



## Original Research Article

# Impact of social media on the use of skincare products among female college students in Western Tamil Nadu

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## Abstract

**Background:** Currently, 83% of the younger population uses social media to access medical information, most of which is related to skincare issues. Although these platforms provide education on skincare products, the potential risk of using irrational products has shown terrible outcomes, including psychological problems. This study was conducted to analyze the impact of social media on the use of skincare products among female college students in Western Tamil Nadu.

**Materials and Methods:** A two-month online cross-sectional questionnaire-based study was conducted among 850 female college students in Western Tamil Nadu using the volunteer opt-in method. The anonymized data obtained were analyzed using descriptive statistics.

**Results:** Instagram (59.3%) and YouTube (40.1%) were the most common social media platforms for skin care advice. The majority of students felt social media posts about skincare were unregulated (92.7%), influenced their choice of skincare products (92.2%), skincare routines (92.3%), made them compare their skin with others (91.2%), and impacted their behaviour (91.6%). Acne treatment products (38%), brightening agents (26.2%), and sunscreens (21.6%) were the most commonly used skincare products influenced by social media. Most of them used skin care products daily (87.5%) and spent a moderate amount (89.52%). Quality of the product (62.6%) was found to be the most important selection criterion. Almost 87.5% experienced side effects because of using skin care products influenced by social media; however, only 4.1% sought a doctors' consultation.

**Conclusion:** This study highlights the need for general public, healthcare professionals, and regulatory authorities to understand the inadvertent use of social media on the usage of skincare products.

**Keywords:** Social Media, Skincare products, Women, Side effects, Students.

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## 1. Introduction

In the past decade, immense growth has been observed in the use of social media. Currently, more than half of the world's population uses social media. Among the younger age group, 83% use internet sources to access medical information.<sup>1</sup> Most searches focused on skin and hair care, including topical drugs for improving skin tone, removing lesions, providing hydration, preventing hair fall, and reducing dandruff.<sup>2</sup> The cosmetics and skincare industry utilizes social

media for marketing, targeting young adolescents and adults, especially women with skin and hair issues, who frequently use social media.<sup>3</sup>

In the post-COVID era, these social media platforms have evolved from entertainment to education, with educated vloggers, influencers, and medical experts sharing their skincare knowledge to reach a wide audience. Due to the rise in social media usage, medical professionals are no longer the sole expert advisors. Patients are increasing using social

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media to obtain information regarding their skin conditions before seeking dermatologist consultation.<sup>4</sup> Though, these platforms provide extensive information on skincare, and offer a wide range of treatment options, they do more harm than the expected benefits. Additionally, they also generate false information due to a lack of regulatory authority to verify the authenticity of content from unverified influencers. A study indicates a significant increase in the sales of pharmaceutical dermatologic products without a prescription from a registered medical practitioner due to a lack of trading restrictions.<sup>5</sup>

Many studies report participants grieving about confidentiality breaches, as these platforms may share personal medical information that should be kept private.<sup>6</sup> There is also a lack of a proper governing body to establish boundaries on the type and level of user information collected and shared. Current research shows that viewing images of females who have undergone cosmetic enhancements affects young women's desire for cosmetic surgery and individuals who spend significant time on social media and follow numerous influencer accounts may experience decreased satisfaction with their appearance.<sup>7</sup> This proves the psychosocial motivation to have the so-called perfect skin by the influence of social media. Due to their extensive use of social media, young women are more likely to be aware of diverse skin conditions that are impacted by environmental and hormonal influences. Previous studies have assessed the impact of social media either on a particular skin condition or a skincare product.<sup>5</sup> Hence, this prospective online cross-sectional study was done to analyze the impact of social media on the pattern of utilization of skin care products and the associated adverse effects among 850 female college students in Western Tamil Nadu.

## 2. Materials and Methods

### 2.1. Study design and participant selection

This observational, prospective, online cross-sectional study was conducted among female college-going students from Western Tamil Nadu for a period of two months (from October 03, 2023, to December 1, 2023). The study's inclusion criteria were volunteer female college-going students from Western Tamil Nadu, aged 18 years and above, who use social media. We excluded the women who were not willing to participate.

