

Evaluation of awareness about beauty products composition and proper utilization among college students

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Received: 07-June-2019 Accepted on: Published on: 02-Aug-2019

ABSTRACT

Beauty products are daily need of majority of undergraduate college students. The beauty products are classified as natural (Herbal) and commercial based on their source of origin. The commercial beauty products are made up of chemicals which might also shows side effects on the area where these are applied. Awareness about the chemical composition and their effects on the area where these are applied is required for healthy use. This research paper focuses upon the awareness of beauty products in undergraduate college girls students. This study also considers the variations in settlements, i.e. rural and urban and their preference of various beauty products analyzed through the questionnaire approach.

Keywords: Herbal, Commercial, Chemical composition, Settlements, Awareness

Skin acts as a waterproof, insulating shield, guarding the body against extremes of temperature, damaging sunlight, and harmful chemicals. It also exudes antibacterial substances that prevent infection and manufactures vitamin D for converting calcium into healthy bones. Skin additionally is a huge sensor packed with nerves for keeping the brain in touch with the outside world. At the same time, skin allows us free movement, proving it an amazingly versatile organ.¹

Skin is made up of three layers (Figure 1). The outermost is the epidermis. This consists mainly of cells called **keratinocytes**, made from the tough protein keratin (also the material in hair and nails). Keratinocytes form several layers that constantly grow outwards as the exterior cells die and flake off. This covering of dead skin is known as the **stratum corneum** (also known as horny layer), and its thickness varies considerably, being more than ten times thicker on the soles of the feet than around the eyes. **Dermis** is the second layer of skin, which does a lot of work making sweat, growing hair etc. and contains sweat glands, hair roots, nervous cells and fibres, blood and lymph vessels. The third layer is **subcutaneous fat layer** and it basically attaches the dermis with muscles and bones.²

The design of cosmetics and skin care formulas is to benefit

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Cite as: Integr. J. Soc. Sci., 2019, 6(2), 57-64.

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IJSS ISSN: 2348-0874

<http://pubs.iscience.in/ijss>

Integrated Journal of Social Sciences

the outer layer of skin- absorption into the body. The majority of cosmetics are insoluble in skin (i.e. lipid, or fat-soluble) and are too large to fit through the stratum corneum. Precisely because of these qualities, some cosmetics require specially developed penetration enhancers to deliver ingredients like vitamin C or retinol.

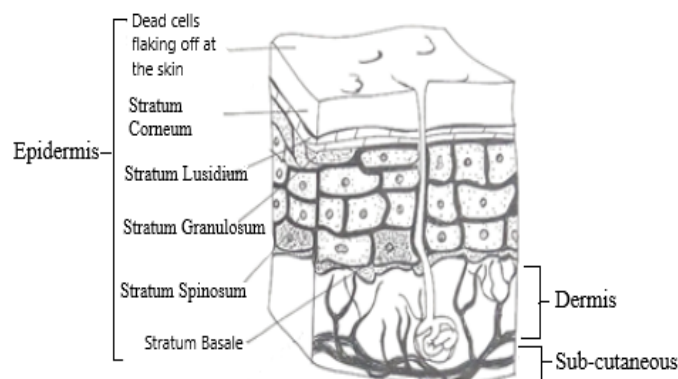


Figure 1. General structure of human skin

Types of Skin

Along with the skin structure, there are different types of skin in different people. Knowledge about individual skin types is helpful in choosing adequate skin care products and treatment regimens. Common skin types in people are listed below:

- Oily type:** Oily skin is characterized by an increased amount of lipids on the skin surface due to overactive sebaceous glands. It is shiny and thick, often with enlarged pores. Oily skin is prone to blackheads and

other blemishes. It occurs more often in men than in women, and it predominantly affects adolescents and younger persons.

- ii. **Normal type:** Normal skin displays a smooth texture and a rosy, clear surface, with fine pores. There are no visible blemishes, greasy patches or flaky areas. Sebum production, moisture content, keratinization and desquamation are well-balanced. Normal skin is often found in young persons.
- iii. **Dry type:** Dry skin is characterized by a lack of moisture in its corneous layer, resulting in tightness and even flaking. The skin appears dull, especially on the cheeks and around the eyes. It may lack elasticity, with accentuated fine lines and wrinkles. In more severe cases, itching and burning may occur. Extremely dry skin shows signs of cracking and fissuring.
- iv. **Combination type:** Combination skin is rather dry in some parts of the body and oily in other localization. Mixed facial skin tends toward dryness on the cheeks and around the eyes while being oily in the t-zone (nose, forehead, chin etc.). The dry parts and the oily parts require different skin care regimens. This skin type is very common.
- v. **Sensitive type:** "Sensitive skin" is not a skin type, but rather a symptom caused by various factors. Patients tend to describe their skin as "sensitive" if it frequently reacts with redness, itching, burning or dryness to the topical application of skin care products. Causes for this condition may be an underlying skin disorder, allergies, contact to irritants in certain products, or the use of inadequate, not skin type-adjusted products. Most commonly, the facial skin is involved.²

