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## A STUDY ON FACTORS INFLUENCING PUBLIC PERCEPTION TOWARDS HERBAL COSMETICS IN GANDHINAGAR, GUJARAT

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### Keywords:

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**ABSTRACT:** Cosmetics are defined by the Food and Drug Administration (FDA), as substances that are "intended to be applied to the human body for cleansing, beautifying, promoting attractiveness, or altering the appearance without affecting the body's structure or functions". A large range of both artificial and herbal cosmetics are available in the market. The market has seen a surge in the popularity of herbal cosmetics. The herbs present in cosmetics have multi-functionality. There has been a shift in the demand for herbal cosmetics in recent years. This study aims to understand the level of awareness amongst the people regarding herbal cosmetics and the percentage of the population who prefers to use the same. It also intends to learn about the factors which motivate customers to purchase herbal cosmetics. Online customer reviews are another factor that might influence people; hence the study will also examine the impact of online product reviews on customer purchasing decisions. The study also focuses on the factors which build brand loyalty in consumers and motivate them to stay connected to the specific brand.

**INTRODUCTION:** "Cosmetic" derives from the Greek word "kosm tikos," which means "having the power to decorate." The history of beauty and cosmetics dates back to the dawn of civilization. These herbal cosmetics are known as natural cosmetics because plants are heavily incorporated in their manufacture. Herbs can be utilized either raw or extracted<sup>1</sup>. These products are created by combining numerous acceptable cosmetic components to make a basis, then adding herbal substances to give the desired cosmetic benefits. The natural composition of the botanicals has no negative effects on the human body but enhances it with nutrients and other essential minerals.

Skin diseases affect people of all ages due to environmental exposure to bacteria, chemical agents and biological toxins. The cosmetics manufacturers relied on knowledge of Ayurveda and utilized many herbs and flora to make cosmetics for protection and beautification purposes<sup>2</sup>. Many cosmetics are used for cleaning, beautifying, enhancing attractive qualities, and encouraging changes in one's appearance. Beauty care products are used by people at all stages of their lives to protect and enhance their skin, hair and body<sup>3</sup>.

Herbal remedies are becoming increasingly popular due to skin friendliness, safe to use, absence of side effects, compatibility with all skin types, and wide selection variety<sup>4</sup>. Consumers in India are becoming increasingly open to incorporating herbal, ayurvedic, and natural items into their personal care routines. Between 2005 and 2017, teenagers' use of herbal cosmetics grew due to the increase in awareness and the desire to look good.



As a result of this rising demand, many cosmetic manufacturing companies are concentrating on herbal cosmetics as they have recognized the market need and growth<sup>5</sup>. Over the forecasting period of 2017-2022, the Indian herbal cosmetic market is anticipated to rise by INR 316 billion, growing at a CAGR of 19%<sup>6</sup>. The Indian cosmetic industry has several herbal brands like Himalaya herbs, Biotique, Dabur, VLCC, Patanjali, Kama Ayurveda, Lotus, Forest Essentials, etc<sup>7</sup>. Indian Herbal cosmetics have huge demand overseas and products produced in India are supplied internationally. India exports to various countries like the USA, UAE, Germany, Japan, Indonesia, Sri Lanka, UK, China, Italy, Netherlands, etc<sup>8</sup>.

### Literature Review:

**Herbal Cosmetics:** Cosmetics alone are insufficient to care for the skin and other body parts; a combination of active ingredients is required to prevent skin damage and aging. Herbal products are a good choice for the same. Herbal cosmetics have a reduced cost, no adverse effects, are environmentally friendly, and are safe to use. In comparison to synthetic cosmetics, it also has a bright future. The proper regulation and standardization of these herbs will result in massive and considerable growth in the field of herbal cosmetics<sup>9</sup>.

