

# Skin Problems Faced by Female College Students Based on Skincare Products Purchased Through the Influence of Social Media – A Cross Sectional Study

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## ABSTRACT

**Introduction:** Skin problems have become increasingly common among female college students in recent years, particularly due to the influence of social media. Youngsters often rely on internet sources to access information, and approximately 83% are reported to develop skin problems over time. The information accessed through the sources may either be misleading or accurate, which can lead to adverse outcomes or remain harmless.

**Objectives:** To estimate the prevalence of self-reported skin problems among female college students who use skincare products influenced by social media, To find the association between social media–influenced skincare product use and the occurrence of skin problems among female college students.

**Materials and methods:** A cross-sectional study was conducted among female college students in Kancheepuram District. Based on study conducted by Alamer et al, the prevalence of social media–based skincare product was found to be 51%, which was taken as reference. The sample size was calculated using the dobsons formula was 300. Multistage sampling technique was used to select the study participants and data was collected using a pretested semi structured questionnaire. Associations were analysed using chi-square tests and multivariate logistic regression, with results expressed as adjusted odds ratios (aOR) and 95% confidence intervals (CI).

**Results:** Of the 300 study participants, majority 132 (44%) belonged to the 21–23 years age group. It was noticed that 126 (42%) of them reported experiencing at least one skin problem after using skincare products influenced by social media. Univariate analysis identified social media–influenced product use (AOR = 2.84; 95% CI: 1.62–4.98;  $p < 0.001$ ), prolonged social media exposure (OR = 2.18; 95% CI: 1.36–3.50;  $p = 0.002$ ), frequent viewing of skincare content (OR = 6.22; 95% CI: 3.70–10.47;  $p < 0.001$ ), and poor ingredient-checking practices (OR = 6.88; 95% CI: 3.95–11.97;  $p < 0.001$ ) as significant factors associated with skin problems.

**Conclusion:** The study demonstrates a significant prevalence of self-reported skin problems among female college students using skincare products influenced by social media, with a strong association between such exposure and adverse dermatological outcomes. These findings highlight the need for promoting safe and evidence-based skincare practices and improving awareness regarding the potential risks of unverified products.

**Keywords:** Acne Vulgaris, allergic reactions, Consumer Behavior, Skin Diseases, Skin Dryness

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## INTRODUCTION

Social media has grown drastically in recent years and has significantly influenced consumer

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behavior. At present more than half people in the world uses social media platforms like You Tube, Instagram and Facebook. Among younger individuals, 83% rely on internet-based sources to obtain medical information. These platforms have become popular sources of beauty and skincare trends, with influencers and brands utilizing it to promote products directly to customers [1].

The beauty and skincare sector has experienced a paradigm shift towards social media-oriented marketing, in which digital influencers act as primary agents of product visibility and consumer engagement [2]. While social media platforms provide abundant information on skincare and a wide variety of treatment options, their overall impact may not always be beneficial. The absence of proper oversight allows unverified influencers to share content that may be inaccurate or misleading. This has contributed to the growing, and often inappropriate, use of dermatological products without professional guidance [3].

Several studies have also highlighted a rise in the purchase of prescription-based skin medications without consultation from qualified medical practitioners, largely due to weak regulatory control over online sales. Female college students are among the primary groups following these trends [4]. The majority of online searches were centered on skin and hair care, including the use of topical medications for enhancing skin tone, maintaining hydration, managing lesions, sun protection, preventing hair loss, and controlling dandruff [5].

Female college students are at a transitional stage of life in which concerns related to physical appearance, self-image, and social acceptance tend to increase. As a result, they are particularly vulnerable to external influences related to beauty and skincare. The rapid expansion of social media has further intensified this influence, as these platforms provide constant exposure to beauty ideals, skincare trends, and product promotions. Consequently, many young women increasingly depend on social media for information on skincare routines and cosmetic product selection rather than professional sources [6, 7].

Research has shown that brand reputation, online reviews, influencer endorsements, and the extent of social media engagement play a significant role in shaping purchasing behavior. In addition, peer recommendations and visual appeal strongly influence the cosmetic-related decisions of young women [8].

Several studies have also raised concerns regarding privacy breaches on social media, where personal health information may be shared without adequate protection. Furthermore, frequent exposure to cosmetically enhanced images and high levels of interaction with influencers have been associated with increased interest in cosmetic procedures and reduced satisfaction with one's own appearance [9, 10, 11, 12].

