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Original Research Article

Gap between awareness and practices of cosmeceuticals among young adults of Panjab University

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ABSTRACT

Background: Cosmeceuticals are cosmetic products that contain bioactive ingredients with pharmaceutical properties. These products are designed to improve skin health and appearance by providing functional benefits beyond traditional cosmetics. However, there exists a noticeable gap between the awareness of these specialized formulations and their practical application by consumers.
Methods: This was a descriptive cross-sectional study conducted among 171 students. The data was collected by conducting personal interviews using an interview /survey schedule designed specifically for this study. Descriptive and analytical statistics were utilized to get the necessary results.
Results: The study included 171 participants, with (24.6%) males and (75.4%) females. Notably, a high level of awareness (100%) and utilization (60.8%) was observed for essential skincare products where females tend to use cosmeceuticals more frequently. Also, the cleansers (100%), moisturizers (100%), and sunscreen (100%) were most valued and were daily incorporated into skincare routines.
Conclusions: The findings revealed the prevalence of cosmeceutical awareness and usage, with cleansers, moisturizers, and sunscreen being the most recognized and adopted products. However, a notable gender discrepancy in the usage of certain products suggests variations in preferences and concerns among males and females. Overall, this research contributes to the understanding of cosmeceutical usage patterns, and knowledge gaps. Future efforts should focus on exploring these gaps and promoting responsible and well-informed consumer practices, ultimately fostering a healthier approach to skincare and cosmeceutical products.

Keywords: Awareness, Beauty industry, Consumer practices, Cosmeceuticals, Education, Pharmaceuticals, Skincare

INTRODUCTION

Lately, beauty and skincare businesses have seen an increased interest in items that improve appearance as well as provide remedial advantages for the skin. These items, known as cosmeceuticals, address a special classification that combines the domains of beauty care products and pharmaceuticals. Cosmeceuticals are formed with bioactive ingredients which are believed to provide solutions to correct a variety of skin worries like aging and hyperpigmentation to hydration and texture improvement. The term "cosmeceutical" is a portmanteau of "cosmetic" and "pharmaceutical", reflecting the dual nature of these products. A separate subclass of cosmetics and drugs is known as cosmeceuticals.[1] While cosmetics have long been used for beautification and aesthetic purposes, cosmeceuticals go beyond mere appearance enhancement. They are designed to penetrate deeper into the skin and interact with its cellular structures, offering potential benefits that transcend traditional cosmetic claims.[1] The fusion of cosmetics and pharmaceuticals is known as cosmeceuticals. For instance, consider retinol plus face serum or antioxidant plus lipstick. "Cosmeceuticals will contain active ingredients that are known to be beneficial to humans in some way", asserts Marie Jhin, MD, a dermatologist in San Francisco. When

vitamin C is added to a lotion or cream, for instance, the product is deemed a cosmeceutical because vitamin C is a well-known antioxidant.[2]

Depending on the substances they contain, cosmeceuticals can have therapeutic or drug-like effects on how the skin functions biologically. Cosmeceuticals improve collagen production in the skin and lessen the negative effects of free radicals, maintaining the integrity of keratin and improving the health of the skin. Products for skin care exist that go beyond beautifying and coloring the skin. Cosmeceuticals are applied topically and contain components that affect the biological processes of the skin. The goal of cosmeceuticals is to enhance attractiveness by supplying the nutrients required for healthy skin. Cosmeceuticals typically make claims about improving the skin's tone, texture, and brightness as well as reducing wrinkles.[3]

In recent years, there has been a noticeable increase in the use of cosmeceuticals in India. Indian consumers are more aware of their appearance and skin health due to changing lifestyles, rising disposable incomes, and a greater emphasis on personal grooming and self-care.