Skincare products

Skincare products refer to all products used for cleansing, massaging, moisturizing etc. of the skin especially the face or hands. The aim of such products is to maintain the body in good condition and protect it from the harmful effects of environment. Skincare products also fall into the general category of cosmetics.³

Cosmetics, also known as makeup, are care substances used to enhance the appearance or odor of the human body. They are generally mixtures of chemical compounds, some being derived from natural sources (such as coconut oil) and some being synthetics. Typical organic compounds are modified natural oils & fats as well as a variety of petrochemical derived agents. Inorganic compounds are processed minerals such as iron oxides, talc and zinc oxide. The oxides of zinc and iron are classified as pigments, i.e., colorants that have no solubility in solvents.³

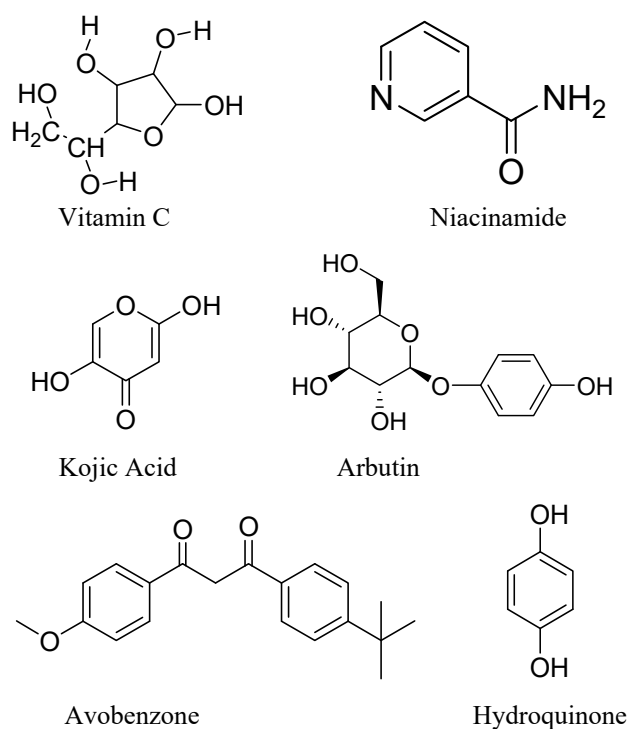
Commercial beauty products

The **commercial beauty products** are being referred as those beauty products which have their scientific origins and are designed in scientific laboratories. Commercial products are widely used to treat different skin types (listed above) and also for enhancing beauty/appearance. Specific beauty

products: sunscreen creams, moisturizers (body lotions), and fairness creams were considered in this research. The major components of these products and their impact on human skin include:

- i. **Moisturizers** are creams or lotions that hydrate the skin & help it to retain moisture. They may contain essential oil herbal extracts or chemicals to assist with oil control or reducing irritation. Main ingredients of body lotions include water, Niacinamide, vitamin C and other vitamins and hydroquinone. Among them, hydroquinone is harmful for the skin as its overuse might cause a medical condition called Ochronosis in which skin turns black or greyish black.⁴
- ii. **Whitening creams** are the cosmetics used to treat skin pigmentation, to treat uneven skin-tone and achieve lighter skin tone. The basic ingredients of fairness creams might include Arbutin, Kojic Acid, Mercury, Ascorbic Acid, and Hydroquinone. Mercury is the metal most likely to induce a skin rash, and 27% of users of creams with high mercury content (> 1,000 µg/g) reported developing a rash.⁵
- iii. **Sunscreen products** include those lotions, creams and sprays that protects against harmful effects of UV radiations. They work by including active ingredients (called UV filters) that remain on the surface of skin that absorb, scatter or reflect the UV radiations before it reaches the skin. The base products of sunscreen lotions include combination of two to three active ingredients such as oxybenzone, avobenzone, octinoxate, octocrylenchomosalate and octinoxate, zinc oxide and titanium dioxide.

