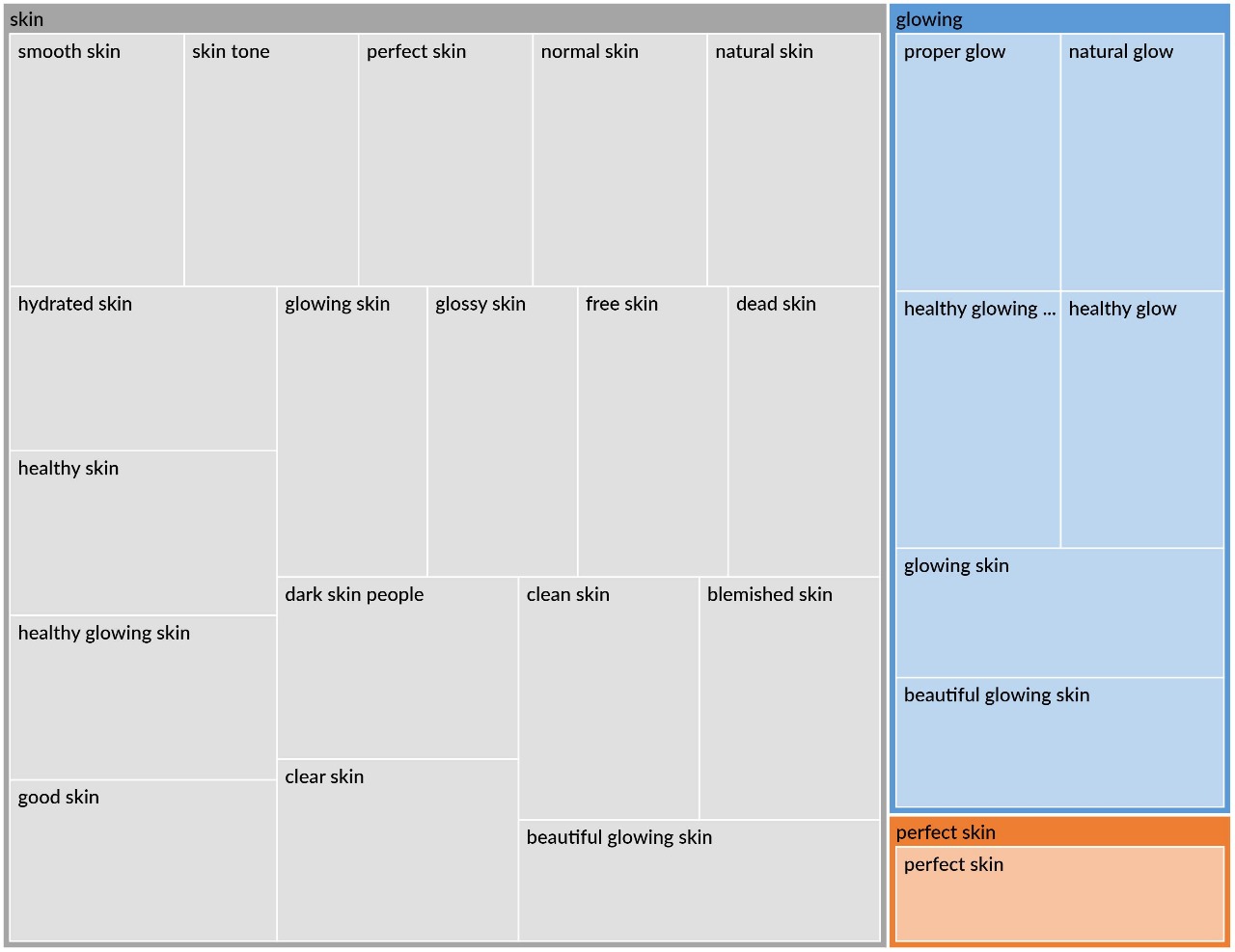
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Fig 3

The qualitative analysis spanning sentiment analysis, word cloud visualization, and thematic mapping offer rich insights into the evolving perceptions of perfect skin among Indian women. The sentiment analysis revealed a predominantly *positive emotional outlook*, with many participants associating skincare with health, confidence, and self-care, while only a minority expressed negative sentiments tied to societal pressures or skin-related insecurities. The word cloud further illustrated this shift, with terms such as *“glowing,” “healthy,” “clear,”* and *“natural”* dominating the narrative—signalling a move away from fairness-based ideals toward a more inclusive and wellness-oriented understanding of beauty. Finally, the thematic analysis reinforced these findings by highlighting key values such as *skin clarity, hydration, natural texture,* and *radiance*, alongside an increasing acceptance of diverse skin tones. Collectively, these analyses suggest that Indian women are actively redefining the ideal of perfect skin—not as a standardized or cosmetic goal, but as a personal and holistic expression of health, authenticity, and self-empowerment. This transition marks a critical cultural shift in consumer behaviour and beauty perceptions, with significant implications for skincare brands, marketers, and societal narratives around beauty.

**7.2** **QUANTITATIVE ANALYSIS**

This section presents a statistical analysis of survey responses from 156 Indian women across regions, age groups, and residence types (urban/semi-urban/rural). The analysis focuses on:

1. Descriptive statistics (frequency, mean, mode)

2. Cross-tabulations (regional, demographic comparisons)

3. Key trends in product preferences, spending, and brand perceptions

**1. Descriptive Statistics:**

**A. Perception of "Perfect Skin"**

**Glow vs. Fairness:**

- 82% (Mean rating: 4.3/5) prioritized "glow" over fairness (Mean: 2.1/5 for fairness importance).