The people's use of therapeutic herbs appears to be common in their culture and tradition. This research assisted in the discovery of several plants that are used to treat dermatological problems and as cosmetics. The therapeutic and cosmetic qualities of several of the plants have been discovered. More ethnobotanical and ethnopharmacological studies may result in identifying skincare and cure-related plants and chemicals<sup>10</sup>. Herbal cosmetics are used by more than 70% of the Indian population for health care. In the personal care business, herbal cosmetics are becoming increasingly popular, and they have a huge demand. Natural additives such as natural scents, natural colour, waxes, oils, and plant components such as leaves are all used in the chemical formulas of these cosmetics. Cosmeceuticals fall between cosmetics (rouge and lipsticks) and pharmaceuticals (corticosteroids, antibiotics). Synthetic components are replaced with natural beauty treatments that have cosmetic

value or can be utilized as safe supplements. Regarding safety testing, further research and development are required, per the pre-existing regulatory rules and present requirements. Herbal cosmetic products need better quality control. As a result, herbal cosmetics must undergo quality control testing for longer period of time<sup>11</sup>. In the market, there is no scarcity of demand for herbal products. Concerns about chemical products' health dangers and side effects have prompted consumers to switch to natural alternatives. Himalaya products are highly valued by their customers<sup>12</sup>.

### Influence of Social Media and its Reviews:

Various factors motivate people to shift to herbal cosmetics, and social media is one of them. Social media stars influence an age-specific population ranging from 18-40 to shift to herbal cosmetics. But consumers aged 60 and above still go by the information they seek from companies. Traditionally the consumer product purchase cycle went through many stages like need recognition, problem awareness, search of information, and evaluation of alternatives, followed by post-purchase evaluation.

This process has been made easier and less time-consuming due to the large amount of information available on social media. Social media also increases the awareness regarding the safety aspects and ingredients of herbal cosmetics, thereby reducing the economic loss a customer may face by a wrong product purchase<sup>13</sup>. Online product reviews are regarded as a valuable source of product information. They influence consumer perception and awareness. It is found that around 81-90% of people go through online reviews before undergoing a product purchase and decisions of around 67.7% of people are influenced by online reviews. Women are more interested in social media reviews than men. This study is a cross-country comparison made to understand the impact of reviews on buying behaviour of beauty products between Swedish and Sri Lankan consumers. It was found that social media reviews have a higher impact on Swedish people than the Sri Lankan people. In social media, the Swedish people are more interested in positive word of mouth, whereas the Sri Lankans are more interested in negative word of mouth<sup>14</sup>. Nowadays, consumers' Purchase decisions and consequent sales rely on

advertisements and online reviews. This is because consumers find public recommendations more trustworthy. Review features are presented as an average number of stars on a five-point scale called “valence” and the number of reviews stated as “review volume”. With a rating of 4.2-4.5 stars, the likelihood of purchasing increases but subsequently drops. Ratings beyond 4.5 are considered to be fake. The presence of negative reviews increases credibility and therefore is necessary. Higher review volume is not always considered good because it can confuse and overwhelm a customer<sup>15</sup>.

### Dermatological Overview of Herbal Cosmetics:

In the personal care system, herbal cosmetics have expanded dramatically due to high demand. Bioactive chemicals in cosmetics alter the body's functions and give the nutrients required for healthy hair and skin. Plants provide a variety of vitamins, oils, antioxidants, essential oils, proteins, terpenoids, *etc.* Several herbal cosmetics with various bioactive constituents, such as essential oils, fatty oils, proteins, and terpenoids, have the potential to be launched. Safety testing must be carried out per recognized and well-documented criteria<sup>16</sup>. It is believed that herbal products do not have side effects. But there are incidences of adverse skin reactions recorded. Misleading labeling of products, chemical adulteration, and inadequate patch testing may raise additional concerns about the use of botanical products. Irritant and allergic contact dermatitis, contact urticaria, phototoxic reactions, and airborne dermatitis are possible adverse reactions. Plants Incorporated in herbal preparations may contain potentially toxic components or pharmacologically active substances which can interact with other drugs and produce adverse reactions<sup>17</sup>.