### 2.2. Ethical considerations

This was an ICMR (Indian Council of Medical Research) approved Project. Approval and clearance from the Institutional Human Ethics Committee (Ref no: 58/IHEC/2023 dated 28.09.2023) of KMCH Institute of Health Sciences and Research, Coimbatore, were obtained before beginning the study. All the study participants gave informed online consent. Anonymity, confidentiality, and professional secrecy were maintained for all the study participants.

### 2.3. Sample size and sampling technique

Due to the lack of evidence on the impact of social media on the use of skincare products among the population, we assumed a prevalence of 10% to compute the sample size. Considering the relative precision of 5% and beta error (type 2) to be 20% (or power to be 80%), the estimated minimum required sample size was 13830. By varying the relative precision between 10% and 20%, the minimum required sample size ranged between 3457 and 864. Sample size was estimated using the formula  $[Z^2_{(1-\alpha/2)}] \times p(1-p)/\epsilon^2 p$ , where,  $p$  (Expected proportion) = 0.1,  $\epsilon^2$  (Relative precision) = 20% and Desired confidence interval  $(1-\alpha/2) = 95\%$ . A total of 874 responses were collected, of which 16 (1.8%) didn't give consent and 8 (0.9%) didn't use social media, so the final sample size was 850. A volunteer opt-in sampling method was used.

### 2.4. Data collection and questionnaire design

A cross-sectional prevalidated questionnaire-based online survey was conducted using Google Forms. The questionnaire had four sections. The first section contained demographic data like age, education, and social media usage details. The second section assessed the participant's perspectives on the influence of social media on skincare. The third part focused on the pattern of utilization of skin care products, including the type of skin care product used, frequency of use, purpose for the use, selection criteria, expenditure, and awareness of product-related information. The final section had questions about adverse effects experienced and the knowledge of adverse effects management. Questions were formatted in a descriptive and binary fashion. Provision was provided to add other outcomes or descriptions that further qualified the experience. This pre-validated questionnaire (Google Forms), based on previous studies, was sent to all the volunteer female college-going students, from Western Tamil Nadu through WhatsApp, e-mail, and Instagram.<sup>8</sup>

### 2.6. Statistical analysis

All the data were entered into Microsoft Excel and analyzed using SPSS version 27. Descriptive Statistics were used to assess and present the data as tables and figures. All Quantitative variables were presented as mean and standard deviation, and all Qualitative variables in frequency and percentages.

## 3. Results

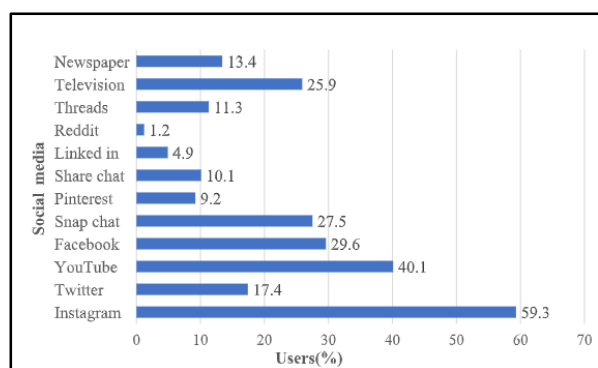
### 3.1. Demographic profile

The study surveyed 850 female participants aged 18-35 years. The majority (62%) were between 18 and 20 years, while the rest were above 21 years of age. Most (73%) were undergraduates and the rest were postgraduates. Around 92.5% participants were pursuing first to third year, while only 7.5% belonged to the fourth year. Two-fifths (39.6%) of females spend one to four hours daily on social media (**Table**

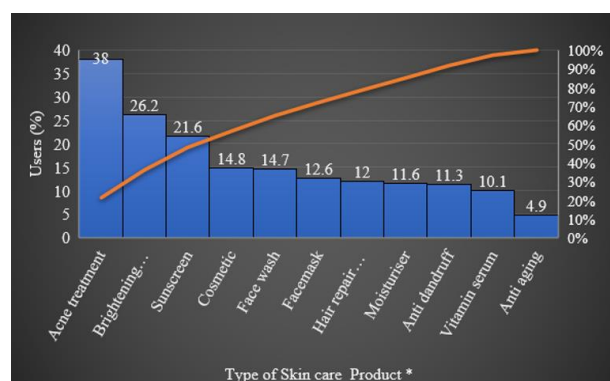
1). A maximum of 59.3% participants used Instagram, followed by YouTube (40.1%). Pinterest (9.2%), LinkedIn (4.9%) and Reddit (1.2%) were the least preferred social media platforms. Of those surveyed, 25.9% reported a preference for Television and 13.4% for Newspapers as conventional media sources. (**Figure 1**).

