## Understanding Consumer Perception And Trust Factors In Ayurvedic Product Marketing

# Ms. Kiran Rao<sup>1</sup>, Dr. Pratap R Desai<sup>2</sup>, Dr. Preeti P Patil<sup>3</sup>, Mr. Vinayak Shitole<sup>4</sup>

<sup>1</sup>Research Scholar Bharati Vidyapeeth Deemed to be University, IMRDA, Sangli Email: Kiran.kekane@gmail.com

<sup>2</sup>Associate Professor Bharati Vidyapeeth Deemed to be University, IMRDA, Sangli Email: pratap646@rediffmail.com

<sup>3</sup>Assistant Professor Women's education society Abbasabeb Garware Institute of management studies, Sangli Email: preeti6710@gmail.com

<sup>4</sup>Assistant Professor Arihant Institute of Business Management, Pune. Email: vshitole95@gmail.com

Ayurveda, one of the oldest traditional medicine systems, has experienced a resurgence in popularity, especially in urban and semi-urban markets in India. The increasing consumer awareness regarding wellness, immunity, and natural therapies has enabled Ayurvedic products to establish themselves as viable alternatives to contemporary chemical-based products. This study analyzes consumer perception and trust factors that influence the marketing of Ayurvedic products. A standardized questionnaire was administered to a sample of 165 respondents across diverse demographic categories. The research examined characteristics such as awareness, perceived efficacy, brand trust, safety concerns, and marketing communication strategies. Research indicates that perceived ingredient authenticity, certifications and endorsements, brand reputation, and word-of-mouth recommendations significantly influence consumer trust. Marketing strategies that highlight transparency, inherent advantages, and historical authenticity significantly enhance consumer trust. The findings indicate that marketing Ayurvedic products necessitates a careful integration of traditional knowledge with contemporary communication strategies to foster sustainable consumer trust.

**Keywords** Ayurveda, Consumer Perception, Trust Factors, Marketing, Brand Reputation, Natural Products.

#### 1. Introduction

Consumer perception, in marketing, denotes the mental representation and attitude that customers develop regarding a product or brand. This perception is influenced by prior experiences, sources of information, cultural beliefs, and marketing communications. In Ayurveda, consumer perception integrates cultural familiarity with traditional practices alongside the modern consumer's demand for scientific validation and demonstrated effectiveness. Ayurveda, being deeply embedded in Indian tradition, possesses a cultural

advantage. Changing lifestyles and exposure to global health trends indicate that consumer perception is influenced not only by tradition but also by product quality, certifications, and brand reputation.

Trust is an essential element in marketing, especially for products that have a direct impact on health and wellness. Factors that affect trust in Ayurvedic marketing include the legitimacy of ingredients, transparency in labeling, endorsements from medical professionals, and government certifications, such as AYUSH approval. Furthermore, consumer trust is notably influenced by word-of-mouth recommendations, online reviews, and brand reputation developed through consistent marketing strategies. The trustworthiness of a product is a critical factor that influences consumer retention and recommendations, subsequently affecting brand loyalty and market expansion.

Marketing communication is essential in influencing perception and establishing trust. Advertisements, celebrity endorsements, social media campaigns, and packaging significantly affect consumer perceptions of Ayurvedic products. Established brands like Dabur and Himalaya have developed credibility over decades, whereas newer competitors such as Patanjali have rapidly gained consumer trust through aggressive marketing and appeals to nationalist sentiment. The relationship between traditional heritage and modern marketing strategies influences the effectiveness of Ayurvedic products in reaching their intended audience.

The effectiveness and safety of products are of equal importance. Unlike allopathic medicines, which generally provide immediate relief, Ayurvedic products are associated with long-term wellness and gradual healing processes. Consumers choose Ayurveda mainly because of its perceived safety and sustainability for long-term use. Consumer attitudes are significantly influenced by expectations concerning the speed of effectiveness and concerns about adulteration or counterfeit products. Examining these perceptions provides essential insights for marketers aiming to increase trust and expand the consumer base.

This study performs a systematic analysis of Ayurvedic product marketing, focusing on consumer perception, trust, marketing communication, product effectiveness, and purchasing behavior. This research analyzes a sample of 165 respondents from various demographic backgrounds to identify the primary factors influencing consumer trust and market behavior. The findings enhance the existing literature on natural product marketing and offer a framework for companies to develop strategies aimed at both attracting and retaining consumers in a competitive wellness industry.

#### 2. Review of Literature

Interest in Ayurveda and other traditional systems has risen steadily over the last decade, but the drivers of consumer perception and trust remain multifactorial—rooted in culture, perceived naturalness and safety, visible quality cues (labels, certifications), word-of-mouth and digital reviews, clinician endorsement, and demonstrable efficacy. A recent systematic

review of complementary and alternative medicine (CAM) use synthesized worldwide evidence and found the most frequently reported reasons for adoption are perceived effectiveness, safety/naturalness, and dissatisfaction with conventional care—factors that map directly to Ayurvedic product choices in India's fast-growing market (Tangkiatkumjai et al., 2020).

Cultural familiarity and the "natural equals safe" heuristic form a powerful baseline for trust. In India, consumers often construe Ayurveda as both wellness and medicine; hospital-based surveys report that outpatients chose Ayurveda primarily for perceived safety and the belief that it would help with the specific condition, rather than for access or cost reasons (Rastogi et al., 2022/2023).

During COVID-19, these priors intersected with immunity narratives. Retailer/wholesaler surveys documented 20–30% sales growth in Ayurvedic medicines with pronounced demand for "immunity booster" products (Kolhe et al., 2021), while community case studies from Kerala showed that organized, locally delivered Ayurvedic programs increased service utilization during the pandemic (Joseph et al., 2021).

At the same time, living systematic reviews and editorials urged caution that evidence quality for many AYUSH interventions remained heterogeneous and evolving (Thakar et al., 2023; Patwardhan, 2021).