Chemical structure of some of the compounds present in the beauty products (the products included in this research) are shown below:



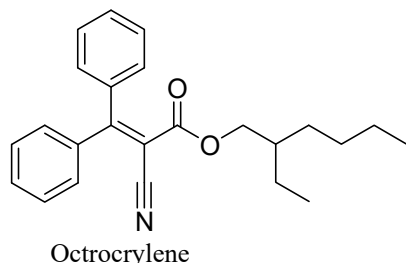
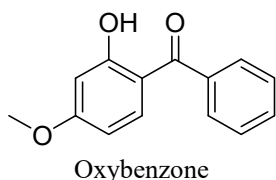
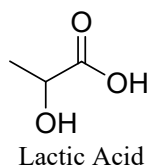


Figure 2. Chemical structure of ingredients used in beauty products.

Organic or herbal products

On the other hand, considering **organic or herbal products** can be defined as those products which do not contain chemical such as phthalates Para beans, aluminum salts & petrochemicals. Widely used herbal products that we have used in our research are turmeric, milk cream, aloe-Vera gel, neem, tea tree oil, sandal wood and fruit extracts. The Indian herbal market is flooded with numerous well known and recognized herbal brands such as Dabur, Patanjali, Vicco, Emami and others. A WHO report study estimates that about 50% of world population depends on natural products for their health and beauty care instead of modern synthetic ones, primarily because of side effects and high cost of modern medicines and cosmetics care.⁶ The mind of consumers is changing and they are moving towards the natural and herbal cosmetic products because they feel that these natural products can increase their physical appearance in a better way than the cosmetics with synthetic origin.⁷ Few of the cosmetics are also used for treatment of different skin problem, such constituents referred as 'cosmeticeuticals' constitute part of treatment as well as appearance. Many of herbal products as well as synthetics ones would, thus, have dual functions. Selectively, the heterocyclic molecules⁸⁻¹³ as well as nanoparticles (nanopharmaceuticals)¹⁴⁻¹⁷ may be indebted in the mixture to get end therapeutic effect.

The Indian cosmetic industry is growing in terms of product development and marketing. India in cosmetics, which saw its value rising from 27% in 2005 to 31% in 2014, are likely to surge ahead over the forecast period because of consumers' response and increasing usage of commercial products also.¹⁸ There are more than approximately 7800 herbal products manufacturers in India. Moreover, the number of brands and manufacturers is also continuously increasing as per the consumers' usage patterns. Various brands like Fair and Lovely, Nivea, Himalaya, Ponds, Dove, Emami etc. are used in very large amounts by every economic section of the society. The increasing volume and spread of marketing and advertising is creating a challenge for the companies to either create awareness about the new products to retain the consumer's interest in products. In this case, manufacturers

find advertisements, use of internet¹⁹ and social media as a powerful source to create awareness of their products. Even the cosmetic manufacturers are also getting interested in the rural population of the country and are developing strategies to do the same.²⁰

There are other so many factors which influence the sales and purchase of beauty products among consumers like family's advice, friend's advice, doctor's recommendations.²¹ But the role of advertisement proved to be very essential in enhancing the sales of brand because it is platform which makes people to know about the names and types of different products.²² Researchers found that repetition in the advertisements hit the mind of the consumers which also help them to remember that product and purchase repeatedly. Awareness level and usage of cosmetic products is also affected by the settlements of consumers. Even the cosmetic companies are interested in increasing the use of cosmetics at the rural level and have even developed ways to do the same. One of the ways for increasing cosmetic consumption at the rural level is by introducing sachets.²³ Considering the variation of composition and probable side effects of the skin beauty products, the awareness among young generation particularly girl students is important for proper utilization of respective products.

Objectives of the Research

The main objective of this research was to check the awareness in college going students about beauty products i.e. to check the basic parameters which are considered while purchasing any of the beauty products.

The research analysis took into consideration the following:

- The frequency of different kinds of beauty products: herbal or commercial;
- Do consumers look at the chemical composition of beauty products which they are using?
- What are the factors influencing the purchasing pattern: effect of media (social networking, advertisements, newspapers, magazines), doctor or family recommendations etc.?
- Which factor influences the purchasing behavior: brand of products or cost of the product?
- Are beauty products chosen according to their skin types; Oily, dry, normal and sensitive?
- Whether expiry date of the product also taken into consideration or not?
- Is the awareness level and usage pattern affected by settlement of consumers: Rural /urban settlement?

METHODOLOGY

Data Collection

- **Research approach:** In this particular research, quantitative approach is used & the data was gathered primarily from the uses of cosmetic products.