A high frequency of adverse effects has been reported in users of skincare products promoted through social media. Although nearly half of the participants were aware of potential side effects, many still experienced undesirable reactions [13]. These effects were often attributed to following social media recommendations without carefully reviewing product information. The most common complaints included itching and a burning sensation, followed by hair fall, pigmentation, and skin peeling. Less frequent reactions were redness, acne, and blistering, while rare but serious effects such as numbness, excessive hair growth, and anaphylactic reactions were also observed [14].

Despite the growing evidence on the influence of social media on skincare practices and the associated risk of adverse skin reactions, there is a lack of region-specific data among female college students in Kancheepuram District. Patterns of social media use, product purchasing behavior, and dermatological outcomes may vary based on local, cultural, and socioeconomic factors.

### **AIM**

To determine the prevalence of skin problems and their association with the use of skincare products purchased under the influence of social media among female college students aged 18–25 years in Kancheepuram district, Tamil Nadu.

### **OBJECTIVES**

1. To estimate the prevalence of self-reported skin problems among female college students who use skincare products influenced by social media.
2. To find the association between social media-influenced skincare product use and the occurrence of skin problems among female college students.

### **METHODOLOGY:**

**Study design:** A cross sectional analytical study.

**Study setting:** The study was carried out in selected educational institutions that were located in Kancheepuram District, Tamil Nadu, where data were collected from colleges.

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**Study population:** The target population will comprised of female students who were currently enrolled in undergraduate programs.

**Study duration:** The study was conducted over a period of 5 months from November 2024 to March 2024.

**Sample size:** Based on a study conducted by Alamer.et.al<sup>3</sup> that reported a prevalence of 51% of participants becoming aware of skincare products through social media platforms, the sample size was calculated using Dobson's formula:

$$N = \frac{Z^2 \times P \times (1-P)}{d^2}$$

Where:

- N = required sample size
- Z = Z-score at 95% confidence level (1.96)
- P = estimated prevalence (51%)
- d = desired precision (6%)

Substituting the values:

$$N = \frac{(1.96)^2 \times 51 \times 49}{6^2} = 266$$

After adding a 10% non-response rate, the final sample size was calculated as:

$$266 + 27 = 293 \text{ (~300)}$$

**Sampling technique:** A multistage sampling technique was employed by which in first stage, the colleges in Kancheepuram District was selected using simple random sampling. In the second stage, female students meeting the inclusion criteria were selected from each college by simple random sampling, with the total sample size of 300 allocated proportionately across the selected colleges.

### Inclusion criteria:

- Female college students in the age range of 18-25 years.
- Students who actively use social media platforms.
- Those who are willing to participate in the study.

### Exclusion criteria:

- Students who were absent or ill during data collection.
- Students who provided incomplete responses.

**Study tool:** Data were collected using a pretested, semi-structured questionnaire. The questionnaire included sections on demographic details, social media usage patterns, factors influencing skincare and cosmetic product selection, purchasing behavior, and self-reported skin problems following the use of social media-influenced products.

**Data collection:** Female College students aged 18–25 years formed the target population for the present study. The study was conducted in the urban areas of

Kancheepuram District in colleges that were selected using simple random sampling method to ensure unbiased representation. Within each selected college, females who fulfilled the inclusion criteria were identified, and chosen as participants through simple random sampling until the required sample size was achieved. Prior to data collection, the purpose and procedures of the study were explained to the participants, and informed written consent was obtained. Data were collected using a pretested semi-structured, designed to obtain relevant information by personal interview method.

**Data analysis:** Data was entered and analyzed using SPSS software version 26. Continuous variables were summarized using mean and standard deviation, while categorical variables were expressed as frequencies and percentages. Associations between categorical variables, including social media influence and purchasing decisions, were assessed using the chi-square test. Logistic regression analysis was performed to identify factors independently associated with skincare and cosmetic product selection. A p-value of <0.05 was considered statistically significant.

**Ethical considerations:** All participants were informed about the purpose of the study and their right to refuse or withdraw from participation at any stage. Participation in the study was voluntary, and confidentiality of the participants was strictly maintained. Approval was sought from the Institutional Ethics Committee of Sree Balaji Medical College. Written informed consent was obtained from all participants after explaining the nature and importance of the study.