Cosmeceuticals have been a popular option for customers looking for effective, scientifically supported skincare products because of their promise of enhanced skin benefits and focused treatments. The demand for anti-aging goods, rising urbanization, celebrity influence, accessibility issues, and the demand for cosmeceuticals have all boosted their popularity in India's beauty and skincare industries. The demand for cosmeceuticals is anticipated to rise further as the market develops, led by a consumer base that is becoming more health- and appearance-conscious.

Euro Monitor International estimates that the global retail sales of cosmeceuticals based on natural materials reached US$2.98 billion in 2015, with a 4% compound annual growth rate (CAGR) over the preceding five years. The cosmetic sector is estimated to be worth about INR 356 billion, according to a study by Indian Cosmetic Sector Analysis. The Indian cosmetics and beauty market has consistently increased by 15% to 20% yearly.[1]

The rapid growth of the cosmeceutical market can be attributed to several factors. Firstly, the desire for youthful and healthy-looking skin has become a cultural ideal, driving consumers to seek products that address the visible signs of aging and other skin-related issues. Secondly, advancements in cosmetic science and research have allowed the development of innovative ingredients with bioactive properties, opening new possibilities for cosmeceutical formulations. Additionally, the widespread availability of information through the internet and social media has empowered consumers to become more discerning and well-informed about skincare options, leading to an increased demand for evidence-based products.[1]

However, amid this growing fascination with cosmeceuticals, a disconcerting gap emerges- an intricate divide between the awareness of these products and their practical application by consumers. While consumers are undoubtedly becoming more cognizant of the existence of cosmeceuticals, questions linger as to whether this awareness translates into informed choices and meaningful skincare practices. This study embarks on a comprehensive exploration of the "gap between awareness and practices of cosmeceuticals".

METHODS

Study design

A cross-sectional study was conducted among college students between the ages group 18 years to 25 years. The study was conducted by conducting personal interviews using an interview/survey schedule designed specifically for this study.

Study area and population

The study was conducted among the students of Panjab University, Chandigarh between the age group of 18 to 25 years. All undergraduate and postgraduate students from Government Medical College and Hospital (GMCH-32), H. J. Dental College, Pharmacy, Centre for Public Health, Law, Arts, Science, and Engineering departments were the participants.

Sample size and sampling technique

Power analysis was used to calculate the optimum sample size for the proposed study. The sample size was calculated by using the following formula with an approximation for a large population:

$$n_{opt} = \frac{Z^2_{1-\alpha/2}(1-p)}{\epsilon^2\ P}$$

Where,

P = anticipated population proportion, 1 - α = confidence coefficient, ϵ= Relative precision, and Z (.) is the value of standard normal variate.

On the basis of 91 % of youths reporting cosmetics use as the most important outcome parameter reported in the existing literature and assuming a 95% confidence coefficient and 5% relative precision, the sample size came out to be 171 youths aged 18-25 years. Stratified simple random sampling was used.

Study period

The study was carried out from March 2023 to July 2023. A pilot study was carried out before finalizing the questionnaire.

Inclusion criteria

Inclusion of all students between the age group 18 to 25 years of various departments of the university/ professional institutions/colleges.

Exclusion criteria

The students who were not willing to take part in the study. Students below 18 years and above 25 years of age were excluded.

Ethical consideration

The volunteers received the information sheet and were told about the study's goals and methodology. Each participant was asked for their informed consent, and their confidentiality was ensured.

RESULTS

The study included 171 participants, with (24.6%) males and (75.4%) females. The majority of participants fell within the age range of 20-21 years (50.9%), followed by 22-25 years (37.4%). The majority of respondents (81.9%) fall into the middle socio-economic status category. Most respondents were pursuing graduation (78.4%) from medical backgrounds (73.7%) among both sexes.

Table 1: General characteristics gender distribution.