- **Respondents:** The survey was conducted among college going girls. The data from 100 respondents was collected from Aditi Mahavidyalaya, Bawana, New Delhi-39.
- **Research Instrument:** A questionnaire was developed which contained question to measure consumers awareness & gather data from the sample. Moreover, the interview method was also used as a medium to gather data and information.
- **Skin Products:** The analysis mainly focused on skin products i.e. fairness, sunscreens, moisturizers and other cosmetics like hair products, plastic surge lies, bleaching creams, plastic surgeries, artificial make ups etc.were not taken into consideration.
- **Questionnaire:** The questionnaire used to take survey is sampled below :

Questionnaire

(Research on awareness of beauty products)

Name :

Age :

Course : (Year :)

Living Area :

Tick any one that you use (Fairness Cream / Body Lotion / Sunscreen / Others) (Mention if others : _____)

Q 1 : Do you use any sort of beauty product ?

Yes ☐ No ☐ Never used ☐

Q 2 : If No, why ?

Past bad experiences (Side effects) ☐

(which ? _____)

Q 3: Which type of beauty product do you use? (Name accordingly)

Herbal ☐ _____

Commercial ☐ _____

Home Made ☐ _____

Q 4: Have you got desired results from it?

Yes ☐ No ☐

Q 5: Do you know about its chemical composition?

Yes ☐ No ☐

Q 6: Do you know which constituent is responsible for the effects you got from the product ?

Yes ☐ No ☐

Q 7: If you know about the constituents, do you know any other product having the same constituents ?

Yes ☐ No ☐

(If yes, which ? _____.)

Q 8: What effect the product did to your skin ?

Q 9: From where did you come to know about the product ?

Q 10: Are you satisfied from the product you are using ?

Yes ☐ No ☐

Q 11: How frequently do you use the product ?

Daily ☐ Regularly ☐
Sometimes ☐

Q 12: What do you prefer more in a beauty product ?

Quality (Brand) ☐ Cost ☐
Both ☐

Q 13: Which brand do you prefer in a beauty product ?

Ponds ☐ Fair & Lovely ☐ Lakme ☐
Nivea ☐ Others ☐

Herbal _____ (Name & description)

Homemade _____ (Name & description)

Q 14 : Which skin type do you have ?

Oily ☐ Dry ☐ Normal ☐
Sensitive ☐ Combination ☐ Don't know ☐

Q 15 : Do you pick up a beauty product according to your skin type ?

Yes ☐ No ☐

Q 16 : Would you recommend the product you use to someone ?

Yes ☐ No ☐

(Why/ Why not ? _____.)

Q 17 : Do you take into consideration the expiry date of the product while using it?

Yes ☐ No ☐

RESULT AND DISCUSSION

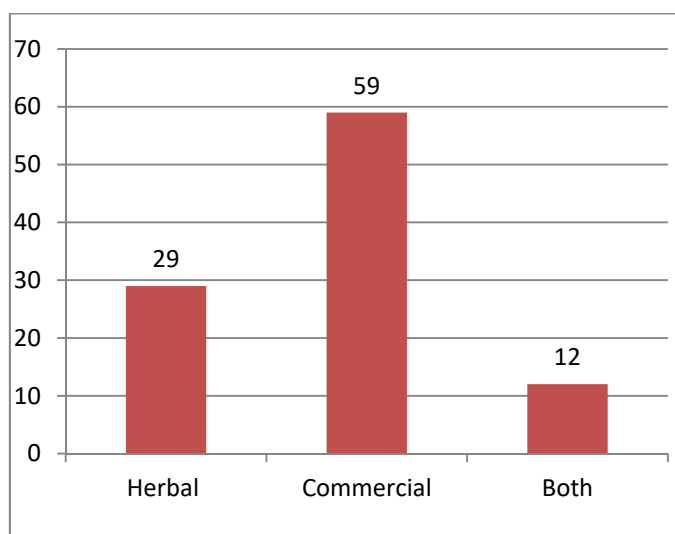
[A] General analysis on awareness of chemical composition, herbal or commercial, effect of advertisement, brand or cost preference, expiry date product used according to the skin type

The research was conducted over 100 girls through questionnaire approach and interviews. It was found that **74% of them used beauty products while 26% of them said, they are currently not using any beauty product.** Among these 26% some were not using because of past bad experience & some have never used. Our further research was focused on these 76%. Out of these 76%, **52% of them were using body lotion, 15% were using fairness creams, 8% were using sunscreen, while the remaining 25% were using other sorts of beauty products which majorly included shampoos, face wash etc. (table 1).**