**Factors Influencing Herbal Cosmetics Use:** The reasons for buying herbal products vary between people. Also, several factors influence the buying decision of herbal products. Price, colour, smell, quality, package, advertisement, *etc.* are a few of them which influence the customers. The choices depend on cultural, personal, psychological, and societal factors. The study found that perceived quality, price, risk, and trust were the influential factors in herbal products purchase. So, the companies can decrease the risk by providing a free sample to the consumers and also increase the trust in the product by using an endorser for the product promotions<sup>18</sup>.

### METHOD AND ANALYSIS:

#### Survey Design:

**Participants:** In November 2021, an online survey was performed. To conduct the survey “non-randomized convenient sampling” technique was used. The participants were given a questionnaire to fill out, prepared after a thorough literature study. The questionnaire was designed in a way, which was open-ended and easy to understand. Customer satisfaction was checked using a Five-point Likert scale. Various social media sources like WhatsApp, Facebook, Instagram, and LinkedIn were used to reach the participants.

The survey mainly aimed at the participants who use herbal cosmetics. Among the total collected responses of 237, a total of 155 participants use herbal cosmetics, which accounts for approximately 65.4%, and the rest 82 do not use these herbal cosmetics. The maximum age group among the respondents was 18-25(89%). The female respondents (58%) were more compared to the male respondents (42%).

**TABLE 1: SOCIODEMOGRAPHIC FACTORS**

		Number of respondents	Percentage%
Age	18-25	211	89
	18-25	211	89
	26-35	10	4
	36-50	4	2
	>50	12	5
Gender	Male	100	42
	Female	137	58
Occupation	Student	167	70
	Homemaker	5	2

Income	Government employee	1	0
	Private employee	49	21
	Other	15	6
	<1,00,000	52	22
	1,00,000-3,00,000	15	6
	3,00,000-5,00,000	14	6
	>5,00,000	24	10

**Data Analysis:** Data analysis is done by using Factor Analysis. The Maximum Likelihood Estimate is used to check the correlation between the different factors in the data. In this type of analysis, different variables are grouped. In **Table 3** the variables above 0.5 are grouped together and are highlighted. Prior to factorization, the sample

adequacy for performing factor analysis on data is checked using the KMO (Kaiser-Meyer-Olkin), and Bartlett tests **Table 2**. The KMO p-value is 0.848 (>0.7), suggesting that the sample is sufficient for factor analysis, and Bartlett's test of sphericity p-value is 0.000, indicating that factors may be created from the sample data.

**TABLE 2: KMO AND BARTLETT'S TEST**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.848
Bartlett's Test of Sphericity	Approx. Chi-Square
	df
	Sig.
	1770.338
	171
	.000

**TABLE 3: EXTRACTION METHOD- PRINCIPAL COMPONENT ANALYSIS**

Rotated Factor Matrix				
	Factor			
	1	2	3	4
<b>Product Attributes</b>				
Fragrance	0.781			
Packaging	0.738			
Quantity	0.727			
Brand name	0.716			
Advertisement	0.656			
Quality	0.623			
Income influence	0.542			
Previous experience	0.535			
Price	0.531			
<b>Side Effects Aspects</b>				
Free from harmful chemicals		0.89		
Skin-friendliness		0.83		
Made of natural ingredients		0.81		
Compatible with all skin types		0.763		
Wide range of selection		0.59		
<b>Repurchase Aspects</b>				
Repurchase product			0.91	
Suggest friends and family			0.638	
Repurchase same brand			0.586	
<b>Review Aspects</b>				
Review influences your purchase				0.902
Review affects your purchase decision				0.75
Extraction Method: Maximum Likelihood.				
Rotation Method: Varimax with Kaiser Normalization.				
a. Rotation converged in 6 iterations.				