### 3.2. Perspectives of study participants

Majority of the Participants believed social media influenced their choice of skincare product (92.2%) and skincare routine (92.3%), with two-way communication (91.3%), immediate access (91.2%), and photo editing influencing their choices (90.8%), compare their skin with others (91.2%), and creating behavioral impact (91.6%). Additionally, most respondents (92.7%) opined that verifying the authenticity of information on social media platforms is crucial, as irrational use is dangerous (91.1%) and there's a lack of regulatory norms (92.7%). Students prioritized aesthetic appeal (80.6%), beauty bloggers influenced skincare choices (88.7%) and cosmetic dermatologic procedures (82.2%). Consulting a dermatologist was found to be a time-consuming and costly affair (87%). However, 69.1% were not bothered about privacy and data breach issues, and 49.8% were satisfied with non-dermatologists' social media recommendations for skincare products. Merely 23.9% agreed that they select skin care products depending on their skin type (**Table 2**).

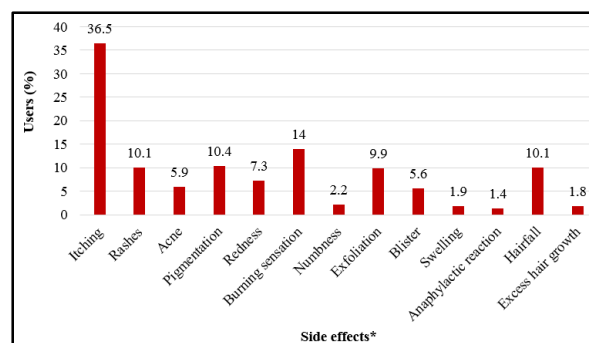


**Figure 1:** Utilization of social media platforms



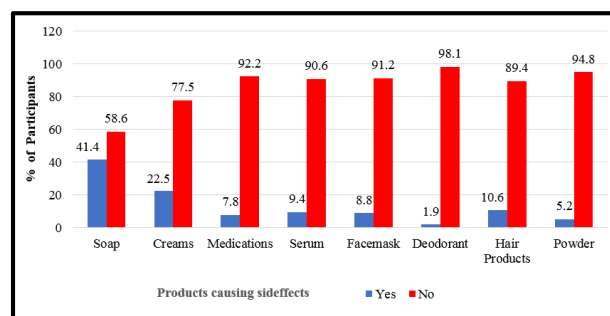
**Figure 2:** Pareto chart of skincare product usage influenced by social media

\* The rest of the individuals (%) in each category do not use that particular type of skincare product



**Figure 3:** Side effects

\* Remaining participants (%) in each category didn't encounter that particular side effect



**Figure 4:** Products that caused side effects

### 3.3. Pattern

Acne (37.8%) and skin tone treatment (26.1%) were the most popular skin conditions for which social media was used, followed by dry/oily skin (18.2%), hair growth/repair (14.8%), and dandruff (13.1%). Less than 10% use social media for sun protection (8%), hair removal (7.3%), and wrinkles (6.9%). The most common purposes were cleansing (52.8%), beautification (30.6%), and, least for anti-aging purposes (7.2%) (**Table 3**). According to the Pareto chart (**Figure 2**), products related to acne treatment (38%), skin brightening (26.2%), and sunscreens (21.6%) were the most frequently used skincare products influenced by social media, collectively accounting for nearly 85% of overall usage. Moderate use (12-15%) was noted for face wash, facemasks, and hair repair products. Lower usage (10–12%) was observed for moisturisers, anti-dandruff agents, and vitamin serums, while anti-aging products were least preferred (4.9%). Around 75% of them use skin products regularly, whereas 1.6% never use those skin care products. However, skin care products were used daily by 87.3% of participants.