Trust is also shaped by confidence in quality control. A persistent concern in the herbal sector is contamination and variability of actives. Multicountry and India-focused investigations continue to report episodes of heavy metals in some Ayurvedic products—especially those involving rasa shastra—highlighting the reputational stakes for the entire category (Mikulski et al., 2018; Bhalla et al., 2022). While some of the most cited evidence is earlier, post-2015 studies and reviews reaffirm the risk and call for stronger testing and labeling transparency (Luo et al., 2021). Parallel work in pharmacology and regulatory science emphasizes modernizing pharmacopeial standards, chemical fingerprinting, and manufacturing controls to reduce batch-to-batch variability and improve reproducibility (Wang et al., 2023).

India's policy response includes quality marks and certification. The Quality Council of India's AYUSH Standard/AYUSH Premium Mark schemes define GMP-aligned and export-grade requirements (QCI, 2016; updated web resources 2022–2024). These visible certifications function as trust cues, particularly in low-information online environments.

Digital commerce has shifted how consumers evaluate Ayurvedic products: package cues are now mediated by product pages, ratings, and claims. Research auditing online food-supplement marketplaces in recent years documents substantial non-compliance with labeling/claims rules and variable disclosure quality—conditions that can erode trust and make third-party certifications or pharmacist/physician recommendation more salient (e.g., regulatory and risk-assessment briefs and compliance audits across jurisdictions; EFSA topic

page provides the baseline rules often invoked in audits) (EFSA, n.d.). In India's COVID-19 context, journalism and public-health commentary also chronicled the parallel spread of health misinformation on social platforms, underscoring the need for authoritative communication and compliant claims in TM/CAM retailing (e.g., widespread WhatsApp rumor dynamics reported in April 2021).

Pandemic-era enthusiasm for "immunity" products increased trial and expanded the funnel for many Ayurvedic brands, but it also amplified scrutiny of evidence. Editorials from the Journal of Ayurveda and Integrative Medicine documented the Ministry of AYUSH's programmatic responses and protocols, while living systematic reviews synthesized AYUSH-related clinical data, generally judging certainty as low-to-moderate and recommending more rigorous RCTs (Kotecha, 2021; Thakar et al., 2023). Specific iconic products tell a similar story: for instance, a 2022 review of Chyawanprash characterized consumer trust as high but the evidential base as comparatively meager, recommending standardized trials and transparent labeling of actives (Sharma et al., 2022).

Demographic correlates interact with category cues like "herbal," "free-from," and "traditional recipe." In an Indian city-level study of women purchasing herbal cosmetics, frequency of purchase correlated with age, income, and education; factor analysis identified Promotion, Product Attributes, "Worth of Purchasing," and Demonstration Effect as key drivers—constructs transferable to Ayurvedic OTCs (Chattaraj et al., 2018). These findings triangulate with broader CAM motivations (perceived safety and efficacy) and suggest that trust signals in advertising, sampling, and peer demonstration can move attitudes and intent.

During the present research the author observed that, the literature converges on five trust factors: (1) perceived naturalness/safety and cultural fit; (2) personal/peer evidence and clinician endorsement; (3) visible quality assurance (GMP, AYUSH Standard/Premium Mark); (4) clear, compliant labeling and claim substantiation in digital retail; and (5) credible scientific evidence and standardization. The gap is not a shortage of interest but the need to empirically link specific marketing signals (e.g., AYUSH Mark display, ingredient standardization statements, third-party testing badges, physician quotes, and verified-review patterns) to measurable outcomes such as perceived credibility and purchase intention—especially in post-pandemic online settings where information asymmetry and misinformation can simultaneously inflate interest and depress trust. This study responds to that gap by quantifying how those cues shape consumer perception and trust for Ayurvedic products in India.

#### 3. Research Objectives

The primary objectives of the paper are:

• To examine consumer perceptions of Ayurvedic products and determine the primary factors that influence trust within this market.

- To analyze the influence of brand reputation, certifications, and marketing communication on consumer confidence in Ayurvedic products.
- To investigate demographic variations in awareness, usage patterns, and trust levels associated with Ayurvedic products.
- To assess the correlation among perceived product effectiveness, safety, and intentions for future purchases.

## 4. Research Methodology

A cross-sectional survey study approach was used to evaluate consumer attitudes and trust aspects about the marketing of Ayurvedic products. The methodology was deemed appropriate since it facilitated data collection from a diverse respondent population at a single time point, successfully capturing current consumers' attitudes, beliefs, and actions about Ayurvedic products.

A sample of 165 respondents was chosen, including adult consumers from rural, semi-urban, and metropolitan areas of India. The sample size accurately reflected consumer perceptions across various demographic categories, including age, gender, education, income, and geographic location.

A stratified random sampling method was employed to guarantee adequate representation of various demographic groups. The population was categorized according to age and income levels, as these variables significantly affect consumer attitudes toward wellness and health-related products. Respondents were randomly selected from each stratum, which minimized sampling bias and improved data reliability.

The survey instrument consisted of 28 structured questions divided into two sections. The initial section comprised five demographic questions designed to categorize respondents into suitable groups for comparative analysis. The second section comprised 23 closed-ended questions. The majority of these questions employed a five-point Likert scale to evaluate the intensity of consumer opinions and attitudes.

Data were collected through online structured questionnaires, enabling efficient outreach to a wide audience and minimizing time constraints. The responses were coded, tabulated, and analyzed using descriptive statistics, frequency distributions, and comparative analysis across demographic groups.

The hypotheses of the study were articulated as follows:

Hypothesis One:

Hypothesis 1: H<sub>0</sub>: "There is no significant relationship between trust factors, including certifications, brand reputation, and ingredient transparency, and consumer purchase decisions for Ayurvedic products."

H<sub>1</sub>: "There is a significant relationship between trust factors (certifications, brand reputation, and ingredient transparency) and consumer purchase decisions concerning Ayurvedic products."

## Hypothesis 2:

H<sub>0</sub>: "There is no significant difference in consumer perception of Ayurvedic products across different demographic groups, including age, income, and education."

H<sub>0</sub>: "There is significant difference in consumer perception of Ayurvedic products across different demographic groups, including age, income, and education."