General characteristics	Male no. (%)	Female no. (%)	Total no. (%)
Age (years)			
18-19	1 (2.4)	19 (14.7)	20 (11.7)
20-21	31 (73.8)	56 (43.4)	87 (50.9)
22-25	10 (23.8)	54 (41.9)	64 (37.4)
Socio-economic status			
Low	11 (26.2)	10 (7.8)	21 (12.3)
Middle	27 (64.3)	113 (87.6)	140 (81.9)
High	4 (9.5)	6 (4.7)	10 (5.8)
Educational class			
Graduation	40 (95.2)	94 (72.9)	134 (78.4)
Post-graduation	2 (4.8)	31 (24)	33 (19.3)
Doctoral	0 (0)	4 (3.1)	4 (2.3)
Educational stream			
Medical	41 (97.6)	85 (65.9)	126 (73.7)
Non-medical	1 (2.4)	22 (17.1)	23 (13.5)
Commerce and arts	0 (0)	22 (17.1)	22 (12.8)

The awareness of cosmeceutical products was notably high among both genders, with percentages often exceeding 80% and, in many cases, reaching 100%. Moisturizers, hair-strengthening products, and cleansers stand out as products with universal awareness, attaining 100% recognition among both male and female participants. While awareness of sunscreen is high among both males (95.2%) and females (100%), the practical application (practices) shows a notable gender difference. Only 45.2% of males report using sunscreen compared to a significantly higher 83.7% of females. This gender gap in sunscreen application is worth further investigation. Despite high awareness, some cosmeceuticals have low practical application rates among both genders. For instance, retinoids and anti-wrinkle/aging products have very low usage rates, indicating potential barriers to their adoption or concerns about their use. Toner and serum application patterns exhibit gender-based differences. While awareness of these products is relatively high among males, their practical application is significantly lower, especially for toner. Females, on the other hand, show higher practices in these categories, with 90.7% using serums and 26.4% using toners.

Cosmeceuticals like exfoliants, spot treatments, and sheet masks have varying usage rates among participants, suggesting that their adoption may be influenced by specific skincare needs or preferences.

Lip masks have the lowest reported practices among both genders, with only 6.2% of females using them and no reported use among males. Females exhibit higher practices when it comes to night cream and eye cream usage, possibly reflecting a greater emphasis on nighttime skincare routines and anti-aging concerns.

The study highlights the varying degrees of integration of cosmeceuticals into participants' skincare routines, with some products being essential daily staples and others reserved for specific treatments or used less frequently. Moisturizer, cleanser, and sunscreen (SPF) are the most commonly used cosmeceuticals, with 100% of respondents reporting daily usage. This suggests that participants prioritize these fundamental skincare products as part of their daily routines. There is a wide range of usage frequencies across different cosmeceutical categories. While some products like hair strengthening and toner are predominantly used weekly, others like exfoliation and sheet masks exhibit more varied usage patterns. Cosmeceuticals such as retinoids, anti-wrinkle/aging products, and topical proteins and peptides (collagen and elastin) are used relatively rarely, with some categories reporting zero or minimal usage. This indicates that specialized products may not be a core component of participants' skincare routines. Exfoliation and spot treatments are commonly used on a weekly basis, with 85.7% and 28.6% of respondents, respectively, choosing this frequency. This suggests that participants are incorporating targeted treatments into their weekly skincare routines. Sheet masks were predominantly used on a monthly basis (44.4%), with a smaller percentage using them weekly (35.6%). This indicates that sheet masks are viewed as occasional treatments rather than daily or weekly necessities. Anti-wrinkle and aging products have the lowest frequency of use, with only 1% of respondents using them, and even then, on a rare basis.

Table 2: Gender based awareness and practices of cosmeceuticals distribution.