Most individuals made their purchasing decisions based on product quality (62.6%), followed by brand (30.5%), and pricing (25.1%), and the remainder on quantity (17.5%), safety (14.2%), brand ambassador (13.5%), product composition (13.3%), and accessibility (9.3%). The majority (48.7%) of participants regard the country of production as a quality indicator. While 31.9% utilized brand, popularity (29.1%), and dermatologically proven (27.1%) statements as quality indicators. Interestingly, 3.3% and 3.1% employed animal studies and a hefty price to determine quality,

respectively. Almost half (53.3%) of the females read the ingredients before buying the product, while 38.9% of students observed the expiry date, user instructions (32.8%), and special remarks (17.2%). Nevertheless, only 16.8% and 9.1% focused on possible side effects and the originality of the products, respectively (**Table 4**).

The majority (45.76%) spent less than Rs. 500/- per month on skincare products based on social media, while 7.29% didn't spend money on skincare products. Almost 89.52% of the participants spent moderately (< Rs 500-Rs 1500/month). The highest amount spent was Rs. 5000/ a month. The majority (46.5%) of them opted for Indian skin products, and preferred dermatologists (51.9%) for skin care advice. Further, a large number (71.6%) of females opted for natural products (**Table 5**). Only 23.1% were always, and 12.1% were often satisfied with the outcome of the product influenced by social media. Nevertheless, 48.2% were satisfied sometimes, rarely (14.2%), and were never (2.4%) satisfied.

### 3.4. Side effects

Almost 43.5% and 87.5% of participants were aware of the possible side effects and encountered side effects due to the use of skin care products influenced by social media, respectively. Out of 761 participants who had side effects, 76.2% suspected that not reading the product description and relying on social media advice was the reason for their side effects. Many students reported itching (36.5%) and a burning sensation (14%). Hair fall, pigmentation, and exfoliation were reported by nearly 10% of the individuals. Redness (7.3%), acne (5.9%), and blisters (5.6%) were observed less frequently. Approximately 1-2% had experienced numbness and excessive hair growth. Anaphylactic reactions (1.4%) were a rare side effect (**Figure 3**).

Soaps accounted for almost the majority (41.4%) of the side effects, followed by creams (22.5%), hair products (10.6%), serums (9.4%), face masks (8.8%), and medications (7.8%). Only 5.2% and 1.9% of side effects were attributed to powder and deodorants, respectively (**Figure 4**).

**Table 1:** Demographic details of study participants (N=850)

| Variables                                       | N (%)     |
|---|-----------|
| <b>Age</b>                                      |           |
| 18-20   | 529(62.2) |
| 21-23   | 304(35.8) |
| >24   | 17(2)     |
| <b>Educational status</b>                       |           |
| Undergraduate                                   | 623(73.3) |
| Postgraduate                                    | 227(26.7) |
| <b>Year of Study</b>                            |           |
| I   | 251(29.5) |
| II  | 307(36.1) |
| III   | 229(26.9) |
| IV  | 63(7.5)   |
| <b>Average hours spent /day on social media</b> |           |
| Less than 1 Hr                                  | 302(35.5) |
| 1-4 Hr  | 337(39.6) |
| 4-6 Hr  | 171(20.1) |
| More than 6 Hr                                  | 40(4.7)   |

**Table 2:** Perspectives of the Participants on Social media utilization for Skin care products (N=850)

| Statement  | Strongly Agree N (%) | Agree N (%) | Neutral N (%) | Disagree N (%) | Strongly Disagree N (%) |
|--|----------------------|-------------|---------------|----------------|-------------------------|
| Most of the skin products I use are influenced by social media                           | 508(59.8)            | 275(32.4)   | 42(4.9)       | 14(1.6)        | 11(1.3)                 |
| Two-way communication to share opinions through social media about skincare is welcoming | 446(52.5)            | 330(38.8)   | 63(7.4)       | 7(0.8)         | 4(0.5)                  |
| I don't bother about the privacy and data breach issues on social media                  | 354(41.6)            | 234(27.5)   | 131(15.4)     | 44(5.2)        | 87(10.2)                |
| Rather than product safety, the aesthetic feel is more attractive                        | 401(47.2)            | 284(33.4)   | 79(9.3)       | 32(3.8)        | 54(6.4)                 |