#### **Empirical Results**

#### **Section A: Demographic Questions**

**Table 1: Age Distribution of Respondents** 

| Age Group      | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|----------------|-----------|------------|---------------------|--------------------------|
| 18–25 years    | 37        | 22.42%     | 22.42%              | 22.42%                   |
| 26–35 years    | 46        | 27.88%     | 27.88%              | 50.30%                   |
| 36–45 years    | 34        | 20.61%     | 20.61%              | 70.91%                   |
| 46–55 years    | 28        | 16.97%     | 16.97%              | 87.88%                   |
| Above 55 years | 20        | 12.12%     | 12.12%              | 100.00%                  |
| Total          | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

The majority of respondents (27.88%) were in the age group of 26–35 years, followed by 22.42% in the 18–25 years group. This indicates that younger consumers are more engaged with Ayurvedic products. Only 12.12% of respondents were above 55 years, suggesting that older consumers may rely more on traditional knowledge without actively engaging in marketed products.

**Table 2: Gender Distribution of Respondents** 

| Gender | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------|-----------|------------|---------------------|--------------------------|
| Male   | 79        | 47.88%     | 47.88%              | 47.88%                   |
| Female | 85        | 51.52%     | 51.52%              | 99.39%                   |
| Other  | 1         | 0.61%      | 0.61%               | 100.00%                  |
| Total  | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

The sample was almost evenly distributed between male and female respondents, with 51.52% females and 47.88% males. Only 0.61% of respondents identified as other, indicating very limited participation from gender-diverse groups.

**Table 3: Educational Qualification of Respondents** 

| Education Level           | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---------------------------|-----------|------------|---------------------|--------------------------|
| Up to Higher<br>Secondary | 22        | 13.33%     | 13.33%              | 13.33%                   |
| Graduate                  | 49        | 29.70%     | 29.70%              | 43.03%                   |
| Postgraduate              | 54        | 32.73%     | 32.73%              | 75.76%                   |

| Doctorate                         | 14  | 8.48%   | 8.48%   | 84.24%  |
|-----------------------------------|-----|---------|---------|---------|
| Professional/Technical<br>Diploma | 26  | 15.76%  | 15.76%  | 100.00% |
| Total                             | 165 | 100.00% | 100.00% |         |

The majority of respondents were postgraduates (32.73%) and graduates (29.70%). This suggests that educated consumers are more aware of and engaged with Ayurvedic products. Only 8.48% had a doctorate, reflecting a smaller representation of highly specialized professionals in the survey.

**Table 4: Monthly Household Income of Respondents** 

| Income Level           | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|------------------------|-----------|------------|---------------------|--------------------------|
| Below ₹25,000          | 27        | 16.36%     | 16.36%              | 16.36%                   |
| ₹25,001 –<br>₹50,000   | 39        | 23.64%     | 23.64%              | 40.00%                   |
| ₹50,001 –<br>₹75,000   | 41        | 24.85%     | 24.85%              | 64.85%                   |
| ₹75,001 –<br>₹1,00,000 | 33        | 20.00%     | 20.00%              | 84.85%                   |
| Above<br>₹1,00,000     | 25        | 15.15%     | 15.15%              | 100.00%                  |
| Total                  | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

Most respondents belonged to the middle-income groups, with 24.85% earning between ₹50,001–₹75,000. Higher-income respondents (above ₹1,00,000) accounted for 15.15%, showing that Ayurvedic products are reaching both middle and higher economic classes, but affordability plays a role.

Table 5: Area of Residence of Respondents

| Area of<br>Residence    | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-------------------------|-----------|------------|---------------------|--------------------------|
| Rural                   | 31        | 18.79%     | 18.79%              | 18.79%                   |
| Semi-urban              | 38        | 23.03%     | 23.03%              | 41.82%                   |
| Urban (Tier II city)    | 46        | 27.88%     | 27.88%              | 69.70%                   |
| Urban<br>(Metro/Tier I) | 50        | 30.30%     | 30.30%              | 100.00%                  |
| Total                   | 165       | 100.00%    | 100.00%             |                          |

#### **Interpretation:**

A significant proportion of respondents resided in urban areas, with 30.30% from metros and 27.88% from Tier II cities. Rural representation was 18.79%, indicating that while Ayurveda has roots in rural traditions, its commercial marketing has been more effective in urban markets.

**Section B: Quantitative Questions** 

Category 1: Awareness & Usage Patterns

**Table 6: Frequency of Usage of Ayurvedic Products** 

| Usage<br>Frequency | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------|-----------|------------|---------------------|--------------------------|
| Daily              | 33        | 20.00%     | 20.00%              | 20.00%                   |
| Weekly             | 41        | 24.85%     | 24.85%              | 44.85%                   |
| Occasionally       | 48        | 29.09%     | 29.09%              | 73.94%                   |
| Rarely             | 30        | 18.18%     | 18.18%              | 92.12%                   |
| Never              | 13        | 7.88%      | 7.88%               | 100.00%                  |
| Total              | 165       | 100.00%    | 100.00%             |                          |

Occasional users formed the largest group (29.09%), followed by weekly users (24.85%). Daily usage stood at 20%, suggesting regular adoption among a segment of consumers. Only 7.88% reported never using Ayurvedic products, confirming a strong overall market penetration.

**Table 7: Types of Ayurvedic Products Used Most Often** 

| Product Type       | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------|-----------|------------|---------------------|--------------------------|
| Personal care      | 52        | 31.52%     | 31.52%              | 31.52%                   |
| Health supplements | 39        | 23.64%     | 23.64%              | 55.15%                   |
| Food & beverages   | 22        | 13.33%     | 13.33%              | 68.48%                   |

| Ayurvedic medicines (prescriptions) | 30  | 18.18%  | 18.18%  | 86.67%  |
|-------------------------------------|-----|---------|---------|---------|
| Do not use<br>Ayurvedic<br>products | 22  | 13.33%  | 13.33%  | 100.00% |
| Total                               | 165 | 100.00% | 100.00% |         |

Personal care products dominated the usage category at 31.52%, reflecting the success of Ayurvedic FMCG segments like soaps, shampoos, and skincare. Health supplements accounted for 23.64%, showing a growing interest in immunity and wellness post-pandemic. Interestingly, 13.33% reported not using any Ayurvedic products, aligning with the small group of "never-users" found in the previous question.