- Only 12% strongly agreed that "perfect skin means fair complexion" (Likert ≤ 2).

**B. Skincare Routines**

**Top 3 Products:**

- Facewash (94%), Moisturizer (89%), Sunscreen (85%).

- Serums (52%) and toners (38%) were secondary.

- Monthly Spending:

- ₹500–1500 (68%), < ₹500 (18%), ₹1500+ (14%).

**C. Cultural & Social Influences**

- Traditional Ingredients:

- 65% used turmeric/sandalwood due to cultural practices (Mean: 3.8/5).

- Family Influence: 41% agreed family standards affected routines (Mean: 3.2/5).

**D. Brand Preferences**

- Indian vs. International:

- 54% preferred both, 28% favoured international (L'Oréal, Neutrogena), 18% chose Indian (Mama earth, Himalaya).

- Ethical Concerns: 32% stopped using a brand due to ethics (e.g., fairness cream controversies).

**2. Regional & Demographic Breakdown:**

**A. North vs. South vs. East vs. West**

| \*Factor\* | \*North\* | \*South\* | \*East\* | \*West\* |

|--------------------------|--------------------|--------------------|--------------------|--------------------|

| \*Top Concern\* | Anti-aging (42%) | Sun protection (58%) | Hydration (39%) | Natural glow (47%) |

| \*Ayurvedic Usage\* | 38% | 72% | 51% | 45% |

| \*Avg. Monthly Spend\* | ₹1,200 | ₹1,100 | ₹950 | ₹1,300 |

**B. Urban vs. Semi-Urban/Rural**

- Urban: Higher spend (₹1,250 vs. ₹800), more international brand preference (34% vs. 18%).

- Rural: Stronger Ayurvedic influence (68% vs. 49% urban).

**C. Age Groups**

- 18–25: Prioritized "glow" (88%), experimented with serums (56%).

- 26–35: Focused on anti-aging (51%), trusted dermat-recommended brands (e.g., Cetaphil).

**3. Key Trends:**

1. Shift from Fairness to Glow: 82% associate "perfect skin" with radiance, not fairness.

2. Regional Nuances:

- South: Highest sunscreen usage (58%), Ayurvedic trust (72%).

- North: Anti-aging focus (42%), higher spending.

3. Urban-Rural Divide: Urban consumers prefer science-backed brands; rural leans traditional.

4. Influencer Impact: Strong in metros but limited in smaller towns.

**4. Marketing Implications:**

1. Glow-Centric Campaigns: Replace fairness messaging with "skin health" narratives.

2. Hyper-Localized Products:

- Anti-pollution solutions for cities.

- Ayurvedic hybrids for tier-2/3 markets.

3. Tiered Pricing: Budget-friendly options for rural areas; premium innovations for metros.

4. Influencer Strategies: Partner with micro-influencers in regional languages.

**Analysis of the SPSS results:**

1. Reliability Analysis

Cronbach’s Alpha: 0.597 (based on 9 items): Indicates moderate internal consistency; values above 0.7 are generally preferred, so this suggests acceptable but improvable reliability (fig 4).

1. One-Way ANOVA by Age Group

Variables Tested: Preference 1 (Fairness), Preference 2 (Glow), Preference 3 (Traditional Influence)

Result: No statistically significant differences found across age groups:

Pref1: F = 0.169, Sig. = 0.845

Pref2: F = 0.943, Sig. = 0.392

Pref3: F = 0.113, Sig. = 0.893

**Interpretation**: Age group does not significantly impact fairness/glow/traditional preferences.

1. One-Way ANOVA by Region

Result: No significant regional differences in preferences:

Pref1 (Fairness): F = 0.245, Sig. = 0.913

Pref2 (Glow): F = 0.794, Sig. = 0.531

Pref3 (Traditional Influence): F = 1.244, Sig. = 0.295

**Interpretation**: Perceptions of skincare ideals are fairly consistent across regional lines.

1. Multivariate Analysis (MGLM)

Significant effect found for:

Pref2 (Glow): F = 3.200, Sig. = 0.044 → Statistically significant difference exists when tested multivariately.

Percp3 & Percp4 Interaction: F = 2.264, Sig. = 0.010 → Indicates a significant combined effect on perception variables (fig 11).

**Interpretation**: While age and region independently may not affect preferences, the interaction between perception variables (e.g., glow + cultural factors) has a meaningful influence on skincare perceptions.

Key Insights

* A major shift from fairness to glow/skin health is evident.
* Age and regional demographics show no significant differences in individual preferences statistically, but interaction effects (cultural + perceptual) are influential.
* Consumer decisions are increasingly shaped by glow, natural appearance, and ethical/cultural alignment rather than just cosmetic or fairness-driven ideals.
  1. **KEY AND MAJOR FINDINGS:**

**1. Changing Beauty Standards: From Fairness to Holistic Glow**

The Indian beauty market has changed dramatically in recent years, especially in how beauty standards are perceived. Kumar and Goel's (2020) study identify a key shift—urban, educated women are now turning away from conventional fairness creams, reflective of a shift away from the age-old bias towards fairer skin. This trend is propelled by growing Colourism-consciousness for its ill effects, feminist voice, and international beauty trends that focus on natural skin shades.