|   |           |           |           |          |           |
|---|-----------|-----------|-----------|----------|-----------|
| I feel it's mandatory to check the authenticity of the contents related to skin care posted on the forums   | 508(59.8) | 280(32.9) | 50(5.9)   | 8(0.9)   | 4(0.5)    |
| Immediate access to information related to skincare makes me choose these platforms   | 471(55.4) | 304(35.8) | 60(7.1)   | 10(1.2)  | 5(0.6)    |
| Social media makes me more aware of newer skincare routines endorsed by celebrities   | 501(58.9) | 284(33.4) | 50(5.9)   | 9(1.1)   | 6(0.7)    |
| Beauty bloggers and other posts about different aesthetic procedure treatments and results will influence my skincare choices                                   | 452(53.2) | 302(35.5) | 76(8.9)   | 8(0.9)   | 12(1.4)   |
| I will choose cosmetic dermatological procedures (acne, skin brightening, hair growth, hair repair, laser hair removal, skin repair, etc) based on social media | 419(49.3) | 280(32.9) | 117(13.8) | 20(2.4)  | 14(1.6)   |
| I think the advice obtained from non-dermatologists on social media regarding skincare product usage and its outcome suits my skin                              | 151(17.8) | 272(32)   | 379(44.6) | 26(3.1)  | 22(2.6)   |
| I feel that irrational usage of skincare products based on social media is dangerous  | 514(60.5) | 260(30.6) | 65(7.6)   | 10(1.2)  | 1(0.1)    |
| Consulting a dermatologist is time-consuming and costly when relevant information is freely available on social media   | 445(52.4) | 294(34.6) | 88(10.4)  | 13(1.5)  | 10(1.2)   |
| I think photo editing available on social media influences the choice of my skincare products   | 522(61.4) | 250(29.4) | 59(6.9)   | 14(1.6)  | 5(0.6)    |
| Social media makes me compare my skin with others   | 510(60)   | 265(31.2) | 56(6.6)   | 12(1.4)  | 7(0.8)    |
| Social media influences me to have beautiful skin which impacts my behaviour  | 513(60.4) | 265(31.2) | 54(6.4)   | 14(1.6)  | 4(0.5)    |
| I feel there is a lack of proper regulatory norms in social media regarding the availability of skin care information and products                              | 508(59.8) | 280(32.9) | 48(5.6)   | 10(1.2)  | 4(0.5)    |
| I am selecting skin care products based on my skin type   | 12(1.4)   | 191(22.5) | 177(20.8) | 86(10.1) | 384(45.2) |

**Table 3:** Social media usage for skin conditions (N= 850)

| <b>Skin Condition</b>  | <b>Non-users N (%)</b> | <b>Users N (%)</b> |
|------------------------|------------------------|--------------------|
| Acne                   | 529(62.2)              | 321(37.8)          |
| Skin tone              | 628(73.9)              | 222(26.1)          |
| Dry/oily skin          | 695(81.8)              | 155(18.2)          |
| Black/white heads      | 763(89.8)              | 87(10.2)           |
| Wrinkles/fine lines    | 791(93.1)              | 59(6.9)            |
| Unwanted hair growth   | 788(92.7)              | 62(7.3)            |
| Sun protection         | 782(92.0)              | 68(8.0)            |
| Dandruff               | 739(86.9)              | 111(13.1)          |
| Hair growth and repair | 724(85.2)              | 126(14.8)          |
| <b>Purpose</b>         | <b>Non-users N (%)</b> | <b>Users N (%)</b> |
| Cleansing              | 401(47.2)              | 449(52.8)          |
| Beautification         | 590(69.4)              | 260(30.6)          |
| Protection             | 644(75.8)              | 206(24.2)          |
| Medication             | 736(86.6)              | 114(13.4)          |
| Brightening            | 666(78.4)              | 184(21.6)          |
| Anti-aging             | 789(92.8)              | 61(7.2)            |
| Repair                 | 741(87.2)              | 109(12.8)          |