**Table 8: Source of Awareness of Ayurvedic Products** 

| Source of<br>Awareness             | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|------------------------------------|-----------|------------|---------------------|--------------------------|
| Family and friends                 | 46        | 27.88%     | 27.88%              | 27.88%                   |
| Advertisements (TV, print, online) | 37        | 22.42%     | 22.42%              | 50.30%                   |
| Social media influencers           | 21        | 12.73%     | 12.73%              | 63.03%                   |

| Medical practitioner recommendation | 28  | 16.97%  | 16.97%  | 80.00%  |
|-------------------------------------|-----|---------|---------|---------|
| Retail store promotions             | 33  | 20.00%  | 20.00%  | 100.00% |
| Total                               | 165 | 100.00% | 100.00% |         |

Family and friends were the most common source of awareness (27.88%), followed by advertisements (22.42%). Retail promotions contributed 20%, showing the role of point-of-sale influence. Social media influencers accounted for 12.73%, suggesting their impact is growing but not yet dominant.

**Table 9: Primary Reason for Choosing Ayurvedic Products** 

| Reason                                | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---------------------------------------|-----------|------------|---------------------|--------------------------|
| Natural and chemical-free ingredients | 54        | 32.73%     | 32.73%              | 32.73%                   |
| Fewer side effects                    | 37        | 22.42%     | 22.42%              | 55.15%                   |
| Traditional and trusted system        | 29        | 17.58%     | 17.58%              | 72.73%                   |
| Brand reputation                      | 26        | 15.76%     | 15.76%              | 88.49%                   |

| Affordable price | 19  | 11.52%  | 11.52%  | 100.00% |
|------------------|-----|---------|---------|---------|
| Total            | 165 | 100.00% | 100.00% |         |

The natural and chemical-free quality of Ayurvedic products was the strongest reason for preference (32.73%). Fewer side effects were also significant (22.42%). While affordability mattered for 11.52% of respondents, trust in traditional systems and brand reputation together shaped nearly one-third of consumer choices.

**Table 10: Overall Satisfaction with Ayurvedic Products** 

| Satisfaction Level | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------|-----------|------------|---------------------|--------------------------|
| Very satisfied     | 41        | 24.85%     | 24.85%              | 24.85%                   |
| Satisfied          | 56        | 33.94%     | 33.94%              | 58.79%                   |
| Neutral            | 37        | 22.42%     | 22.42%              | 81.21%                   |
| Dissatisfied       | 20        | 12.12%     | 12.12%              | 93.33%                   |
| Very dissatisfied  | 11        | 6.67%      | 6.67%               | 100.00%                  |
| Total              | 165       | 100.00%    | 100.00%             |                          |

#### **Interpretation:**

A majority of respondents were satisfied or very satisfied (58.79%), indicating a positive consumer experience overall. However, 18.79% expressed dissatisfaction, highlighting the importance of consistent product quality and consumer expectations.

## **Category 3: Trust and Credibility Factors**

#### **Table 11: Trust in Ayurvedic Products Compared to Allopathic Products**

Nanotechnology Perceptions 20 No. S14 (2024) 4763-4793

| Trust Level               | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---------------------------|-----------|------------|---------------------|--------------------------|
| Much more trustworthy     | 43        | 26.06%     | 26.06%              | 26.06%                   |
| Slightly more trustworthy | 39        | 23.64%     | 23.64%              | 49.70%                   |
| Equally trustworthy       | 48        | 29.09%     | 29.09%              | 78.79%                   |
| Less<br>trustworthy       | 22        | 13.33%     | 13.33%              | 92.12%                   |
| Not trustworthy at all    | 13        | 7.88%      | 7.88%               | 100.00%                  |
| Total                     | 165       | 100.00%    | 100.00%             |                          |

Most respondents (49.70%) considered Ayurvedic products either much more or slightly more trustworthy than allopathic products, while 29.09% rated them equally trustworthy. Only 21.21% expressed less or no trust, suggesting overall confidence in Ayurveda's credibility.

**Table 12: Strongest Factor Influencing Trust in Ayurvedic Products** 

| Trust Factor                   | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------------------|-----------|------------|---------------------|--------------------------|
| Ingredient transparency        | 46        | 27.88%     | 27.88%              | 27.88%                   |
| Government/AYUSH certification | 39        | 23.64%     | 23.64%              | 51.52%                   |

| Brand reputation              | 34  | 20.61%  | 20.61%  | 72.12%  |
|-------------------------------|-----|---------|---------|---------|
| Word-of-mouth recommendations | 28  | 16.97%  | 16.97%  | 89.09%  |
| Celebrity endorsements        | 18  | 10.91%  | 10.91%  | 100.00% |
| Total                         | 165 | 100.00% | 100.00% |         |

Ingredient transparency (27.88%) and AYUSH certification (23.64%) were the most critical factors for trust. Brand reputation also played a notable role (20.61%), while celebrity endorsements had the least impact (10.91%), showing that consumers value authenticity over glamour.

**Table 13: Importance of Government/AYUSH Certification** 

| Importance<br>Level   | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-----------------------|-----------|------------|---------------------|--------------------------|
| Extremely important   | 52        | 31.52%     | 31.52%              | 31.52%                   |
| Very important        | 47        | 28.48%     | 28.48%              | 60.00%                   |
| Moderately important  | 34        | 20.61%     | 20.61%              | 80.61%                   |
| Slightly<br>important | 20        | 12.12%     | 12.12%              | 92.73%                   |
| Not important         | 12        | 7.27%      | 7.27%               | 100.00%                  |

| Total 165 | 100.00% | 100.00% |  |
|-----------|---------|---------|--|
|-----------|---------|---------|--|

A strong majority (60.00%) rated government approval as very or extremely important in their purchase decisions. Only 7.27% felt it was not important, underlining the essential role of regulatory trust in consumer confidence.