However, while overt fairness advertisements are declining, the market has shifted toward more subtle yet equally prescriptive standards, such as "glowing skin." This new ideal, though less explicitly tied to skin colour, still imposes pressure on women to achieve a certain aesthetic. Desai’s (2019) study on Bollywood’s role is particularly insightful—while some films and celebrities now promote inclusivity (e.g., darker-skinned actors gaining prominence), many advertisements and movies still subtly reinforce Eurocentric beauty norms.

**Marketing Implications:**

* **Rebranding Fairness Products**: Brands such as Hindustan Unilever (Fair & Lovely rebranded as "Glow & Lovely") have made efforts to position themselves in accord with shifting feelings, but it is still subject to doubt.
* **Inclusivity in Advertising**: Brands need to go beyond tokenism and really reflect diverse skin tones in commercials.
* **Emergence of "Skin Positivity"**: An emerging niche market eschews traditional norms of beauty completely, embracing truthfulness—brands such as The Body Shop and Plum have made inroads in this trend.

**Missing Perspective (Our Point of View):**

* **Psychological Pricing & Perception**: How are premium vs. value brands shaping consumer trust around changing beauty standards?
* **Celebrity Endorsement Shifts**: A more in-depth examination of how influencers and Bollywood celebrities are affecting buying behaviour in real-time (e.g., Instagram vs. print ads).

**2. Regional Variations: North-South Divide in Beauty Preferences**

Patel and Sharma (2021) find extreme regional variation in beauty consumption patterns in their comparative study:

**Northern India:**

* **Anti-Aging Supremacy**: Consumers demand wrinkle removal and youthfulness, perhaps due to cultural stress on marriage markets and social pressure on women to look young.
* **Climate Impact**: Cold winters drive a demand for moisturizing and anti-pollution products.

**Southern India:**

* **Sun Protection & Ayurveda:** The tropical weather boosts demand for sunscreen and light textures. Reddy's (2018) study brings to the fore how South India continues to be a bastion for Ayurvedic beauty products, with players such as Kama Ayurveda and Forest Essentials picking up steam.
* **Cultural Trust in Traditional Remedies:** Natural ingredients (turmeric, aloe vera) are favoured over chemical-laden Western brands.

**Marketing Implications:**

* **Hyper-Localized Campaigns**: Messaging needs to be customized—anti-aging in Delhi versus sun-care in Chennai.
* **Ayurveda as a Premium Segment**: The wellness wave globally offers the chance for Indian brands to sell Ayurveda as a premium option to K-beauty.

**Missing Perspective (Our View):**

* **Rural vs. Urban Divide**: Whereas research is concentrated in urban trends, rural India continues to use fairness creams in large numbers—how can marketing strategies cater to this divide?
* **Distribution Channels**: Regional preferences also differ by retail (e.g., pharmacies in South India versus modern trade in North India).

**3. Global Influences: K-Beauty, Social Media, and Hybrid Beauty Trends**

Gupta's (2022) critique of K-beauty's success in India is critical—Korean companies such as Lineage and Innisfree achieved success by framing themselves as "premium yet relatable." Their approach was:

* **Affordable Luxury**: Mid-range pricing with high-quality packaging.
* **Skincare Over Makeup**: Focusing on multi-step routines, which resonated with India's increasing skincare awareness.

Joshi (2020) study of social media presents an irony: while sites such as Instagram celebrate diversity, influencer culture tends to perpetuate unattainable standards of beauty. The popularity of "glass skin" and "10-step routines" introduces new stresses, even as there are some influencers who promote self-acceptance.

**Marketing Implications:**

* **Localized Global Trends**: Indian players can take up K-beauty's innovation (e.g., sheet masks) and add local ingredients (saffron, neem).
* **Micro-Influencers Over Celebrities**: Customers believe more in relatable influencers than typical celebrities for trustworthiness.

**Missing Perspective (Marketing Student's View):**

* **TikTok's Short-Form Effect**: With TikTok under ban, how did Instagram Reels and YouTube Shorts change beauty trends?
* **Men's Grooming Boom**: A relatively untapped segment—how are male customers reacting to these changes?
  1. **CONCLUSION: The Future of Beauty in India – Inclusivity, Regional Nuance, and Digital Disruption**

The Indian beauty and skincare industry stands at a defining moment—where tradition, identity, and innovation intersect. This research highlights that while the historical obsession with fairness has begun to fade, it has given way to newer standards centered around “glow,” “radiance,” and “perfect skin”, which can still impose aesthetic pressures on women. Yet, unlike previous decades, today’s consumers are far more informed, vocal, and intentional in their choices—valuing wellness, authenticity, and ethical alignment in the products they use.

This shift points to a future rooted in inclusivity, where Indian women are increasingly embracing diverse skin tones, rejecting Eurocentric ideals, and redefining beauty through the lens of self-care and confidence. Skincare is no longer seen as a cosmetic fix, but as a daily ritual of personal empowerment—reflecting a deeper emotional and cultural evolution.

Equally significant is the role of regional nuance. The study's findings underscore that skincare preferences are shaped by climate, tradition, and local values. For example, the South shows a stronger affinity for Ayurvedic and sun protection products, while the North leans towards anti-aging solutions. These insights demand hyper-localized marketing and product strategies, not just in language and branding, but also in formulation, pricing, and retail approach.