Table 1: Frequency of different types of beauty product used

Type of product used	Frequency(%)
Sunscreen	8%
Body lotion	52%
Fairness cream	15%
Others	25%

While analyzing the usage pattern of the type of beauty product (commercial or herbal), it was found that **29% used herbal products, 59% used commercial products while 12% were using both them** (figure 3). This means that most of the population in this region is using cosmetic products for enhancing their beauty. The major reason contributing to this variation was the influence of media and sometimes family recommendations. This means that advertisements and other media sources contributed greatly in the usage of commercial products. Advertisements were found more trustworthy by consumers and they found it a risky matter to take challenges with their skin by testing herbal products. While those who were using herbal products found these products as trustworthy due to safety, quality, no side effects, cost affordability and easy availability.²⁴ Though the research conducted by Naresh and BhanuSree on impact of perception purchase on consumer purchase behavior in India showed opposite results and concluded that 80% of the consumers were using herbal beauty products.²⁵ This means that respondents in this research are more inclined towards commercial beauty products and this is possibly due to the effect of media and their family's and friend's recommendations. Respondents are having positive views regarding the usage of commercial products. Though there may be a possible shift towards herbal product in the coming time because the marketing and awareness of herbal products is also gearing up.²⁶

**Figure 3:** Type of beauty product used: herbal or commercial (%)

The aspect of awareness of the products' chemical composition holds the major aspect in checking one's awareness about the product.²⁷ As, it is important to know which chemical will work on their skin to get the desired effects and which chemical can show unfavorable outcomes. It was found that **mere 41.7% of them knew about the chemical composition while 59.3% did not know about it** (figure 4). The respondents who were aware about the chemical composition, mostly included those who were using herbal products. While those using commercial products were unaware of the chemical composition because their usage pattern is usually affected by advertisements and advertisements hardly share complete information of products' chemical composition adjust influences consumers by telling them one or two chemical products. Moreover, consumers consider it as none of their business to check and be aware of chemical composition.²⁸

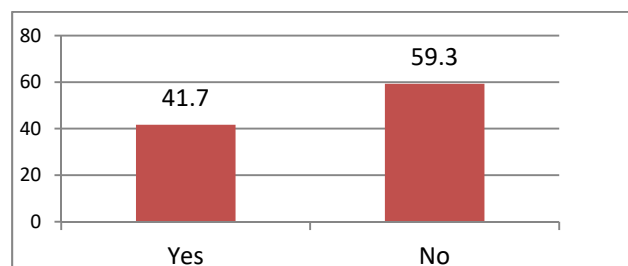
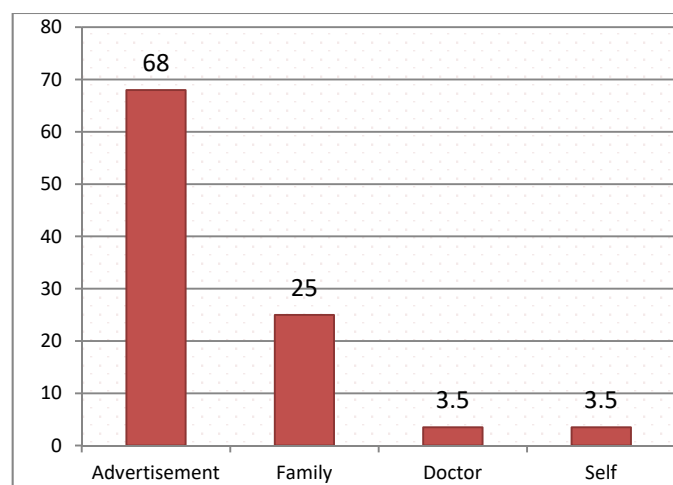
**Figure 4:** Knowledge about chemical composition (%)

Figure 5 shows that advertisement, family, doctor and self were the factors that influenced the usage patterns of beauty products. 68% of the respondents were influenced by advertisements which was the major factor and another factor was family advice (25%), while self and doctor's recommendations had very minor impact. This shows that advertisements are the major factor which continue to influence the usage patterns. The kind of belief and trust which is developed by commercial manufacturers through these advertisements attracts consumers towards their products. While the research conducted by Shayna Amaldas & Nigel Chieweshe in Kwazulu natural province showed opposite results. As per their research, only 14.5% were influenced by advertisement while 48% people were not finding advertisements useful.²⁹ The reason for this is cultural and demographic difference.