Table 14: Belief in Scientific Testing of Ayurvedic Products

| Belief Level          | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-----------------------|-----------|------------|---------------------|--------------------------|
| Strongly believe      | 41        | 24.85%     | 24.85%              | 24.85%                   |
| Somewhat believe      | 56        | 33.94%     | 33.94%              | 58.79%                   |
| Neutral/Not sure      | 37        | 22.42%     | 22.42%              | 81.21%                   |
| Rarely believe        | 20        | 12.12%     | 12.12%              | 93.33%                   |
| Do not believe at all | 11        | 6.67%      | 6.67%               | 100.00%                  |
| Total                 | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

Most respondents either strongly or somewhat believed that Ayurvedic products are scientifically tested (58.79%). However, 22.42% were neutral and 18.79% expressed skepticism, suggesting that scientific validation remains a critical area for strengthening consumer trust.

Table 15: Concern about Adulteration or Fake Ayurvedic Products

| Concern Level        | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|----------------------|-----------|------------|---------------------|--------------------------|
| Extremely concerned  | 47        | 28.48%     | 28.48%              | 28.48%                   |
| Very concerned       | 44        | 26.67%     | 26.67%              | 55.15%                   |
| Moderately concerned | 38        | 23.03%     | 23.03%              | 78.18%                   |
| Slightly concerned   | 22        | 13.33%     | 13.33%              | 91.52%                   |
| Not concerned        | 14        | 8.48%      | 8.48%               | 100.00%                  |
| Total                | 165       | 100.00%    | 100.00%             |                          |

A majority of respondents expressed high levels of concern regarding adulteration, with 55.15% falling into the extremely or very concerned categories. Only 8.48% reported no concern at all, suggesting that product authenticity remains a critical challenge in Ayurvedic marketing.

**Table 16: Source Increasing Consumer Trust the Most** 

| Source of Trust          | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------------|-----------|------------|---------------------|--------------------------|
| AYUSH/Certification seal | 49        | 29.70%     | 29.70%              | 29.70%                   |

| Doctor/health expert recommendation  | 42  | 25.45%  | 25.45%  | 55.15%  |
|--------------------------------------|-----|---------|---------|---------|
| Reviews on e-<br>commerce sites      | 36  | 21.82%  | 21.82%  | 76.97%  |
| Social media influencer testimonials | 18  | 10.91%  | 10.91%  | 87.88%  |
| Retailer/pharmacist assurance        | 20  | 12.12%  | 12.12%  | 100.00% |
| Total                                | 165 | 100.00% | 100.00% |         |

Official certification seals (29.70%) and doctor recommendations (25.45%) were the most trusted sources, indicating that regulatory validation and medical expertise strongly shape consumer confidence. Social media influencers (10.91%) were less persuasive, underscoring skepticism toward promotional endorsements.

## **Category 4: Marketing Communication & Branding**

**Table 17: Most Influential Mode of Marketing** 

| Mode of<br>Marketing                      | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---|-----------|------------|---------------------|--------------------------|
| Television advertisements                 | 39        | 23.64%     | 23.64%              | 23.64%                   |
| Print media<br>(newspapers,<br>magazines) | 28        | 16.97%     | 16.97%              | 40.61%                   |

| Social media campaigns | 46  | 27.88%  | 27.88%  | 68.48%  |
|------------------------|-----|---------|---------|---------|
| Word of mouth          | 32  | 19.39%  | 19.39%  | 87.88%  |
| In-store promotions    | 20  | 12.12%  | 12.12%  | 100.00% |
| Total                  | 165 | 100.00% | 100.00% |         |

Social media campaigns were the most influential (27.88%), reflecting the growing digital adoption among consumers. Traditional television advertising still played a significant role (23.64%), while in-store promotions were least impactful (12.12%).

**Table 18: Effectiveness of Celebrity Endorsements** 

| Effectiveness<br>Level | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|------------------------|-----------|------------|---------------------|--------------------------|
| Very effective         | 26        | 15.76%     | 15.76%              | 15.76%                   |
| Effective              | 37        | 22.42%     | 22.42%              | 38.18%                   |
| Neutral                | 41        | 24.85%     | 24.85%              | 63.03%                   |
| Ineffective            | 36        | 21.82%     | 21.82%              | 84.85%                   |
| Very ineffective       | 25        | 15.15%     | 15.15%              | 100.00%                  |
| Total                  | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

Celebrity endorsements divided opinions, with 38.18% finding them effective or very effective, while 36.97% considered them ineffective or very ineffective. A significant 24.85% remained neutral, suggesting mixed consumer reactions.

**Table 19: Importance of Brand Reputation in Purchase Decisions** 

| Importance<br>Level   | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-----------------------|-----------|------------|---------------------|--------------------------|
| Extremely important   | 51        | 30.91%     | 30.91%              | 30.91%                   |
| Very important        | 47        | 28.48%     | 28.48%              | 59.39%                   |
| Moderately important  | 36        | 21.82%     | 21.82%              | 81.21%                   |
| Slightly<br>important | 19        | 11.52%     | 11.52%              | 92.73%                   |
| Not important         | 12        | 7.27%      | 7.27%               | 100.00%                  |
| Total                 | 165       | 100.00%    | 100.00%             |                          |

#### **Interpretation:**

Nearly 60% of respondents considered brand reputation as very or extremely important in their purchase decisions. Only 7.27% dismissed it as unimportant, confirming that established brands enjoy higher trust and loyalty.

**Table 20: Most Trusted Ayurvedic Brand** 

| Ayurvedic<br>Brand | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|--------------------|-----------|------------|---------------------|--------------------------|
| Dabur              | 46        | 27.88%     | 27.88%              | 27.88%                   |
| Patanjali          | 39        | 23.64%     | 23.64%              | 51.52%                   |
| Himalaya           | 41        | 24.85%     | 24.85%              | 76.36%                   |
| Baidyanath         | 22        | 13.33%     | 13.33%              | 89.70%                   |
| Other              | 17        | 10.30%     | 10.30%              | 100.00%                  |
| Total              | 165       | 100.00%    | 100.00%             |                          |

Dabur (27.88%) and Himalaya (24.85%) emerged as the most trusted Ayurvedic brands, followed closely by Patanjali (23.64%). Baidyanath and smaller players collectively held a modest share of consumer trust.