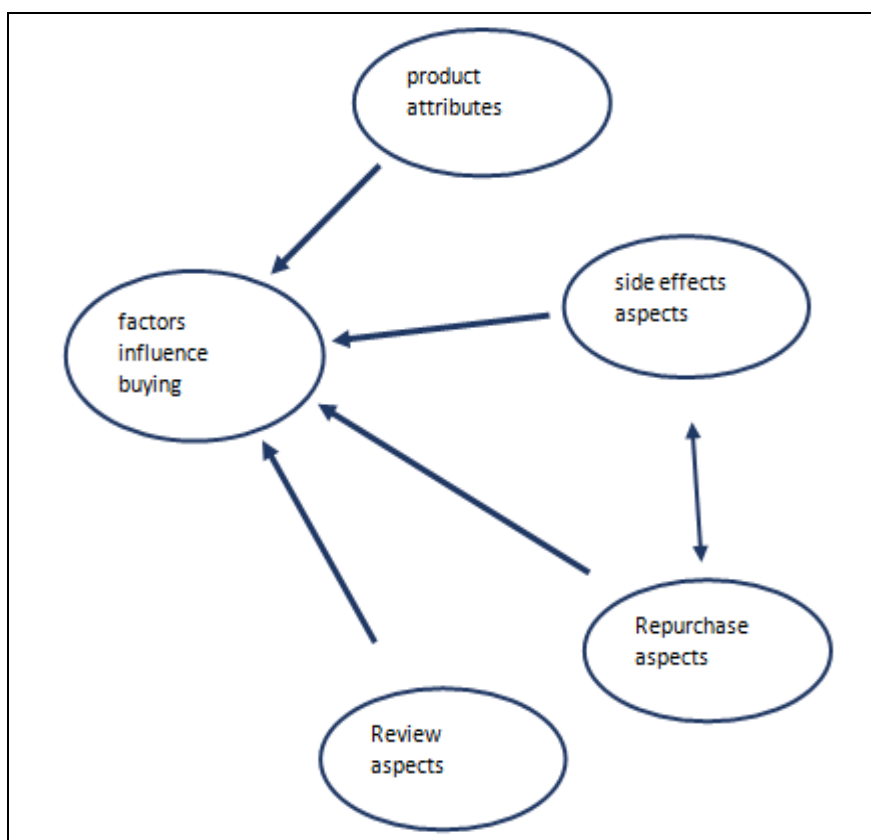
The data has a commonality of greater than 0.5, implying that it will explain more than 50% of the variance. The data also has five variables that have sign values more than 1.0 (> 1.0), allowing for a

more detailed study if the factors generated as shown in **Table 3**. IBM SPSS V 23 software was used to conduct the tests. The factored data was then utilized to do confirmatory factor analysis in

IBM AMOS V 23 software, as well as structural equation modelling according to the previously hypothesized model in order to check for correlations among latent factors and discover which factors influence which variables in the hypothesized model. Reliability was checked using Cronbach's alpha value **Table 4**. The alpha values indicated above are adequate, showing that the variable grouping performed using factor analysis is tightly related to one another and, thus a suitable indicator to use CFA and structural equation modelling (SEM) on the obtained data set. To complete the CFA and demonstrate that the model

is a perfect match, the hypothesized model was constructed in AMOS graphics, all endogenous and exogenous variables were suitably inserted, and the error factors were also applied to the required variables. Finally, we used arrows to correlate the variables in order to test our research theory. The factor loading number is checked in arrows once the analysis is completed, and the following statistics are examined for model fit: CFI (Comparative Fit Index), RMSE (Root Mean Square Error), TLI (Tucker Lewis Index) values should fall near the ideal value to get accepted as a good fit.