### Results:

Of the total 300 participants, the mean age was calculated as  $21.4 \pm 1.6$  years. It was observed that majority 132 (44%) belonged to the 21–23 years age group, followed by those aged 18–20 years 108 (36%), while 60 (20%) were in the 24–25 years category. Regarding the year of study, the highest proportion were in II year 84 (28%), followed by I year students 78 (26%), III year students 72 (24%), and those in the IV year or above 66 (22%). Overall, the study population predominantly comprised young undergraduate students, with balanced representation across different years of study, ensuring adequate coverage of various academic levels. (Table 1)

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**Table 1 Socio-demographic characteristics of study participants (n = 300)**

Variable	Frequency (n)
<b>Age group</b>	
18–20	108
21–23	132
24–25	60
<b>Year of study</b>	
I	78
II	84
III	72
IV or more	66

driven product promotion. Further, majority of participants 114 (38%) spent 1–3 hours per day on social media, 96 (32%) hours per day 96 (32%). A smaller proportion reported spending less than one hour 48 (16%) and 42 (14%) for more than six hours daily.

**Figure 1 Prevalence of skin problems (n= 300)**

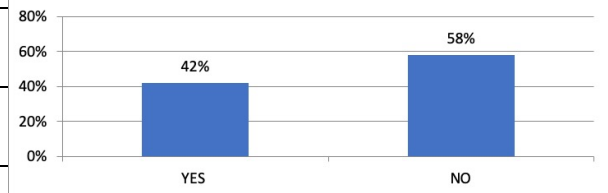
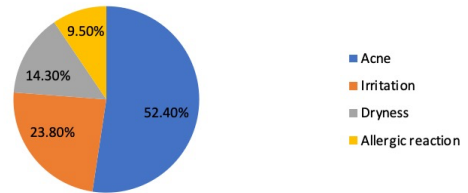


Figure 1 shows the prevalence of skin problems among the study participants. It was noticed that 126 (42%) of them reported experiencing at least one skin problem after using skincare products influenced by social media. Further, among those who experienced skin problems, acne was the most common condition 66 (52.4%), followed by skin irritation 30 (23.8%), dryness 18 (14.3%), and allergic reactions 12 (9.5%).

**Figure 2 Pattern of skin problems (n = 126)**



**Table 2 Social media exposure and skincare product use patterns (n = 300)**

Variable	n (%)
<b>Social Media-influenced products use</b>	
Yes	198 (66)
No	102 (34)
<b>Time spent on social media</b>	
<1 hour	48 (16)
1–3 hours	114 (38)
4–6 hours	96 (32)
>6 hours	42 (14)

**Table 3 Univariate analysis of factors associated with skin problems**

Variable	Category	Skin problem Yes (n=126) n (%)	Skin problem No (n=174) n (%)	Unadjusted OR (95% CI)	p-value
Time on SM (hours)	≥4	72 (52.2)	66 (47.8)	2.18 (1.36-3.50)	0.002
	<4	54 (33.3)	108 (66.7)		
Viewin	Often	78 (61.9)	36 (20.7)	6.22	<0.001
	Not often	48 (23.5)	78 (76.5)		

Table 2 above describes the social media exposure and skincare product use patterns among the study participants. It was seen that a substantial proportion of students 198 (66%) reported using skincare products that were influenced by social media, indicating a high level of exposure to social media-

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Variable	Category	n (%)	Ref	AOR (95% CI)	p-value
Social media influenced use	Yes	48 (38.1)	138 (79.3)	3.45 (2.02–5.90)	<0.001
	No				
Time on social media	≥4 hours/day	66 (52.4)	24 (13.8)	2.18 (1.36–3.50)	0.002
	<4 hours/day				
Viewing skincare content	Often/Always	60 (47.6)	150 (86.2)	6.88 (3.95–11.97)	<0.001
	Rarely/Sometimes				
Ingredient checking before purchase	Rarely/Never				0.003
	Often/Always				

OR indicates odds ratio, CI confidence interval, SM social media, Ref the reference category; unadjusted ORs were derived from bivariate logistic regression, with  $p < 0.05$  indicating statistical significance.

AOR denotes adjusted odds ratio, and CI confidence interval. Estimates were obtained using multivariable logistic regression, with  $p < 0.05$  indicating statistical significance after adjustment.

The univariate analysis of factors associated with the occurrence of skin problems among the study participants revealed that those who used skincare products influenced by social media had significantly higher odds of developing skin problems compared to those who did not use such products (OR = 3.45; 95% CI: 2.02–5.90;  $p < 0.001$ ). Moreover, time spent on social media was also significantly associated with skin problems. Participants who spent four or more hours per day on social media had nearly twice the odds of reporting skin problems compared to those who spent less than four hours (OR = 2.18; 95% CI: 1.36–3.50;  $p = 0.002$ ). Viewing skincare-related content frequently was a strong predictor of skin problems. Further, students who reported often or always viewing skincare content had over six times higher odds of experiencing skin problems compared to those who viewed such content rarely or sometimes (OR = 6.88; 95% CI: 3.70–10.47;  $p < 0.001$ ). Similarly, participants who rarely or never checked product ingredients before purchase had significantly increased odds of skin problems compared to those who checked ingredients often or always (OR = 6.88; 95% CI: 3.95–11.97;  $p < 0.001$ ). Overall, univariate analysis identified social media-influenced product use, prolonged social media exposure, frequent viewing of skincare content, and poor ingredient-checking practices as significant factors associated with skin problems. These variables were therefore included in the multivariate logistic regression analysis. (Table 3)