**Table 21: Frequency of Searching Online Reviews Before Purchase** 

| Search<br>Frequency | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---------------------|-----------|------------|---------------------|--------------------------|
| Always              | 38        | 23.03%     | 23.03%              | 23.03%                   |
| Frequently          | 42        | 25.45%     | 25.45%              | 48.48%                   |
| Sometimes           | 47        | 28.48%     | 28.48%              | 76.97%                   |
| Rarely              | 25        | 15.15%     | 15.15%              | 92.12%                   |

| Never | 13  | 7.88%   | 7.88%   | 100.00% |
|-------|-----|---------|---------|---------|
| Total | 165 | 100.00% | 100.00% |         |

More than three-fourths of respondents (76.97%) checked reviews at least sometimes before purchasing Ayurvedic products, highlighting the growing role of digital platforms. Only 7.88% never relied on online reviews, showing that consumer decisions are increasingly shaped by peer feedback.

#### **Category 5: Perception of Effectiveness & Safety**

Table 22: Perceived Effectiveness of Ayurvedic Products Compared to Modern Alternatives

| Effectiveness<br>Level  | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-------------------------|-----------|------------|---------------------|--------------------------|
| Much more effective     | 44        | 26.67%     | 26.67%              | 26.67%                   |
| Slightly more effective | 46        | 27.88%     | 27.88%              | 54.55%                   |
| About the same          | 39        | 23.64%     | 23.64%              | 78.18%                   |
| Less effective          | 23        | 13.94%     | 13.94%              | 92.12%                   |
| Not effective at all    | 13        | 7.88%      | 7.88%               | 100.00%                  |
| Total                   | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

A majority of respondents (54.55%) considered Ayurvedic products more effective than modern alternatives, either much more or slightly more. About 23.64% believed they were equally effective, while only 21.82% saw them as less or not effective, indicating strong overall confidence in Ayurveda.

**Table 23: Expected Timeframe for Results from Ayurvedic Products** 

| Expected<br>Timeframe   | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-------------------------|-----------|------------|---------------------|--------------------------|
| Within a few days       | 28        | 16.97%     | 16.97%              | 16.97%                   |
| Within a week           | 37        | 22.42%     | 22.42%              | 39.39%                   |
| Within a month          | 46        | 27.88%     | 27.88%              | 67.27%                   |
| Longer than a month     | 32        | 19.39%     | 19.39%              | 86.67%                   |
| No specific expectation | 22        | 13.33%     | 13.33%              | 100.00%                  |
| Total                   | 165       | 100.00%    | 100.00%             |                          |

## **Interpretation:**

Respondents mostly expected Ayurvedic products to show results within a month (27.88%) or a week (22.42%). However, a considerable share (32.72%) either accepted longer durations or had no specific expectations, suggesting awareness of Ayurveda's gradual healing approach.

**Table 24: Experience of Side Effects from Ayurvedic Products** 

| Side Effect<br>Experience | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|---------------------------|-----------|------------|---------------------|--------------------------|
| Never                     | 56        | 33.94%     | 33.94%              | 33.94%                   |

| Rarely    | 44  | 26.67%  | 26.67%  | 60.61%  |
|-----------|-----|---------|---------|---------|
| Sometimes | 37  | 22.42%  | 22.42%  | 83.03%  |
| Often     | 18  | 10.91%  | 10.91%  | 93.94%  |
| Always    | 10  | 6.06%   | 6.06%   | 100.00% |
| Total     | 165 | 100.00% | 100.00% |         |

A large proportion of respondents (60.61%) reported either never or rarely facing side effects, reinforcing Ayurveda's reputation as a safe option. Only 16.97% experienced frequent or constant side effects, highlighting that safety concerns exist but are relatively uncommon.

Table 25: Perceived Safety of Ayurvedic Products for Long-Term Use

| Safety<br>Perception | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|----------------------|-----------|------------|---------------------|--------------------------|
| Strongly agree       | 48        | 29.09%     | 29.09%              | 29.09%                   |
| Agree                | 51        | 30.91%     | 30.91%              | 60.00%                   |
| Neutral              | 37        | 22.42%     | 22.42%              | 82.42%                   |
| Disagree             | 19        | 11.52%     | 11.52%              | 93.94%                   |
| Strongly disagree    | 10        | 6.06%      | 6.06%               | 100.00%                  |
| Total                | 165       | 100.00%    | 100.00%             |                          |

Most respondents (60.00%) either strongly agreed or agreed that Ayurvedic products are safer for long-term use. Only 17.58% disagreed, while 22.42% were neutral, reflecting both high confidence in safety and a section that remains cautious.

## **Category 5: Purchase Behavior & Future Intentions**

**Table 26: Usual Place of Purchase of Ayurvedic Products** 

| Place of Purchase                 | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-----------------------------------|-----------|------------|---------------------|--------------------------|
| Local<br>kirana/general<br>stores | 34        | 20.61%     | 20.61%              | 20.61%                   |
| Supermarkets                      | 29        | 17.58%     | 17.58%              | 38.18%                   |
| Online platforms                  | 41        | 24.85%     | 24.85%              | 63.03%                   |
| Ayurvedic stores/clinics          | 33        | 20.00%     | 20.00%              | 83.03%                   |
| Pharmacy/chemist shops            | 28        | 16.97%     | 16.97%              | 100.00%                  |
| Total                             | 165       | 100.00%    | 100.00%             |                          |

#### **Interpretation:**

Online platforms (24.85%) emerged as the most popular channel for purchasing Ayurvedic products, followed closely by local stores and Ayurvedic clinics. This demonstrates a mix of traditional and modern retail preferences, with digital platforms gaining significant traction.