**Hypothesized Model:**



**TABLE 4: DESCRIPTIVE STATISTICS AND RELIABILITY CHECK USING CRONBACH'S ALPHA VALUE**

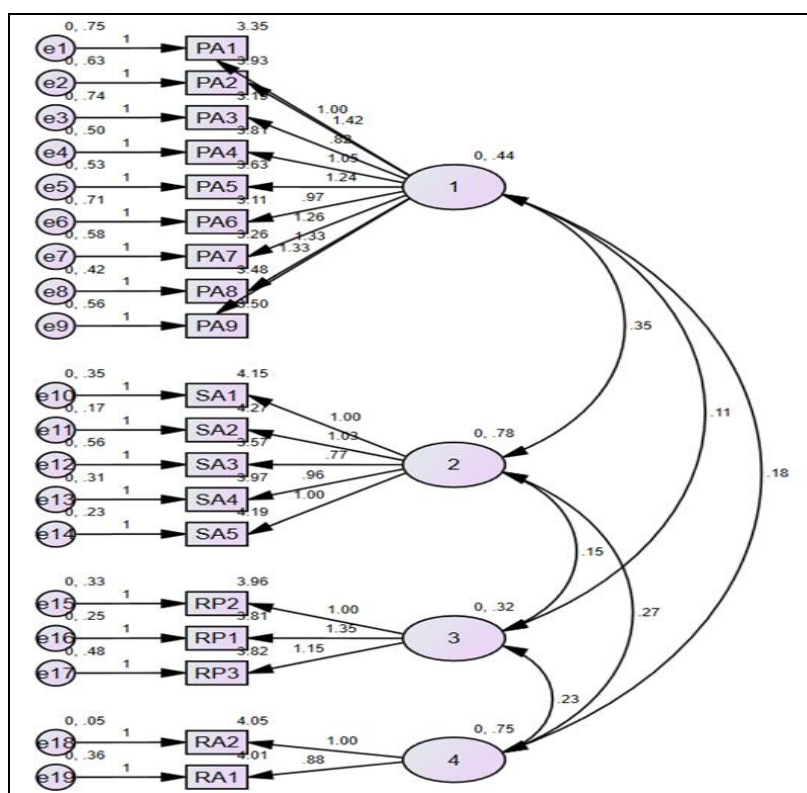
	N	MEAN	SD	Crohn Bach's alpha
<b>Product Attributes</b>				<b>0.896</b>
PA8	155	3.484	1.101	
PA7	155	3.258	1.138	
PA9	155	3.497	1.164	
PA5	155	3.626	1.105	
PA6	155	3.11	1.066	
PA2	155	3.929	1.238	
PA3	155	3.194	1.019	
PA4	155	3.806	1	
PA1	155	3.348	1.096	
<b>Side Effects Aspects</b>				<b>0.915</b>
SA2	155	4.271	1.008	



SA5	155	4.194	1.007
SA1	155	4.148	1.067
SA4	155	3.974	1.019
SA3	155	3.574	1.019
<b>Review Aspects</b>			<b>0.778</b>
RP1	155	3.813	0.917
RP2	155	3.961	0.812
RP3	155	3.819	0.956
<b>Repurchase Aspects</b>			<b>0.864</b>
RA2	155	4.045	0.899
RA1	155	4.006	0.977

The initial hypothesized model is useful for “Deciding” the most probable factors influencing buying herbal cosmetics. This model was verified in AMOS and with some modifications, the necessary model fit was achieved. The statistical values of different model fit parameters obtained

are Comparative fit Index (CFI) 0.894, Root mean square error (RMSEA) 0.001, Tucker Lewis Index (TLI) 0.863, Comparative fit index (CFI) 0.894 signifies that the model has satisfactory results to be called as the model fit. The probability level achieved was significant (P = 0.001).