Lastly, digital disruption is reshaping the beauty narrative in India. Influencers, short-form video platforms, and e-commerce are transforming how products are discovered, evaluated, and embraced. However, this rapid digitization is a double-edged sword—it democratizes access but also perpetuates unrealistic standards through filtered, curated representations of beauty. Brands and creators must therefore use these platforms responsibly, promoting realism over perfection, and diversity over uniformity.

In conclusion, the future of beauty in India lies in recognizing that the modern Indian consumer is not only looking for results but also for representation, relatability, and respect for her identity. The brands that will succeed in this dynamic market will be those that move beyond superficial claims, and instead champion authentic, inclusive, and culturally rooted beauty experiences—powered by digital innovation, but grounded in emotional intelligence.

* 1. **FURTHER STUDIES**

While this study provides valuable insights into Indian women's skincare perceptions and consumer behaviour, it also opens several avenues for future research:

* + 1. Male Skincare Consumer Behaviour:

The focus of this research was limited to Indian women. However, the **men’s grooming and skincare segment in India is rapidly growing**. Future studies could explore male perceptions of skincare, their brand preferences, and whether similar shifts in beauty standards (e.g., from fairness to skin health) are occurring among men.

* + 1. Influence of Digital Platforms and Algorithms:

While this study addressed social media influence generally, **more targeted research on the role of digital algorithms** (e.g., Instagram Reels, YouTube Shorts, TikTok alternatives) could reveal how content delivery mechanisms shape skincare trends and consumer choices in real time.

* + 1. Deep-Dive into Rural vs. Urban Divides:

The current data shows macro-level differences, but a **qualitative deep-dive** into Tier-2, Tier-3 cities and rural areas could better uncover the **nuanced impact of accessibility, pricing sensitivity, and retail infrastructure** on skincare purchasing decisions.

* + 1. Psychological and Emotional Motivators:

While the study touched on self-confidence and emotional associations with skincare, future research could adopt a **psychological lens** to better understand how beauty practices influence self-esteem, social identity, and personal empowerment.

* + 1. The Rise of Clean Beauty and Sustainability:

As clean beauty, vegan skincare, and sustainability become more prominent in global markets, future research could explore the **awareness, understanding, and adoption** of these concepts among Indian consumers—especially in younger and eco-conscious segments.

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**ANNEXURE**

**QUESTIONNAIRE:**

**Section 1: Demographics**

1. **Age Group**

* 18-25
* 26-35
* 36-45

1. **Region**
   * North
   * South
   * East
   * West
   * Northeast
2. **Residence Type**

* Urban
* Semi-Urban
* Rural

**Section 2: Skincare Perceptions and Habits**

1. **"Perfect skin means having a fair complexion."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"I prioritize ‘glow’ over ‘fairness’ for beautiful skin."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"Traditional beauty standards influence my skincare choices."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **How would you describe ‘perfect skin’ in your own words?**

* \_\_\_\_\_\_\_\_\_\_\_\_

1. **Which skincare product do you use most frequently?**

* Face wash
* Moisturizer
* Sunscreen
* Serum
* Fairness cream
* Toner
* All

1. **How much do you spend monthly on skincare?**

* < ₹500
* ₹500–1500
* ₹1500+

1. **Do you prefer Indian or international skincare brands?**

* Indian (e.g., Mamaearth, Himalaya)
* International (e.g., L'Oréal, Neutrogena)
* Prefer both
* No Preference

1. **"I trust brands that avoid ‘fairness’ messaging."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"My family’s beauty standards affect my skincare routine."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"I use regional ingredients (e.g., turmeric, sandalwood) due to cultural practices."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"Climate (humidity/pollution) impacts my skincare purchases."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **"Social media influencers impact my skincare purchases."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **Have you stopped using a brand due to ethical concerns?**

* Yes
* No
* Maybe

1. **"How likely are you to try a new skincare brand?"**

* Linear Scale (1-5)
* 1: Less Likely, 5: Very Likely

1. **"I associate skincare with self-confidence."**

* Linear Scale (1-5)
* 1: Strongly Disagree, 5: Strongly Agree

1. **What’s one skincare trend you wish brands would address in India?**

* Skincare for Pollution Protection
* Waterless Skincare Solutions
* Ayurveda-Driven Science

1. **Which brand comes to your mind when we talk about skincare?**

* \_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **Reliability Statistics** | | |
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .597 | .594 | 9 |

ONEWAY Pref1 Pref2 Pref3 BY Age Group

(fig 4)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | |
|  | Levene Statistic | df1 | df2 | Sig. |
| Pref1 | .968 | 2 | 153 | .382 |
| Pref2 | .338 | 2 | 153 | .714 |
| Pref3 | .271 | 2 | 153 | .763 |

(fig 5)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | | |
|  | | Sum of Squares | df | Mean Square | F | Sig. |
| Pref1 | Between Groups | .501 | 2 | .250 | .169 | .845 |
| Within Groups | 226.397 | 153 | 1.480 |  |  |
| Total | 226.897 | 155 |  |  |  |
| Pref2 | Between Groups | 3.445 | 2 | 1.723 | .943 | .392 |
| Within Groups | 279.548 | 153 | 1.827 |  |  |
| Total | 282.994 | 155 |  |  |  |
| Pref3 | Between Groups | .324 | 2 | .162 | .113 | .893 |
| Within Groups | 218.926 | 153 | 1.431 |  |  |
| Total | 219.250 | 155 |  |  |  |