**Table 4 Multivariate logistic regression analysis**

Variable	Category	AOR (95% CI)	p-value
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Table 4 presents the results of the multivariate logistic regression analysis identifying independent predictors of skin problems among the study participants. After adjusting for potential confounders, the use of social media-influenced skincare products remained a significant predictor of skin problems. Participants who used such products had nearly three times higher odds of developing skin problems compared to non-users (AOR = 2.84; 95% CI: 1.62–4.98;  $p < 0.001$ ). Time spent on social media also showed an independent association, four or more hours per day on social media had almost twofold higher odds of reporting skin problems compared to those who spent less than four hours (AOR = 1.96; 95% CI: 1.12–3.42;  $p = 0.018$ ). Frequent exposure to skincare-related content emerged as a strong independent predictor. Participants who often or always viewed skincare content had more than three times higher odds of experiencing skin problems compared to those who viewed such content rarely or sometimes (AOR = 3.12; 95% CI: 1.78–5.48;  $p < 0.001$ ). Additionally, rare or absent ingredient checking before purchasing skincare products was independently associated with skin problems. Participants who rarely or never checked product ingredients had over two times higher odds of skin problems compared to those who checked ingredients often or always (AOR = 2.41; 95% CI: 1.35–4.29;  $p =$

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0.003). Overall, the multivariate analysis demonstrates that social media-driven skincare product use, prolonged social media exposure, frequent viewing of skincare content and inadequate ingredient-checking practices are independent determinants of skin problems among female college students.

### Discussion:

The assumption that skin care products have been considered safe and effective based on reviews from social media has led to its indiscriminate use. These products are administered without prescription from a physician for a long time duration. However, people are unaware of the consequences of these products. The current study was conducted among 300 study participants among whom (44%) were in the age group of 21-23 years unlike a study by Arunnair et al. [1] in which majority (62%) were between 18 and 20 years. Further, around 92.5% participants were pursuing first to third year, whereas in the current study highest proportion was in II year 84 (28%) unlike studies by Senthilvel et al [19] and Lucca et al [20].

In the present study, it was observed that most of the students (66%) used skincare products that were influenced by social media, indicating a higher level of exposure to social media-driven product promotion similar to a study by Arunnair et al [1] in which around 88.7% students felt beauty bloggers influenced their skincare choices. Further, 87% of individuals thought consulting a dermatologist was time-consuming and expensive, identical to another Indian study [1, 2]. Alshahrani et al. [26] similarly reported most participants aged 21–23 years (medical 54.5%, non-medical 65.3%), with fourth-year students as the largest group (medical 28%, non-medical 44.5%). The findings of the present study were however contrary to another study, where 72.4% of participants chose a product based on skin type [7]. Abiramy et al. [23] reported a mean age of  $20.53 \pm 1.70$  years, indicating clustering in the early twenties which was similar to our study. Additionally, online information lacks rigorous editing and is not regulated like the multiple checks that print or television media is subjected to. Hence, there is always a risk of breach of confidentiality, privacy, and misuse of such data [9].

Most of the participants (38%) in the current study spent 1–3 hours per day on social media similar to a study by Alamer et al [3] and Sivayogana et al [5]. In a study by Arunnair et al [1] 75.2% of participants spent less than 4 hours on these platforms. Another study by

Agarwal et al [2] revealed more than 3 hours of usage per day, due to the COVID-19 pandemic. Likewise, Ertekin et al. [21] reported that social media consultation was significantly higher among participants spending over 3 hours online daily (81.2%) and among those with moderate-to-severe acne, longer disease duration, and frequent negative self-esteem impact ( $p < 0.01$ ).

The prevalence of skin problems among the present study participants was revealed as (42%) who experienced at least one skin problem after use of skincare products influenced by social media. Similarly, Alamer et al. [3] found that among 1,174 female participants, 51% learned about skincare products through social media, and 49.6% purchased influencer-recommended products. Social media exposure was high, with 75% (881/1,174) of the respondents reporting daily usage of over one hour. Oving et al. [24] found that nearly all respondents purchased skincare products after social media exposure (98.2%). Most respondents reported increased awareness due to social media (agree: 56.88%; strongly agree: 27.52%). Daily exposure was high, with 42.2% spending 5–8 hours and 36.7% spending <5 hours. These studies align with our findings, showing that many students rely on social media for skincare information and purchasing decisions and spend significant time on these platforms, indicating a strong influence on skincare practices.