**Figure 5:** Influencing factor responsible for the usage of beauty product(%)

When respondents were asked about costs or brand preference, **cost has no influence alone, while 46.6% preferred brand & 53.3% preference both cost & brand**(figure 6). This shows that cost was not influencing the purchasing pattern alone. Consumers preferred various Indian brands like Ponds, Lakme, Nivea, Himalaya, Olay etc. but those brands were chosen which were affordable to them. This result matched with the research conducted by Tamizijythy and Jawahar.³⁰ This research also shows that cost of products does not have any influence on overall attitude of respondents towards the cosmetic products.

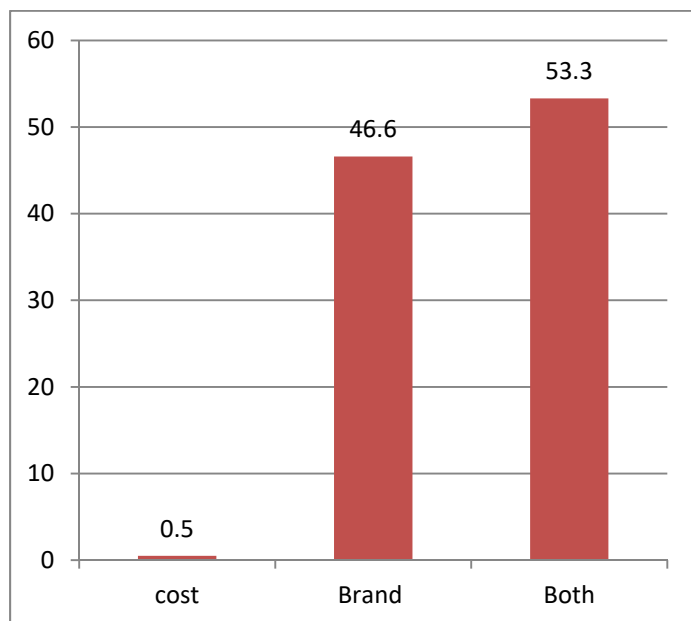


Figure 6: Preference of brand or cost(%)

When the respondents were asked whether they use products according to their skin type it was found that 72.4% were using beauty products according to their skin type oily, dry, normal, and sensitive while 27.5% did not consider the skin type while purchasing these products (figure 7).

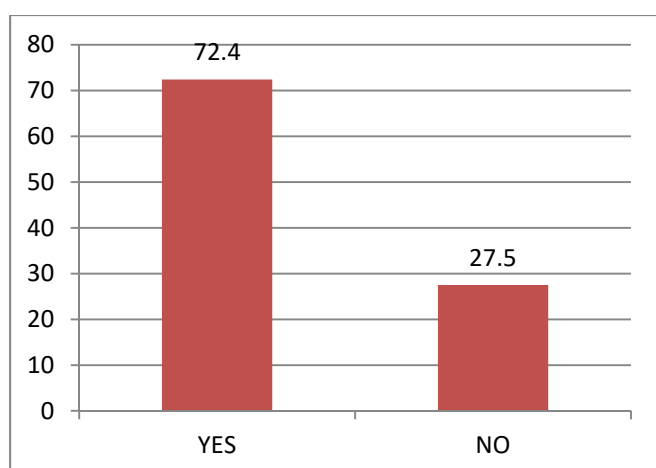


Figure 7: Preference of beauty product according to the skin type(%)

One more aspect of awareness was taken into consideration i.e. expiry date. Almost all, 99% of the respondents purchased products after looking the expiry date. All the consumers

consider it as one of the major pointer which should be taken care of while purchasing any of the product because they believe that after getting expired, products either start showing side effects or lower their effect is lowered. These results match with the results concluded by Naresh and BhanuSree²⁵ which said that expiry date is the major component affecting the purchasing behavior of consumers.

[B] Effect of settlement: Rural\Urban on awareness of chemical composition, herbal or commercial, effect of advertisement, brand or cost preference, product used according to the skin type

The respondents included girls from rural as well as urban background. So, it was also considered as the basis for analyzing the differences in usage patterns among the respondents of both the settlements. All the objectives were analyzed comparatively with the settlements. Results showed that some awareness factors were not influenced by the settlement patterns while some other factor shows variance as per the settlements. 89.6% of the respondents were satisfied with the products while 10.34% were not finding their products satisfactory.