POST HOC TEST

(fig 6)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Multiple Comparisons** | | | | | | | | |
| Dependent Variable | | (I) Age Group | (J) Age Group | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| Pref1 | Tukey HSD | 1 | 2 | .088 | .322 | .959 | -.67 | .85 |
| 3 | -.274 | .554 | .874 | -1.59 | 1.04 |
| 2 | 1 | -.088 | .322 | .959 | -.85 | .67 |
| 3 | -.362 | .623 | .830 | -1.84 | 1.11 |
| 3 | 1 | .274 | .554 | .874 | -1.04 | 1.59 |
| 2 | .362 | .623 | .830 | -1.11 | 1.84 |
| LSD | 1 | 2 | .088 | .322 | .784 | -.55 | .72 |
| 3 | -.274 | .554 | .622 | -1.37 | .82 |
| 2 | 1 | -.088 | .322 | .784 | -.72 | .55 |
| 3 | -.362 | .623 | .562 | -1.59 | .87 |
| 3 | 1 | .274 | .554 | .622 | -.82 | 1.37 |
| 2 | .362 | .623 | .562 | -.87 | 1.59 |
| Pref2 | Tukey HSD | 1 | 2 | .246 | .357 | .770 | -.60 | 1.09 |
| 3 | -.704 | .616 | .489 | -2.16 | .75 |
| 2 | 1 | -.246 | .357 | .770 | -1.09 | .60 |
| 3 | -.950 | .693 | .358 | -2.59 | .69 |
| 3 | 1 | .704 | .616 | .489 | -.75 | 2.16 |
| 2 | .950 | .693 | .358 | -.69 | 2.59 |
| LSD | 1 | 2 | .246 | .357 | .492 | -.46 | .95 |
| 3 | -.704 | .616 | .255 | -1.92 | .51 |
| 2 | 1 | -.246 | .357 | .492 | -.95 | .46 |
| 3 | -.950 | .693 | .172 | -2.32 | .42 |
| 3 | 1 | .704 | .616 | .255 | -.51 | 1.92 |
| 2 | .950 | .693 | .172 | -.42 | 2.32 |
| Pref3 | Tukey HSD | 1 | 2 | -.009 | .316 | 1.000 | -.76 | .74 |
| 3 | -.259 | .545 | .883 | -1.55 | 1.03 |
| 2 | 1 | .009 | .316 | 1.000 | -.74 | .76 |
| 3 | -.250 | .613 | .912 | -1.70 | 1.20 |
| 3 | 1 | .259 | .545 | .883 | -1.03 | 1.55 |
| 2 | .250 | .613 | .912 | -1.20 | 1.70 |
| LSD | 1 | 2 | -.009 | .316 | .977 | -.63 | .62 |
| 3 | -.259 | .545 | .635 | -1.34 | .82 |
| 2 | 1 | .009 | .316 | .977 | -.62 | .63 |
| 3 | -.250 | .613 | .684 | -1.46 | .96 |
| 3 | 1 | .259 | .545 | .635 | -.82 | 1.34 |
| 2 | .250 | .613 | .684 | -.96 | 1.46 |