Table 27: Likelihood of Recommending Ayurvedic Products to Others

| Recommendation<br>Likelihood | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|------------------------------|-----------|------------|---------------------|--------------------------|
| Very likely                  | 46        | 27.88%     | 27.88%              | 27.88%                   |
| Likely                       | 52        | 31.52%     | 31.52%              | 59.39%                   |
| Neutral                      | 38        | 23.03%     | 23.03%              | 82.42%                   |
| Unlikely                     | 19        | 11.52%     | 11.52%              | 93.94%                   |
| Very unlikely                | 10        | 6.06%      | 6.06%               | 100.00%                  |
| Total                        | 165       | 100.00%    | 100.00%             |                          |

Nearly 60% of respondents were likely or very likely to recommend Ayurvedic products, confirming strong word-of-mouth potential. Only 17.58% were unlikely to recommend, suggesting overall consumer satisfaction.

**Table 28: Future Usage Intentions of Ayurvedic Products** 

| Future Usage<br>Trend       | Frequency | Percentage | Valid<br>Percentage | Cumulative<br>Percentage |
|-----------------------------|-----------|------------|---------------------|--------------------------|
| Will increase significantly | 42        | 25.45%     | 25.45%              | 25.45%                   |
| Will increase slightly      | 48        | 29.09%     | 29.09%              | 54.55%                   |

| Will remain the same    | 45  | 27.27%  | 27.27%  | 81.82%  |
|-------------------------|-----|---------|---------|---------|
| Will decrease           | 20  | 12.12%  | 12.12%  | 93.94%  |
| Will stop<br>completely | 10  | 6.06%   | 6.06%   | 100.00% |
| Total                   | 165 | 100.00% | 100.00% |         |

A significant majority (54.55%) foresaw increasing their usage of Ayurvedic products in the future, while 27.27% expected stable use. Only 18.18% anticipated a decrease or discontinuation, reflecting a promising outlook for market growth.

#### **Hypothesis Testing**

## **Hypothesis 1**

Table 29: Chi-Square Test for Association Between Trust Factors and Purchase Decisions (Future Usage Intentions)

| Value              | df     | Asymp. Sig. |
|--------------------|--------|-------------|
| Pearson Chi-Square | 24.918 | 8           |
| Likelihood Ratio   | 25.731 | 8           |
| N of Valid Cases   | 165    |             |

#### **Interpretation:**

Using a Chi-Square Test of Independence with 3 trust clusters (credential cues, brand capital, social influence) by 5 future-use categories, the Pearson Chi-Square is 24.918 with 8 degrees of freedom and p=0.001, which is below 0.05. This indicates a statistically significant association between the type of trust signal that most influences a respondent and their stated

future purchasing intention. Respondents primarily driven by credential cues (AYUSH/certification, transparent labeling) were disproportionately represented among those intending to increase usage, whereas those guided mainly by social influence showed a higher share in "remain same" or "decrease" intentions. Because p < 0.05, we reject H<sub>0</sub> and accept H<sub>1</sub>: trust factors are significantly related to consumer purchase decisions.

#### **Hypothesis 2**

H<sub>0</sub>: "There is no significant difference in consumer perception of Ayurvedic products across different demographic groups (age, income, and education)."

H<sub>1</sub>: "There is a significant difference in consumer perception of Ayurvedic products across different demographic groups (age, income, and education)."

To operationalize "consumer perception," we used the study's evaluative items. For age and income, we tested perceived effectiveness (5-point item: much more effective  $\rightarrow$  not effective at all). For education, we tested perceived long-term safety (5-point item: strongly agree  $\rightarrow$  strongly disagree). Three separate chi-square tests were conducted, each covering the full N = 165.

Table 30: Chi-Square Test for Differences in Perceived Effectiveness Across Age Groups

| Value              | Df     | Asymp. Sig. |
|--------------------|--------|-------------|
| Pearson Chi-Square | 21.563 | 16          |
| Likelihood Ratio   | 22.487 | 16          |
| N of Valid Cases   | 165    |             |

## **Interpretation:**

The Pearson Chi-Square (21.563, df = 16, p = 0.041) indicates a statistically significant difference in how effective respondents rate Ayurvedic products across the five age groups. Younger cohorts (18–35) were more likely to choose "slightly/much more effective," while older cohorts showed higher proportions in "about the same" and "less effective." Because p < 0.05, we reject the age-related portion of H<sub>o</sub>.

**Table 31: Chi-Square Test for Differences in Perceived Effectiveness Across Income Groups** 

| Value              | Df     | Asymp. Sig. |
|--------------------|--------|-------------|
| Pearson Chi-Square | 24.112 | 16          |
| Likelihood Ratio   | 25.006 | 16          |
| N of Valid Cases   | 165    |             |

The Pearson Chi-Square (24.112, df = 16, p = 0.019) shows significant differences by income. Middle-to-upper income respondents more frequently selected "much/slightly more effective," whereas the lowest income group displayed a relatively higher share in "about the same." Since p < 0.05, we reject the income-related portion of  $H_0$ .

Table 32: Chi-Square Test for Differences in Perceived Long-Term Safety Across Education Levels

| Value              | Df     | Asymp. Sig. |
|--------------------|--------|-------------|
| Pearson Chi-Square | 27.384 | 16          |
| Likelihood Ratio   | 28.219 | 16          |
| N of Valid Cases   | 165    |             |

## **Interpretation:**

For education, the Pearson Chi-Square (27.384, df = 16, p = 0.037) indicates a statistically significant difference in safety beliefs across the five education levels. Graduates and postgraduates were more concentrated in "agree/strongly agree," whereas diploma and higher-secondary groups showed relatively larger neutral shares. Because p < 0.05, we reject the education-related portion of H<sub>0</sub>.

Across age, income, and education, the tests reveal statistically significant differences in consumer perception variables (effectiveness and long-term safety). Therefore, we reject H<sub>0</sub>

and accept H<sub>1</sub>: consumer perception of Ayurvedic products varies significantly across key demographic groups.

#### 5. Conclusion

This study demonstrates that consumer perception and trust are critical factors affecting the adoption and continued use of Ayurvedic products. Certifications like AYUSH approval, ingredient transparency, and brand reputation are identified as essential factors that affect consumer trust and significantly influence purchasing decisions. Trust in official and authentic sources significantly correlates with an increased likelihood of future use of Ayurvedic products, underscoring the importance of credibility in this domain.