It was also observed that acne (52.4%) was the most common condition followed by skin irritation 30 (23.8%), dryness 18 (14.3%), and allergic reactions 12 (9.5%). Arunnair et al [1] showed contrary of itching (36.5%), followed by a burning sensation (14%) and the least common (1.45%) was severe anaphylactic reactions, in line with other works [11, 13]. Madugula et al. [22] found that among medical students, 22.9% purchased skincare products influenced by social media. Reported adverse effects included acne, dryness, burning, and pigmentation; acne was observed only among sunscreen and makeup users. Use of active ingredients without adequate understanding was identified as a potential risk factor. Younger people preferred products that were internationally branded according to other research work [15, 16, 17].

In a study by Alamer et al [3], various factors were associated with females influence on social media when it came to purchasing skincare and cosmetic products in Saudi Arabia. The factors that were found to be associated with females influence by social media for

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purchasing skin care and cosmetic products, Saudi Arabia were age group especially middle-aged females ( $p < 0.001$ ), working status ( $p < 0.009$ ) students. However, in the present study a univariate analysis of factors associated with occurrence of skin problems showed that those who used skincare products influenced by social media developed skin problems compared to those who did not use such products (OR = 3.45; 95% CI: 2.02–5.90;  $p < 0.001$ ). Moreover, time spent on social media was also significantly associated with skin problems, those who spent four or more hours per day on social media had nearly twice the chance of reporting skin problems (OR = 2.18; 95% CI: 1.36–3.50;  $p = 0.002$ ). Further, students who reported often or always viewing skincare content had over six times higher odds of experiencing skin problems compared to those who viewed such content rarely or sometimes (OR = 6.22; 95% CI: 3.70–10.47;  $p < 0.001$ ). Participants who rarely or never checked product ingredients before purchase had significantly increased odds of skin problems compared to those who checked ingredients often or always (OR = 6.88; 95% CI: 3.95–11.97;  $p < 0.001$ ) similar to other studies [25, 26, 27].

The results of the multivariate logistic regression analysis in the present study for identification of independent predictors of skin problems showed that the use of social media–influenced skincare products remained a significant predictor of skin problems similar to a study by Agarwal et al [2]. Participants in the current study who used such products had nearly three times higher odds of developing skin problems compared to non-users (AOR = 2.84; 95% CI: 1.62–4.98;  $p < 0.001$ ) similar to other studies [13,15,18]. Also, the time spent on social media also showed an independent association, four or more hours per day on social media had almost twofold higher odds of reporting skin problems compared to those who spent less than four hours (AOR = 1.96; 95% CI: 1.12–3.42;  $p = 0.018$ ) in the current study. Frequent exposure to skincare-related content emerged as a strong independent predictor in this study that was contrary to few studies [26, 27].

Similar to previous studies [28,29,30], in the current study, participants who often or always viewed skincare content had more than three times higher odds of experiencing skin problems compared to those who viewed such content rarely or sometimes (AOR = 3.12; 95% CI: 1.78–5.48;  $p < 0.001$ ). Additionally, rare or absent ingredient checking before purchasing skincare

products was independently associated with skin problems and participants who rarely or never checked product ingredients had twice the chance of skin problems (AOR = 2.41; 95% CI: 1.35–4.29;  $p = 0.003$ ).

### Conclusion

The present study identified a considerable prevalence of self-reported skin problems among female college students using skincare products influenced by social media, with a statistically significant association between such exposure and adverse dermatological outcomes. Students influenced by social media–promoted products reported a higher frequency of skin reactions compared to non-users, indicating the potential risks associated with unregulated or non-evidence-based product use.

However, the findings should be interpreted with caution due to certain limitations. The reliance on self-reported data introduces the possibility of recall bias, and the absence of clinical verification limits objective assessment. Furthermore, key variables such as product composition, duration of use, and severity of skin conditions were not evaluated, restricting a detailed understanding of causality and dose–response relationships.

These findings underscore the need for targeted interventions focusing on safe skincare practices and rational product use. Awareness programs should be implemented to improve critical evaluation of social media content and promote informed decision-making regarding skincare products. From a drug safety and public health perspective, there is also a need to strengthen regulatory oversight and encourage transparency in product formulation to minimize adverse dermatological effects among young users.

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