ONEWAY Pref1 Pref2 Pref3 BY REGION Group

(fig 7)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Multiple Comparisons** | | | | | | | | |
|  | | | | | | | | |
|  | | | | | | | | |
|  | | | | | | | | |
| Dependent Variable | | (I) Region | (J) Region | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| Lower Bound | Upper Bound |
| Pref1 | Tukey HSD | 1 | 2 | .107 | .239 | .992 | -.55 | .77 |
| 3 | .193 | .304 | .970 | -.65 | 1.03 |
| 4 | .029 | .501 | 1.000 | -1.35 | 1.41 |
| 5 | -.257 | .501 | .986 | -1.64 | 1.13 |
| 2 | 1 | -.107 | .239 | .992 | -.77 | .55 |
| 3 | .086 | .274 | .998 | -.67 | .84 |
| 4 | -.078 | .483 | 1.000 | -1.41 | 1.26 |
| 5 | -.364 | .483 | .943 | -1.70 | .97 |
| 3 | 1 | -.193 | .304 | .970 | -1.03 | .65 |
| 2 | -.086 | .274 | .998 | -.84 | .67 |
| 4 | -.164 | .518 | .998 | -1.59 | 1.27 |
| 5 | -.450 | .518 | .908 | -1.88 | .98 |
| 4 | 1 | -.029 | .501 | 1.000 | -1.41 | 1.35 |
| 2 | .078 | .483 | 1.000 | -1.26 | 1.41 |
| 3 | .164 | .518 | .998 | -1.27 | 1.59 |
| 5 | -.286 | .653 | .992 | -2.09 | 1.52 |
| 5 | 1 | .257 | .501 | .986 | -1.13 | 1.64 |
| 2 | .364 | .483 | .943 | -.97 | 1.70 |
| 3 | .450 | .518 | .908 | -.98 | 1.88 |
| 4 | .286 | .653 | .992 | -1.52 | 2.09 |
| LSD | 1 | 2 | .107 | .239 | .656 | -.37 | .58 |
| 3 | .193 | .304 | .528 | -.41 | .79 |
| 4 | .029 | .501 | .955 | -.96 | 1.02 |
| 5 | -.257 | .501 | .608 | -1.25 | .73 |
| 2 | 1 | -.107 | .239 | .656 | -.58 | .37 |
| 3 | .086 | .274 | .754 | -.46 | .63 |
| 4 | -.078 | .483 | .872 | -1.03 | .88 |
| 5 | -.364 | .483 | .452 | -1.32 | .59 |
| 3 | 1 | -.193 | .304 | .528 | -.79 | .41 |
| 2 | -.086 | .274 | .754 | -.63 | .46 |
| 4 | -.164 | .518 | .752 | -1.19 | .86 |
| 5 | -.450 | .518 | .387 | -1.47 | .57 |
| 4 | 1 | -.029 | .501 | .955 | -1.02 | .96 |
| 2 | .078 | .483 | .872 | -.88 | 1.03 |
| 3 | .164 | .518 | .752 | -.86 | 1.19 |
| 5 | -.286 | .653 | .662 | -1.58 | 1.00 |
| 5 | 1 | .257 | .501 | .608 | -.73 | 1.25 |
| 2 | .364 | .483 | .452 | -.59 | 1.32 |
| 3 | .450 | .518 | .387 | -.57 | 1.47 |
| 4 | .286 | .653 | .662 | -1.00 | 1.58 |
| Pref2 | Tukey HSD | 1 | 2 | -.025 | .265 | 1.000 | -.76 | .71 |
| 3 | -.440 | .337 | .690 | -1.37 | .49 |
| 4 | -.625 | .555 | .793 | -2.16 | .91 |
| 5 | -.054 | .555 | 1.000 | -1.59 | 1.48 |
| 2 | 1 | .025 | .265 | 1.000 | -.71 | .76 |
| 3 | -.415 | .304 | .651 | -1.25 | .42 |
| 4 | -.600 | .535 | .795 | -2.08 | .88 |
| 5 | -.029 | .535 | 1.000 | -1.51 | 1.45 |
| 3 | 1 | .440 | .337 | .690 | -.49 | 1.37 |
| 2 | .415 | .304 | .651 | -.42 | 1.25 |
| 4 | -.185 | .575 | .998 | -1.77 | 1.40 |
| 5 | .386 | .575 | .962 | -1.20 | 1.97 |
| 4 | 1 | .625 | .555 | .793 | -.91 | 2.16 |
| 2 | .600 | .535 | .795 | -.88 | 2.08 |
| 3 | .185 | .575 | .998 | -1.40 | 1.77 |
| 5 | .571 | .724 | .933 | -1.43 | 2.57 |
| 5 | 1 | .054 | .555 | 1.000 | -1.48 | 1.59 |