**Table 4:** Factors affecting the purchase of skin care products (N=850)

| <b>Selection criteria</b>  | <b>Not Followed N (%)</b> | <b>Followed N (%)</b> |
|----------------------------|---------------------------|-----------------------|
| Quality                    | 318(37.4)                 | 532 (62.6)            |
| Quantity                   | 701(82.5)                 | 149(17.5)             |
| Affordability              | 637(74.9)                 | 213(25.1)             |
| Brand                      | 591(69.5)                 | 259(30.5)             |
| Accessibility              | 771(90.7)                 | 79(9.3)               |
| Celebrity/brand ambassador | 735(86.5)                 | 115(13.5)             |
| Product Composition        | 737(86.7)                 | 113(13.3)             |
| Safety                     | 731(85.8)                 | 119 (14.2)            |
| <b>Quality Indicators</b>  | <b>Not Followed N (%)</b> | <b>Followed N (%)</b> |
| Country of production      | 436(51.3)                 | 414(48.7)             |
| Advertising media          | 756(88.9)                 | 94(11.1)              |
| Popularity                 | 603(70.9)                 | 247(29.1)             |
| Brand                      | 579(68.1)                 | 271(31.9)             |
| Dermatologically proven    | 628(73.9)                 | 222(26.1)             |
| Animal studies             | 822(96.7)                 | 28(3.3)               |
| High price                 | 824(96.9)                 | 26(3.1)               |
| <b>Product Information</b> | <b>Not Read N (%)</b>     | <b>Read N (%)</b>     |
| Ingredients                | 397(46.7)                 | 453(53.3)             |
| Expiry date                | 519(61.1)                 | 331(38.9)             |
| User instruction           | 571(67.2)                 | 279(32.8)             |
| Special Remarks            | 704(82.8)                 | 146(17.2)             |
| Possible side effects      | 707(83.2)                 | 143(16.8)             |
| Originality                | 773(90.9)                 | 77(9.1)               |

**Table 5:** Preference of skin care products based on social media (N=850)

| <b>Amount spent/ month</b>              | <b>Frequency (%)</b> |
|---|----------------------|
| <500                                    | 389(45.76)           |
| 500-1000                                | 250(29.41)           |
| 1000-1500                               | 122(14.35)           |
| 1500-2000                               | 16(1.88)             |
| 2000-5000                               | 11(1.29)             |
| Not spent                               | 62(7.29)             |
| <b>Country of Production</b>            |                      |
| India                                   | 396(46.5)            |
| Korea                                   | 256(30.2)            |
| Others (USA/Germany)                    | 198(23.3)            |
| <b>Skincare advice</b>                  |                      |
| Dermatologist                           | 441(51.9)            |
| Beautician                              | 90(10.6)             |
| Family and friends                      | 132(15.5)            |
| Bloggers                                | 90(10.6)             |
| Celebrities                             | 92(10.8)             |
| Others (Research papers)                | 5(0.6)               |
| <b>Type of skin care product</b>        |                      |
| Natural                                 | 609(71.6)            |
| Natural product with infused synthetics | 90(10.6)             |
| Synthetic                               | 151(17.8)            |

Out of 761 participants who experienced side effects, 37% had delayed reactions and 63% had immediate reactions/side effects to the skin care products used under the influence of social media. Most (69.6%) of them developed

side effects after applying the product once, and the remaining (30.4%) developed reactions after multiple applications. Animal/ alternative tests for skincare products were known to only 40% of students who experienced side



effects. Among them, 17.3% used animal/alternative tested products. Overall, 59.2% of females were unaware of the testing status. Approximately 48.5% of adverse reactions were self-limiting, 26.3% stopped using the product, 13.5% followed social media's advice and 7.6% took self-mediations. However, only 4.1% of women sought expert consultation.

#### 4. Discussion

Skincare products have been considered safe and effective based on reviews from social media. This assumption has led to the indiscriminate use of skin care products purely based on social media advice by a larger population. Hence, these products are administered over a long period without adequate prescription from medical experts. There is also a lack of awareness regarding the adverse effects of those products. Therefore, this prospective cross-sectional research was undertaken to evaluate the impact of social media on the use of skincare products among 850 female college-going students in Western Tamil Nadu.