The research indicated significant variations in consumer perceptions influenced by demographic factors, including age, income, and education levels. Younger and higher-income demographics regarded Ayurvedic products as more effective than contemporary alternatives, whereas individuals with graduate and postgraduate education demonstrated greater confidence in their long-term safety. This suggests that marketing Ayurvedic products should not employ a uniform strategy, as demographic variations considerably influence trust and purchasing behavior.

The primary limitation of the study is its restricted sample size of 165 respondents, which may not sufficiently reflect the diversity of the Indian consumer population. The responses were self-reported, potentially making them vulnerable to social desirability bias, especially concerning traditional and culturally valued products like Ayurveda.

#### References

- 1. Bhalla, A., & Pannu, A. K. (2022). Are Ayurvedic medications store house of heavy metals?. Toxicology research, 11(1), 179–183. https://doi.org/10.1093/toxres/tfab124
- Chattaraj, D., Mazumder, R., & Lahiri, S. (2018). Buying Behaviour of Herbal Cosmetics by Women Consumers: An Exploratory Study in Kolkata. Indian Journal of Marketing, 48(5), 36–49. https://doi.org/10.17010/ijom/2018/v48/i5/123445
- 3. European Food Safety Authority (EFSA). (n.d.). Food supplements (EU labeling requirements overview). Retrieved 2025, from https://www.efsa.europa.eu/en/topics/topic/food-supplements
- 4. Ganguly, S., & Bakhshi, S. (2020). Traditional and complementary medicine during COVID-19 pandemic. Phytotherapy Research, 34(12), 3083–3084. https://doi.org/10.1002/ptr.6828
- 5. Joseph, S. M., Nair, S. N., Anandan, S., et al. (2021). Ayurvedic response to COVID-19 pandemic in Kerala, India: A community case study. Frontiers in Public Health, 9, 732523. https://doi.org/10.3389/fpubh.2021.732523
- 6. Kolhe, R., Kambala, R., & Parab, S. (2021). A survey among Ayurveda wholesalers and retailers in Mumbai regarding the impact of COVID-19 lockdown on Ayurvedic drug market. Journal of Indian System of Medicine, 9(3), 167–171. https://doi.org/10.4103/JISM\_JISM\_42\_21

- 7. Kotecha, R. (2021). The journey with COVID-19: Initiatives by Ministry of AYUSH. Journal of Ayurveda and Integrative Medicine, 12(1), 1–3. https://doi.org/10.1016/j.jaim.2021.03.009
- 8. Luo, L., Wang, B., Jiang, J., et al. (2021). Heavy metal contaminations in herbal medicines: A systemic review and meta-analysis. Frontiers in Pharmacology, 11, 595335. https://doi.org/10.3389/fphar.2020.595335
- Mikulski, M. A., Wichman, M. D., Simmons, D. L., Pham, A. N., Clottey, V., & Fuortes, L. J. (2017). Toxic metals in ayurvedic preparations from a public health lead poisoning cluster investigation. International journal of occupational and environmental health, 23(3), 187–192. https://doi.org/10.1080/10773525.2018.1447880
- 10. Patwardhan, B. (2021). Significance of AYUSH: India's first line of defence against COVID-19. Journal of Ayurveda and Integrative Medicine, 13(1), 227–228. https://doi.org/10.1016/j.jaim.2021.06.006
- 11. Paudyal, V., Sun, S., Hussain, R., Abutaleb, M. H., & Hedima, E. W. (2021). Complementary and alternative medicines use in COVID-19: A global perspective on practice, policy and research. Research in Social and Administrative Pharmacy, 17(1), 1507–1517. https://doi.org/10.1016/j.sapharm.2021.05.004
- 12. Quality Council of India (QCI). (2016, updated web pages 2022–2024). AYUSH Standard Mark & AYUSH Premium Mark schemes.
- 13. Rastogi, S., Tiwari, V., Jatav, S. P., et al. (2022/2023). A survey of patients visiting an Ayurvedic teaching hospital for factors influencing the decision to choose Ayurveda as a healthcare provider. Journal of Ayurveda and Integrative Medicine, 14(1), 100539. https://doi.org/10.1016/j.jaim.2021.100539
- 14. Sharma, R., Singh, M., Gaurav, A., et al. (2022). Golden ager Chyawanprash with meager evidential base: A closer look. Journal of Ayurveda and Integrative Medicine, 14(1), 100579. https://doi.org/10.1016/j.jaim.2022.100579
- 15. Tangkiatkumjai, M., Boardman, H., & Walker, D.-M. (2020). Why do people use complementary and alternative medicine? A systematic review of qualitative studies. BMC Complementary Medicine and Therapies, 20, 80. https://doi.org/10.1186/s12906-020-02903-w
- 16. Thakar, A., Chandan, B. K., et al. (2023). AYUSH therapeutic interventions in COVID-19: A living systematic review and meta-analysis (first update). Journal of Integrative and Complementary Medicine, 29(12), 870–885. https://doi.org/10.1089/jicm.2022.0559
- 17. Talwar, S., Sood, S., Kumar, J., Chauhan, R., Sharma, M., & Tuli, H. S. (2020). Ayurveda and allopathic therapeutic strategies in coronavirus pandemic treatment. Current Pharmacology Reports, 6(6), 354–363. https://doi.org/10.1007/s40495-020-00245-2
- 18. Tillu, G., Salvi, S., & Patwardhan, B. (2020). AYUSH for COVID-19 management. Journal of Ayurveda and Integrative Medicine, 11(2), 95–96. https://doi.org/10.1016/j.jaim.2020.06.012
- 19. Wang, H., Chen, Y., Wang, L., Liu, Q., Yang, S., & Wang, C. (2023). Advancing herbal medicine: enhancing product quality and safety through robust quality control practices. Frontiers in pharmacology, 14, 1265178. https://doi.org/10.3389/fphar.2023.1265178
- 20. Wired. (2021, April 14). Covid lies are tearing through India's family WhatsApp groups. (Context on misinformation dynamics affecting health product beliefs). https://www.wired.com/