Table 2 reveals the type of beauty product used as per rural & urban settlements. Out of the 3 major categories i.e. sunscreen creams, body lotion, fairness cream, it can be seen that the usage of sunscreen creams is almost similar in both the settlements. While the urban respondents are more leaned towards using body lotion and fairness creams as compared to rural respondents. Also, rural respondents are using other beauty products like shampoos; face wash etc. in a considerable amount along with using these 3 broad categories of products.

Table 2: Types of beauty product used

Type of product used	Rural	Urban
Sunscreen creams	11.2%	10%
Body lotion	22.2%	34.4%
Fairness	22.2%	37.9%
Others	44.4%	17.7%

In case of the type of beauty product used (herbal or commercial), there was a considerable difference in the usage pattern of both the population. As shown in figure 8, rural population is leaned more towards using herbal products i.e. 54.5% of the herbal products are being used by the rural population and the rest 45.5% of the products are consumed by the urban population. Also urban population is consuming more of the commercial products i.e. out of the total usage, 62.02% of the commercial products are consumed by the urban population and only 37.06% commercial products are consumed by rural respondents. The possible reason for this is the family and social background and urbanization. Urban settlement is more engaged in commercial products because of the influence of media (social networking, advertisements in television). Rural settlements are using more of the herbal products because of the availability of raw material and more engagement in agricultural sector.

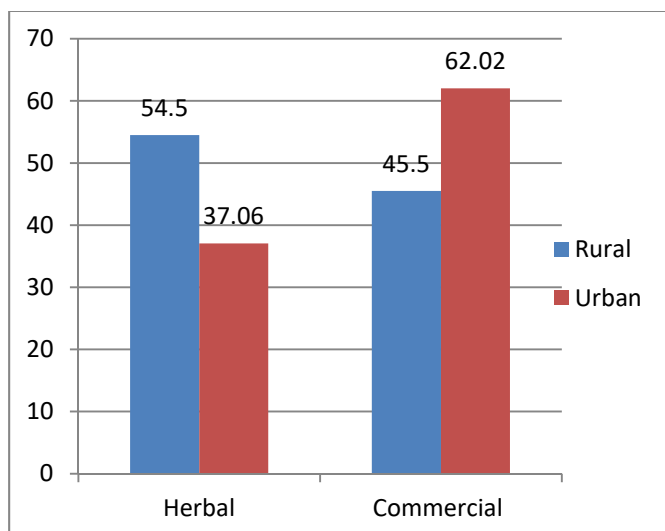


Figure 8: Usage of beauty products in rural & urban settlements (%)

Figure 9 shows variance in the awareness level of the chemical composition of beauty products. There is not very sharp boundary in this actor (i.e. awareness level of both the settlements is almost similar), though, rural population is somehow less aware of the chemical composition as compared to urban section. The research conducted by Nair and Pillai²³ stresses that urban consumers are more aware about the commercial beauty products and their composition and consumption is more. However, this point cannot be clearly differentiated in our research. As per our research, there is not any proper variance in the awareness level of the chemical composition of the beauty products they are using.

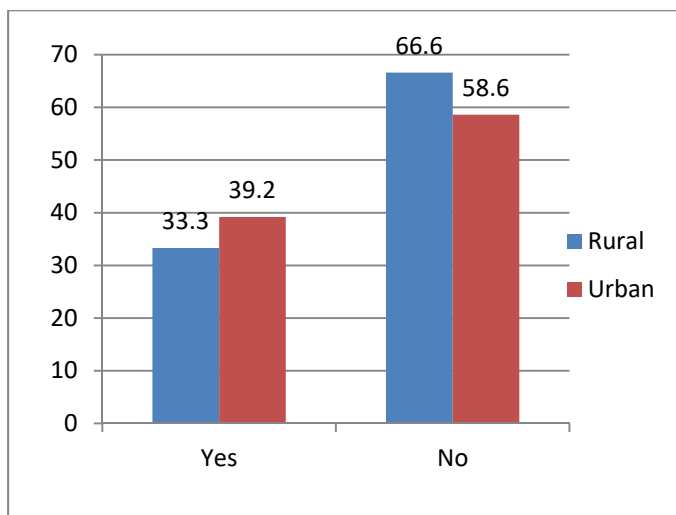


Figure 9: Knowledge about chemical composition in rural and urban areas (%)

The results of the cost or brand preference are also similar in both the settlements (figure 10). Cost alone did not alter the purchasing behavior of the consumers of the settlements rather more than half of the respondents of both the settlements consider brand as well cost while purchasing beauty products as discussed in the above section of general discussion. Respondents of both the settlements don't take any risk of their beauty on the cost of the product rather they prefer those branded products which are affordable to them.