Our study reveals that young people, particularly those aged 18-20 and undergraduates, were the primary users of skin care products and social media, similar to others.<sup>1,9,10</sup> The commonly used social media and conventional media included Instagram, YouTube, Television, and newspapers, consistent with previous literature.<sup>11-13</sup> In another study, Facebook was the most frequently used site, followed by YouTube and Instagram.<sup>1</sup> This proves that online and offline media influence skincare product choices more or less equally. Identical to other works, 75.2% of our participants spent less than 4 hours on these platforms.<sup>3,12</sup> Another study reported more than 3 hours of usage per day, due to the COVID-19 pandemic.<sup>1</sup>

In line with other works, the majority (90.8% - 92.3%) of our students, believed social media influences skin care product choice, newer skincare routines, cosmetic procedures, facilitates two-way communication, immediate access, photo editing options, comparisons, and behavioural impacts.<sup>1,3,12,14,15</sup> Around 88.7% of our students felt beauty bloggers influenced their skincare choices, and 87% of individuals thought consulting a dermatologist was found to be a time-consuming and costly affair, identical to another Indian study.<sup>1</sup> However, a few (23.9%) of our respondents chose skin care products based on their skin type, contrary to another study, where 72.4% of participants chose a product based on skin type.<sup>16</sup> Additionally, the majority (69%) of our participants don't bother about privacy and data breach issues. Still, according to a poll, 40% of healthcare professionals were ignorant of their company's social media policy, which could compromise patient confidentiality and divulge personal medical information.<sup>17</sup> Moreover, online information is not regulated and lacks the rigorous editing and multiple checks that print or television media undergo. Thus, there is always a risk of breach of privacy, confidentiality, and misuse of such data.<sup>18</sup>

Similar to another study, 80.6% of our participants were more concerned about aesthetic appeal than product safety, and 92.7% felt the need to verify the authenticity of the information, similar to others.<sup>18,19</sup> Nevertheless, in another Indian study, 52.1% of participants did not check the credibility of information on social media.<sup>12</sup> According to an observational study, 20% of dermatology-related social media posts were found unclear, and 44.7% of the material was deemed inaccurate.<sup>20</sup> Further, research has demonstrated that intent to purchase is positively impacted by credibility.<sup>21</sup> Respondents deemed irrational social media-based skin care product usage dangerous, aligning with previous studies indicating misinformation on social media can harm public health.<sup>22</sup> This shows that despite the advantage of social media's influence, people are more concerned about safety issues and the authenticity of information. Our survey participants strongly agreed that the lack of regulatory authority is the primary problem that concerns them the most. This requires policymakers to establish a regulatory authority to check the authenticity of the products and contents shared on these platforms.

Similar to previous studies, about 51.9% of our respondents sought skincare advice from dermatologists via social media, with 4.1% seeking it indirectly.<sup>3,12,19</sup> However, another study discovered that 73% of participants preferred social media advice over consulting a dermatologist.<sup>11</sup> Furthermore, as per the same study 64% would follow a dermatologist with more followers on social media than non-dermatologist influencers.<sup>11</sup> In another research, women chose dermatologists on social media and beauty influencers, but men preferred pharmacists.<sup>23</sup> While reading the product description, a majority (53.3%) of our respondents looked for ingredients, followed by expiry date (32.8%), and 16.8% viewed the possible side effects. In another exploration, although 99% of individuals considered the expiry date an important parameter, more than half (59.3%) didn't consider chemical composition as the major factor.<sup>16</sup> Though 62.6% of our students stated that they select skin care products based on quality, similar to another Indian study, surprisingly, our students were not bothered about possible side effects and the product's originality while reading the product description.<sup>13</sup> According to a study by Mangal et al., 65.50% of study participants believed that adverse skin reactions may occur in consumers who casually select the skincare products based on advertisements without obtaining accurate information before applying the product.<sup>13</sup> A study conducted in Delhi among college girls found that 26% of respondents were not inclined to use beauty products due to side effects.<sup>16</sup> This proves that people blindly believe the word quality said by all these social media influencers rather than verifying it from the product description.