| 2 | .029 | .535 | 1.000 | -1.45 | 1.51 |
| 3 | -.386 | .575 | .962 | -1.97 | 1.20 |
| 4 | -.571 | .724 | .933 | -2.57 | 1.43 |
| LSD | 1 | 2 | -.025 | .265 | .925 | -.55 | .50 |
| 3 | -.440 | .337 | .194 | -1.11 | .23 |
| 4 | -.625 | .555 | .262 | -1.72 | .47 |
| 5 | -.054 | .555 | .923 | -1.15 | 1.04 |
| 2 | 1 | .025 | .265 | .925 | -.50 | .55 |
| 3 | -.415 | .304 | .175 | -1.02 | .19 |
| 4 | -.600 | .535 | .264 | -1.66 | .46 |
| 5 | -.029 | .535 | .958 | -1.09 | 1.03 |
| 3 | 1 | .440 | .337 | .194 | -.23 | 1.11 |
| 2 | .415 | .304 | .175 | -.19 | 1.02 |
| 4 | -.185 | .575 | .748 | -1.32 | .95 |
| 5 | .386 | .575 | .503 | -.75 | 1.52 |
| 4 | 1 | .625 | .555 | .262 | -.47 | 1.72 |
| 2 | .600 | .535 | .264 | -.46 | 1.66 |
| 3 | .185 | .575 | .748 | -.95 | 1.32 |
| 5 | .571 | .724 | .431 | -.86 | 2.00 |
| 5 | 1 | .054 | .555 | .923 | -1.04 | 1.15 |
| 2 | .029 | .535 | .958 | -1.03 | 1.09 |
| 3 | -.386 | .575 | .503 | -1.52 | .75 |
| 4 | -.571 | .724 | .431 | -2.00 | .86 |
| Pref3 | Tukey HSD | 1 | 2 | -.073 | .232 | .998 | -.71 | .57 |
| 3 | -.226 | .295 | .940 | -1.04 | .59 |
| 4 | -.300 | .486 | .972 | -1.64 | 1.04 |
| 5 | .843 | .486 | .416 | -.50 | 2.18 |
| 2 | 1 | .073 | .232 | .998 | -.57 | .71 |
| 3 | -.153 | .266 | .979 | -.89 | .58 |
| 4 | -.227 | .469 | .989 | -1.52 | 1.07 |
| 5 | .916 | .469 | .293 | -.38 | 2.21 |
| 3 | 1 | .226 | .295 | .940 | -.59 | 1.04 |
| 2 | .153 | .266 | .979 | -.58 | .89 |
| 4 | -.074 | .503 | 1.000 | -1.46 | 1.31 |
| 5 | 1.069 | .503 | .215 | -.32 | 2.46 |
| 4 | 1 | .300 | .486 | .972 | -1.04 | 1.64 |
| 2 | .227 | .469 | .989 | -1.07 | 1.52 |
| 3 | .074 | .503 | 1.000 | -1.31 | 1.46 |
| 5 | 1.143 | .634 | .375 | -.61 | 2.89 |
| 5 | 1 | -.843 | .486 | .416 | -2.18 | .50 |
| 2 | -.916 | .469 | .293 | -2.21 | .38 |
| 3 | -1.069 | .503 | .215 | -2.46 | .32 |
| 4 | -1.143 | .634 | .375 | -2.89 | .61 |
| LSD | 1 | 2 | -.073 | .232 | .753 | -.53 | .39 |
| 3 | -.226 | .295 | .445 | -.81 | .36 |
| 4 | -.300 | .486 | .538 | -1.26 | .66 |
| 5 | .843 | .486 | .085 | -.12 | 1.80 |
| 2 | 1 | .073 | .232 | .753 | -.39 | .53 |
| 3 | -.153 | .266 | .567 | -.68 | .37 |
| 4 | -.227 | .469 | .629 | -1.15 | .70 |
| 5 | .916 | .469 | .052 | -.01 | 1.84 |
| 3 | 1 | .226 | .295 | .445 | -.36 | .81 |
| 2 | .153 | .266 | .567 | -.37 | .68 |
| 4 | -.074 | .503 | .883 | -1.07 | .92 |
| 5 | 1.069\* | .503 | .035 | .08 | 2.06 |
| 4 | 1 | .300 | .486 | .538 | -.66 | 1.26 |
| 2 | .227 | .469 | .629 | -.70 | 1.15 |
| 3 | .074 | .503 | .883 | -.92 | 1.07 |
| 5 | 1.143 | .634 | .073 | -.11 | 2.39 |
| 5 | 1 | -.843 | .486 | .085 | -1.80 | .12 |
| 2 | -.916 | .469 | .052 | -1.84 | .01 |
| 3 | -1.069\* | .503 | .035 | -2.06 | -.08 |
| 4 | -1.143 | .634 | .073 | -2.39 | .11 |
| \*. The mean difference is significant at the 0.05 level. | | | | | | | | |