Name of cosmeceuticals	Awareness			Practices		
	Male N (%)	Female N (%)	Total N (%)	Male N (%)	Female N (%)	Total N (%)
Moisturizer	41 (97.6)	129 (100)	170 (99.4)	41 (97.6)	129 (100)	170 (99.4)
Sunscreen (SPF)	40 (95.2)	129 (100)	169 (98.8)	19 (45.2)	108 (83.7)	127 (74.3)
Antioxidants (Vitamin C or E)	36 (85.7)	111 (86)	147 (86)	6 (14.3)	38 (29.5)	44 (25.7)
Hydroxy acids (glycolic, lactic and salicylic acid)	25 (59.5)	93 (72.1)	118 (69)	5 (11.9)	21 (16.3)	26 (15.2)
Retinoid (anti-aging)	35 (83.3)	103 (79.8)	138 (80.7)	0 (0)	3 (2.3)	3 (1.8)
Topical proteins and peptides (collagen and elastin)	19 (45.2)	71 (55)	90 (52.6)	2 (4.8)	5 (3.9)	7 (4.1)
De-pigmentation agents	32 (76.2)	100 (77.5)	132 (77.2)	2 (4.8)	7 (5.4)	9 (5.3)
Scar reducing	34 (81)	117 (90.7)	151 (88.3)	3 (7.1)	14 (10.9)	17 (9.9)
Anti-wrinkle/aging	38 (90.5)	109 (84.5)	147 (86)	0 (0)	1 (0.8)	1 (0.6)
Hair strengthening	42 (100)	129 (100)	171 (100)	42 (100)	129 (100)	171 (100)
Cleanser	42 (100)	129 (100)	171 (100)	42 (100)	129 (100)	171 (100)
Toner	23 (54.8)	117 (90.7)	140 (81.9)	0 (0)	34 (26.4)	34 (19.9)
Serums	30 (71.4)	117 (90.7)	147 (86)	8 (19)	58 (45)	66 (38.6)
Exfoliation	24 (67.1)	88 (68.2)	112 (65.5)	6 (14.3)	36 (27.9)	42 (24.6)
Spot treatments	19 (45.2)	87 (67.4)	106 (62)	3 (7.1)	11 (8.5)	14 (8.2)
Night cream	21 (50)	99 (76.7)	120 (70.2)	4 (9.5)	15 (11.6)	19 (11.1)
Eye cream	17 (40.5)	95 (73.6)	112 (65.5)	2 (4.8)	15 (11.6)	17 (9.9)
Face oil	23 (54.8)	90 (69.8)	113 (66.1)	4 (9.5)	9 (7)	13 (7.6)
Essence	16 (38.1)	78 (60.5)	94 (55)	1 (2.4)	7 (5.4)	4 (4.7)
Sheet masks	24 (57.1)	102 (79.1)	126 (73.7)	3 (7.1)	42 (32.6)	45 (26.3)
Lip mask	11 (26.2)	84 (65.1)	95 (55.6)	0 (0)	8 (6.2)	8 (4.7)

Table 3: Frequency of use of cosmeceuticals.

Name of cosmeceuticals	Frequency of use				
	Daily N (%)	Weekly N (%)	Monthly N (%)	Rarely (%)	Total N
Moisturizer	170 (100)	0 (0)	0 (0)	0 (0)	170
Sunscreen (SPF)	127 (100)	0 (0)	0 (0)	0 (0)	127
Antioxidants (Vitamin C or E)	41 (93.2)	1 (2.3)	0 (0)	2 (4.5)	44
Hydroxy acids (glycolic, lactic and salicylic acid)	12 (46.2)	14 (53.8)	0 (0)	0 (0)	26
Retinoid (anti-aging)	0 (0)	3 (100)	0 (0)	0 (0)	3
Topical proteins and peptides (collagen and elastin)	1 (14.3)	6 (85.7)	0 (0)	0 (0)	7
De-pigmentation agents	5 (55.6)	3 (33.3)	1 (11.1)	0 (0)	9
Scar reducing	6 (35.3)	10 (58.8)	0 (0)	1 (5.9)	17
Anti-wrinkle/aging	0 (0)	0 (0)	0 (0)	1 (100)	1
Hair strengthening	15 (8.8)	155 (90.6)	1 (0.6)	0 (0)	171
Cleanser	171 (100)	0 (0)	0 (0)	0 (0)	171
Toner	34 (100)	0 (0)	0 (0)	0 (0)	34
Serums	65 (98.5)	0 (0)	0 (0)	1 (1.5)	66
Exfoliation	3 (7.1)	36 (85.7)	3 (7.1)	0 (0)	42
Spot treatments	8 (57.1)	4 (28.6)	1 (7.1)	1 (7.1)	14
Night cream	18 (94.7)	0 (0)	0 (0)	1 (5.3)	19
Eye cream	14 (82.4)	3 (17.6)	0 (0)	0 (0)	17
Face oil	10 (76.9)	1 (7.7)	1 (7.7)	1 (7.7)	13
Essence	5 (62.5)	3 (37.5)	0 (0)	0 (0)	8
Sheet masks	6 (13.3)	16 (35.6)	20 (44.4)	3 (6.7)	45
Lip mask	2 (25)	5 (62.5)	1 (12.5)	0 (0)	8