Most of our female students use skincare products daily (87.3%) and spend moderately (89.52%), like another study.<sup>13</sup> Around 71.6% of our answerers preferred natural products, as they lack chemicals and do not cause side effects,

analogous to other studies.<sup>13,24</sup> In contrast, Bharadwaj et al discovered that the urban population favored commercial (chemical) products over natural products, compared to the rural population.<sup>16</sup> Social media has greatly influenced the usage of acne treatment products (38%) consistent to another study.<sup>25</sup> In previous studies, only 7.95% were satisfied with their skin improvement, and there were no reports of bad outcomes.<sup>11</sup> However, in our work, 23.1% and 12.1% of the females were always and often satisfied with the outcome. Nearly 43.5% of our survey respondents were aware of the possible side effects, and the majority (89.5%) had experienced them due to skin care products influenced by social media.<sup>8</sup> Most of our respondents (76.2%) believed that adverse effects were caused by failing to read the product description and relying on social media advice. Other findings have also endorsed that around 27.5% of participants neither consider their skin type nor check their chemical composition.<sup>16</sup> Similarly, Joshi et al found that keeping up with skincare trends without understanding how they affect a person's skin could be hazardous.<sup>25</sup> These findings confirm that merely believing social media's advice results in more harm than the expected benefits.

Itching (36.5%) was the most common side effect, followed by a burning sensation (14%) and the least common (1.45%) was severe anaphylactic reactions, in line with other works.<sup>8,25-28</sup> In a few studies, eye pigmentation was found to be more common.<sup>29</sup> Corresponding to prior studies, side effects were more common among our study participants who used soaps (41.4%) and creams (22.5%) as per social media advice, confirming the findings that many of them use skincare products for cleansing, brightening, and cosmetic purposes.<sup>8,27,30,31</sup> Though the majority (62.6%) of our female students viewed quality as the most common skincare product selection criterion, they used country of production (48.7%) and brand (31.9%) as quality indicators rather than focusing on scientific evidence such as animal/ alternate studies (3.3%), congruent with other evidence-based works of literature.<sup>8,16,24,32</sup> Younger people prefer internationally branded products according to other research work.<sup>24</sup> Although 40.8% of our participants were aware of animal/ alternate testing for their products, barely 17.3% used tested products, equivalent to other studies.<sup>33</sup>

Around 87.5% of our students continued to use the skincare products that caused the side effects, but few (4.1%) sought a doctor's consultation for further management of side effects, analogous to another study.<sup>27,31</sup> Nevertheless, in other studies, a comparatively higher percentage (35.4%) consulted healthcare professionals and fewer (27%) continued using the same product.<sup>8,31</sup> Many of our participants gave more importance to the outcome/ more appealing skin rather than safety. Other studies have also emphasized that the influence of social media and prevailing beauty standards cannot be underestimated, despite the COVID-19 pandemic.<sup>23</sup> This discloses that social media has not only affected the choice of

skincare products but also created psychosocial motivation for better skin.

## 5. Strengths and Limitations

Given the robust sample size and a reliable data collection tool, the study adds to the limited research on social media's influence on skincare product use in India. However, the major limitation is that the results are based on subjective perceptions of the participants. Hence, an elaborate experimental analysis on the impact of social media on the use of skincare products by including a large study population from various ethnicities and all age groups, excluding gender preference, is needed to support the findings.

## 6. Conclusion

Instead of evaluating the quality indicators, such as possible side effects, special remarks, and product originality, as specified by the authorized producers, the study population appeared to rely blindly on social media for analyzing the product quality. The findings underscore the need for the general public, healthcare professionals, policymakers, and regulatory authorities to understand that social media has inadvertently influenced skincare product usage, including the psychosocial motivations underlying those intentions among the general population. Hence, Professional advice or scientific reviews are highly recommended as social media may not provide a comprehensive view. Future research must explore the broader impact of social media on dermatology and other health sectors, with the potential to improve healthcare outcomes.

## 7. Ethics Committee Approval

Institutional Human Ethics Committee, KMCH Institute of Health Sciences and Research, Coimbatore (Ref no: 58/IHEC/2023 dated 28.09.2023) approved this study.

## 8. Authors' Contributions

Dr. Vijayamathy A, Dr. Bhuvaneshwari S, Sowmiha BM, Dr. Jeevithan S, Dr. Umamageswari MS, and Dr. Sathiya Vinotha AT were involved in the conceptualization and methodology. Dr. Bhuvaneshwari S, Dr. Vijayamathy A, Sowmiha BM, and Dr. Jeevithan S were engaged in formal analysis and writing.

## 9. Conflict of Interest

The authors have no conflicts of interest to declare in this work.

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