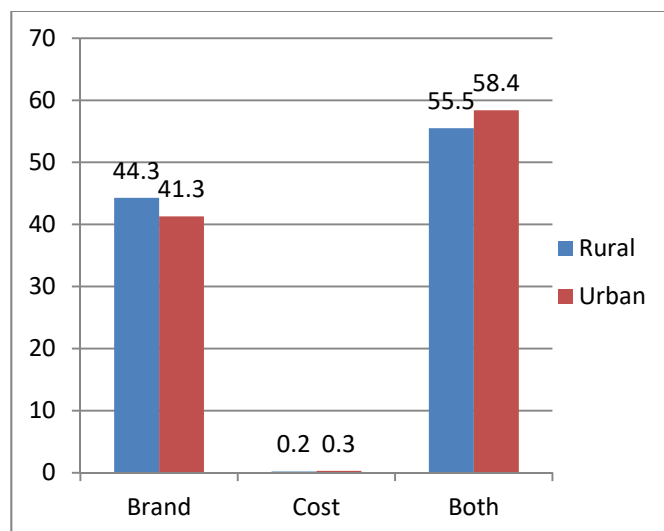


Figure 10: Preference of cost and brand among people in rural and urban areas (%)

Figure 11 shows the variance in the usage pattern and selection of chemical products as per the skin type of respondents. Results shows that rural population is more aware of their skin type and knows that product should be chosen as per their skin type otherwise the results can be unfavorable. While 81.4% of the urban population is not aware of their skin type and do not choose products according to their skin. Thus, it can be seen that rural population is much more aware of their skin type and uses skin friendly beauty products to get the desired effects.

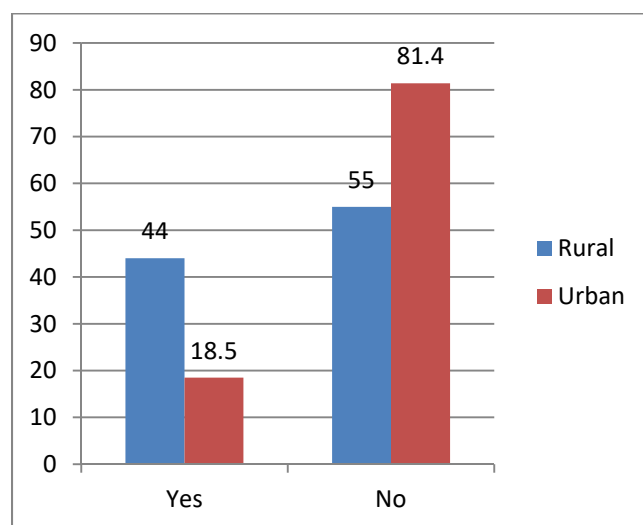


Figure 11: Preference of beauty products among people in rural and urban areas according to their skin type (%)

As per the general understanding, anything which is used in excess generally leads to harmful impact. So if we use beauty products excessively on our skin it will harm the skin no matter how highly effective chemicals are present in it.^{31,32} Also using herbal beauty products and home remedies to treat the skin is always a better as well the safer way for the long run, as it is also seen that the consumption of beauty products is highly affected by the media. It is also important to know that media is mostly the reflection of the norms and values of a particular society so the idea of a perfect skin is influenced by our society and the urge to treat the skin and have a perfectly

flawless skin is nothing but a myth that is created by the preferences of our society. Skin treatment is only required when the skin condition starts harming our health and not to run after a superficial ideology of a perfect skin.

CONCLUSION

In conclusion, it is observed that more than half of the respondents don't consider chemical composition as the major factor while purchasing beauty products. Also, commercial products are consumed more as compared to natural products. Both these purchasing patterns are highly influenced by the media as media contributes to the major source affecting the purchasing pattern of consumers. Moreover, it is not only cost rather brand as well as cost of the beauty products which are looked upon while purchasing any product. Rural and urban settlements are also the major factor which was affecting the awareness level and the use of beauty products. It was observed that the rural respondents used the products more according to their skin types. Moreover, rural population is consuming more of the herbal products in comparison to the urban population. At last, it is found that almost all the respondents considered expiry date as the important parameter which should be taken care of while purchasing any beauty product.

Acknowledgement

Authors acknowledge support by members of Aditi Mahavidyalaya, Bawana including librarians, teachers, colleagues for their kind co-operation and encouragement which helped in completion of this project.

Conflict of interest statement

Authors declare no conflict of interest.

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