DISCUSSION

The findings of this study shed light on the patterns of awareness and usage of cosmeceutical products among the surveyed participants.

According to an international study, there was a 100% utilization of cosmetic products among the residents of Dammam, Saudi Arabia with 42.16% utilization of cosmeceuticals.[4] The international study carried out in Ethiopia among graduate female students also reported the 100% utilization of essential cosmetic products.[5] Another study carried out among female employees of Jimma University, Southwest Ethiopia reported 80.1% usage.[6]

The utilization among female students of Janakpurdham, Nepal was also 100% with moderate knowledge of the products.[7] The females in Saudi Arabia reported 95% utilization of essential skincare products.[8] A study showed 97.8% utilization carried among female university students of Ethiopia.[9] Similarly, the health science students of Tanzania reported 91% usage of essential products and 96% among female students of Sri Lanka.[10]

Among the national studies, the medical students in western India had only 51% knowledge with much utilization whereas the medical students of KIMS, Bangalore showed 97% knowledge with 96.5% utilization.[11,12]

In contrast, the present study reported a high level of awareness and utilization of essential skincare products such as cleansers, moisturizers, shampoos, and sunscreens. This underscores the significance placed on basic skincare routines, indicating a growing understanding of the importance of skin protection and hydration. The pronounced gender differences (no male user) in the use of specific products, such as toners and retinoids, invite deeper exploration. These disparities could potentially be attributed to diverse skincare objectives which needs to be explored.

CONCLUSION

The study provides a comprehensive understanding of the dynamics surrounding the awareness, practices, and frequency of use of cosmeceutical products among the study participants, stratified by gender. It is evident that awareness of cosmeceutical products is notably high, with participants across both genders demonstrating familiarity with a wide range of skincare offerings. However, the data also reveals a significant divergence between awareness and practical application. While many participants are aware of various cosmeceuticals, actual usage patterns vary considerably. Some products, such as moisturizers, cleansers, and sunscreen, are integrated into daily routines by nearly all participants, reflecting their perceived importance. In contrast, specialized products like retinoids and anti-wrinkle formulations are used infrequently. The gap between the two needs to be explored. Moreover, gender-based disparities in cosmeceutical practices are discernible. Females tend to exhibit more consistent and frequent use of a broader spectrum of products, whereas males, while aware, tend to use these products less regularly. This gender divide is particularly pronounced in the case of sunscreen, where awareness is high among both genders, but daily application is notably lower among males. The data also sheds light on the varying usage frequencies of different cosmeceutical categories. While basic products like moisturizers and cleansers are integrated into daily routines, others, such as exfoliants and sheet masks, are used on a weekly or monthly basis, reflecting their role as occasional treatments. The reasons behind the varying use should also be probed and future researches can focus on delving into the gap.

Recommendations

Future researches to delve into the gap between the awareness and practices of the cosmeceutical products. Public awareness campaigns to educate about the proper usage, benefits, and potential risks of cosmeceuticals. Foster collaboration between cosmeceutical manufacturers and dermatologists to ensure that products align with professional recommendations and provide tangible benefits to users.

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