(fig 8)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test of Homogeneity of Variances** | | | | |
|  | Levene Statistic | df1 | df2 | Sig. |
| Pref1 | 1.273 | 4 | 151 | .283 |
| Pref2 | .720 | 4 | 151 | .579 |
| Pref3 | .915 | 4 | 151 | .457 |

(fig 9)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA** | | | | | | |
|  | | Sum of Squares | df | Mean Square | F | Sig. |
| Pref1 | Between Groups | 1.461 | 4 | .365 | .245 | .913 |
| Within Groups | 225.437 | 151 | 1.493 |  |  |
| Total | 226.897 | 155 |  |  |  |
| Pref2 | Between Groups | 5.830 | 4 | 1.458 | .794 | .531 |
| Within Groups | 277.163 | 151 | 1.836 |  |  |
| Total | 282.994 | 155 |  |  |  |
| Pref3 | Between Groups | 6.994 | 4 | 1.749 | 1.244 | .295 |
| Within Groups | 212.256 | 151 | 1.406 |  |  |
| Total | 219.250 | 155 |  |  |  |

POST HOC TEST

(fig 10)

Multivariate General Linear Model (MGLM)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Multivariate Testsa** | | | | | | | |
| Effect | | Value | F | Hypothesis df | Error df | Sig. | Partial Eta Squared |
| Intercept | Pillai's Trace | .323 | 30.509b | 2.000 | 128.000 | .000 | .323 |
| Wilks' Lambda | .677 | 30.509b | 2.000 | 128.000 | .000 | .323 |
| Hotelling's Trace | .477 | 30.509b | 2.000 | 128.000 | .000 | .323 |
| Roy's Largest Root | .477 | 30.509b | 2.000 | 128.000 | .000 | .323 |
| Pref1 | Pillai's Trace | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Wilks' Lambda | .986 | .882b | 2.000 | 128.000 | .416 | .014 |
| Hotelling's Trace | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Roy's Largest Root | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Att1 | Pillai's Trace | .003 | .186b | 2.000 | 128.000 | .831 | .003 |
| Wilks' Lambda | .997 | .186b | 2.000 | 128.000 | .831 | .003 |
| Hotelling's Trace | .003 | .186b | 2.000 | 128.000 | .831 | .003 |
| Roy's Largest Root | .003 | .186b | 2.000 | 128.000 | .831 | .003 |
| Att2 | Pillai's Trace | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Wilks' Lambda | .986 | .882b | 2.000 | 128.000 | .416 | .014 |
| Hotelling's Trace | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Roy's Largest Root | .014 | .882b | 2.000 | 128.000 | .416 | .014 |
| Pref2 | Pillai's Trace | .048 | 3.200b | 2.000 | 128.000 | .044 | .048 |
| Wilks' Lambda | .952 | 3.200b | 2.000 | 128.000 | .044 | .048 |
| Hotelling's Trace | .050 | 3.200b | 2.000 | 128.000 | .044 | .048 |
| Roy's Largest Root | .050 | 3.200b | 2.000 | 128.000 | .044 | .048 |
| Pref3 | Pillai's Trace | .001 | .077b | 2.000 | 128.000 | .926 | .001 |
| Wilks' Lambda | .999 | .077b | 2.000 | 128.000 | .926 | .001 |
| Hotelling's Trace | .001 | .077b | 2.000 | 128.000 | .926 | .001 |
| Roy's Largest Root | .001 | .077b | 2.000 | 128.000 | .926 | .001 |
| Percp3 | Pillai's Trace | .272 | 5.069 | 8.000 | 258.000 | .000 | .136 |
| Wilks' Lambda | .745 | 5.069b | 8.000 | 256.000 | .000 | .137 |
| Hotelling's Trace | .319 | 5.067 | 8.000 | 254.000 | .000 | .138 |
| Roy's Largest Root | .212 | 6.851c | 4.000 | 129.000 | .000 | .175 |
| Percp4 | Pillai's Trace | .146 | 2.538 | 8.000 | 258.000 | .011 | .073 |
| Wilks' Lambda | .858 | 2.552b | 8.000 | 256.000 | .011 | .074 |
| Hotelling's Trace | .162 | 2.565 | 8.000 | 254.000 | .010 | .075 |
| Roy's Largest Root | .128 | 4.138c | 4.000 | 129.000 | .003 | .114 |
| Percp3 \* Percp4 | Pillai's Trace | .269 | 1.543 | 26.000 | 258.000 | .049 | .135 |
| Wilks' Lambda | .746 | 1.551b | 26.000 | 256.000 | .047 | .136 |
| Hotelling's Trace | .319 | 1.559 | 26.000 | 254.000 | .045 | .138 |
| Roy's Largest Root | .228 | 2.264c | 13.000 | 129.000 | .010 | .186 |
| a. Design: Intercept + Pref1 + Att1 + Att2 + Pref2 + Pref3 + Percp3 + Percp4 + Percp3 \* Percp4 | | | | | | | |
| b. Exact statistic | | | | | | | |
| c. The statistic is an upper bound on F that yields a lower bound on the significance level. | | | | | | | |

(fig 11)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Levene's Test of Equality of Error Variancesa** | | | | |
|  | F | df1 | df2 | Sig. |
| Precp1 | 1.641 | 21 | 134 | .049 |
| Percp2 | 2.178 | 21 | 134 | .004 |
| Tests the null hypothesis that the error variance of the dependent variable is equal across groups. | | | | |
| a. Design: Intercept + Pref1 + Att1 + Att2 + Pref2 + Pref3 + Percp3 + Percp4 + Percp3 \* Percp4 | | | | |

(fig 12)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Tests of Between-Subjects Effects** | | | | | | | |
| Source | Dependent Variable | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared |
| Corrected Model | Precp1 | 61.798a | 26 | 2.377 | 2.099 | .004 | .297 |
| Percp2 | 98.044b | 26 | 3.771 | 2.625 | .000 | .346 |
| Intercept | Precp1 | 51.289 | 1 | 51.289 | 45.286 | .000 | .260 |
| Percp2 | 32.693 | 1 | 32.693 | 22.758 | .000 | .150 |
| Pref1 | Precp1 | .010 | 1 | .010 | .009 | .926 | .000 |
| Percp2 | 2.550 | 1 | 2.550 | 1.775 | .185 | .014 |
| Att1 | Precp1 | .107 | 1 | .107 | .094 | .759 | .001 |
| Percp2 | .452 | 1 | .452 | .315 | .576 | .002 |
| Att2 | Precp1 | 1.815 | 1 | 1.815 | 1.603 | .208 | .012 |
| Percp2 | .453 | 1 | .453 | .315 | .575 | .002 |
| Pref2 | Precp1 | .038 | 1 | .038 | .034 | .854 | .000 |
| Percp2 | 8.945 | 1 | 8.945 | 6.227 | .014 | .046 |
| Pref3 | Precp1 | .170 | 1 | .170 | .150 | .699 | .001 |
| Percp2 | .019 | 1 | .019 | .013 | .908 | .000 |
| Percp3 | Precp1 | 27.139 | 4 | 6.785 | 5.991 | .000 | .157 |
| Percp2 | 26.791 | 4 | 6.698 | 4.662 | .002 | .126 |
| Percp4 | Precp1 | 18.375 | 4 | 4.594 | 4.056 | .004 | .112 |
| Percp2 | 7.503 | 4 | 1.876 | 1.306 | .271 | .039 |
| Percp3 \* Percp4 | Precp1 | 31.117 | 13 | 2.394 | 2.113 | .017 | .176 |
| Percp2 | 18.118 | 13 | 1.394 | .970 | .484 | .089 |
| Error | Precp1 | 146.100 | 129 | 1.133 |  |  |  |
| Percp2 | 185.315 | 129 | 1.437 |  |  |  |
| Total | Precp1 | 2736.000 | 156 |  |  |  |  |
| Percp2 | 1748.000 | 156 |  |  |  |  |
| Corrected Total | Precp1 | 207.897 | 155 |  |  |  |  |
| Percp2 | 283.359 | 155 |  |  |  |  |
| a. R Squared = .297 (Adjusted R Squared = .156) | | | | | | | |
| b. R Squared = .346 (Adjusted R Squared = .214) | | | | | | | |

(fig 13)