**Regression Weights: (Group Number 1 - Default Model):**

			Estimate	S.E.	C.R.	P	Label
PA1	<---	PA	1.000				
PA2	<---	PA	1.417	.186	7.602	***	par_1
PA3	<---	PA	.819	.140	5.835	***	par_2
PA4	<---	PA	1.054	.148	7.118	***	par_3
PA5	<---	PA	1.240	.167	7.405	***	par_4
PA6	<---	PA	.971	.153	6.328	***	par_5
PA7	<---	PA	1.265	.172	7.339	***	par_6
PA8	<---	PA	1.328	.171	7.769	***	par_7
PA9	<---	PA	1.334	.175	7.642	***	par_8
SA1	<---	SA	1.000				
SA2	<---	SA	1.034	.070	14.752	***	par_9

SA3	<---	SA	.774	.084	9.222	***	par_10
SA4	<---	SA	.958	.078	12.287	***	par_11
SA5	<---	SA	.998	.074	13.513	***	par_12
RP2	<---	SA	1.000				
RP1	<---	RP	1.350	.168	8.033	***	par_13
RP3	<---	RP	1.155	.166	6.974	***	par_14
RA2	<---	RA	1.000				
RA1	<---	RA	.880	.131	6.730	***	par_15

The above results were produced using AMOS analysis; as shown in the table, there are variables that have a substantial impact on each other (95 percent confidence), as the P (significance) value is 0.001 (shown as \* in the table output).

Product attributes like price, previous experience, income and advertisements, side effects aspects like skin friendliness, repurchase aspects like repurchasing of same product again and repurchase of the same brand, and finally review aspects like purchase decision based on reviews had a significant impact on the consumer's decision to buy the herbal cosmetic products.

**Covariances: (Group Number 1 - Default Model):**

	Estimate	S.E.	C.R.	P	Label
1 <--> 2	.351	.072	4.851	***	par_16
1 <--> 3	.109	.040	2.731	.006	par_17
4 <--> 1	.181	.056	3.239	.001	par_18
2 <--> 3	.149	.051	2.910	.004	par_19
4 <--> 2	.270	.074	3.638	***	par_20
4 <--> 3	.227	.054	4.210	***	par_21

**Correlations: (Group Number 1 - Default Model)**

	Estimate
1 <--> 2	.597
1 <--> 3	.288
4 <--> 1	.313
2 <--> 3	.297
4 <--> 2	.351
4 <--> 3	.460

**RESULTS:** Data analysis was performed from which it was understood that the observed variables are very much correlated with each other. KMO and Bartlett test will be performed for maximum likelihood estimation. Significant values were obtained in both these tests; therefore, maximum likelihood estimation was used to confirm Grouping. Confirmatory analysis was done using AMOS, and all the statistical outputs were checked and found satisfactory to call it a good model fit. SEM analysis showed that all the factors that influence the public perception of herbal cosmetics are significant, with a value >0.05.

**CONCLUSION:** Herbal cosmetics have gained in popularity in recent years as customers have become more concerned about their health, quality, and attractiveness. The research aims to understand customers' perceptions of herbal cosmetics. Customers are clearly aware of the herbal cosmetics that are available in the market. A variety of factors influence purchase decisions, but the study found that the following factors had a major impact on consumers' decisions to buy herbal cosmetic products:

- Product attributes like price, previous experience, income, and advertisements.
- Side effects aspects like skin-friendliness.
- Repurchase aspects include repurchase of the same product and repurchase of the same brand.
- Review aspects like purchase decisions based on reviews.

Consumers have switched to herbal cosmetics from synthetic cosmetics because of the skin friendliness exhibited by them. They are also greatly influenced by the price of herbal cosmetics. Advertisements also seem to influence the decision-making process. Consumers also base their decisions on their experiences and income levels. Certain brands that suit the respondents have made a place in their hearts, and consumers tend to repurchase the same product and brand. With digitalization and E-commerce, consumer decisions are not only personal. Still, they are greatly influenced by what others have experienced, and hence they also make decisions based on the reviews that they see online. Thus, the study helped determine the major consumer perception factors towards herbal cosmetics.

**Limitation:**

1. The study is confined to a specific age group only.

2. The study does not concentrate on the respondents who do not use herbal cosmetics.
3. The study does not focus on the respondents who did not repurchase the same herbal cosmetics brand.
4. The study does not focus on the impact of WOM on the consumer purchase decisions of herbal cosmetics.

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**CONFLICT OF INTEREST:** There is no conflict and no involvement of third party.

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