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Skin Care Awareness and Practices among University Students: A Knowledge, Attitude and Practice (KAP) Study

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Abstract

Background: Skin care awareness among young adults, particularly medical and paramedical students, influences both personal practice and future patient counselling. University students are increasingly exposed to skin care information through social media and peer networks, which may not always align with dermatologist-recommended practices. This study assessed the knowledge, attitude, and practice (KAP) regarding skin care among university students.

Objective: To evaluate the level of knowledge, attitude, and practices related to skin care among university students

Materials and Methods: A cross-sectional, questionnaire-based KAP study was conducted among 307 university students. A structured, pre-validated questionnaire covering demographic details and 6 knowledge, 4 attitude, and 6 practice items was administered. Knowledge, attitude, and practice scores were computed and categorised as adequate/inadequate, positive/negative, and good/poor respectively, using a 50% cut-off. Associations with demographic variables were tested using the chi-square test and independent t-test; inter-domain correlations were assessed using Spearman's rank correlation. A p-value <0.05 was considered statistically significant.

Results: Of 307 respondents (mean age 22.53 ± 1.81 years; 59.9% female), 283 (92.2%) demonstrated adequate knowledge, 289 (94.1%) had a positive attitude, and 244 (79.5%) reported good practice regarding skin care. The study population predominantly comprised undergraduate and postgraduate medical students (96.4%), while 3.6% were from non-medical courses. Knowledge and practice scores were significantly higher among females than males ($p<0.001$) and among students who had previously consulted a dermatologist ($p<0.05$ to $p<0.001$). A notable knowledge-practice gap was observed: although 87.3% correctly identified a dermatologist as the appropriate specialist for skin disease, only 37.1% introduced new products solely on a dermatologist's advice, and 38.8% reported at least occasional unsupervised use of prescription-strength products such as tretinoin. All three KAP domains were positively and significantly inter-correlated ($p<0.001$).

Conclusion: University students in this cohort demonstrated generally good knowledge and positive attitudes toward skin care, but translation into consistently safe practice remained incomplete, especially regarding sun protection adherence and unsupervised use of prescription-strength agents. Targeted counselling and structured dermatology awareness sessions may help bridge this knowledge-practice gap.

Keywords: Skin care; Knowledge, attitude and practice; University students; Cross-sectional study; Dermatology; Sun protection;

INTRODUCTION:

The skin is the largest organ of the body that helps in maintaining the integrity of the host and at the same time, allows the host to communicate with the outside world.[1] It acts as an interface between the internal milieu and the external environment, thus providing many functions that are essential for human survival like protection from dehydration and excessive water influx, maintenance of electrolyte homeostasis, thermoregulation, tactile sensation, antimicrobial defense, and protection from environmental toxins, trauma and Ultraviolet (UV) radiation.[2]

Skin care is defined as practices that help in maintaining the structural and functional integrity of the skin. Routine skin care focuses on keeping it clean, balanced, protected and free from irritation. These can be achieved with a simple regimen including gentle cleansing, moisturising and protecting the skin from UV rays.

Common practices include showering with or without cleaning products, and application of leave-on products such as lotions, creams or ointments.[3] Skin care also extends to protection from harmful UV rays, protecting the skin from all impurities, hand hygiene, and following healthy lifestyle practices. It is an essential part of personal hygiene and well-being as unclean skin favours the development of pathogenic organisms and infections.[4]

Sun protection, in particular, remains a well-documented area of deficient knowledge and practice among medical and paramedical students internationally, with studies reporting low awareness of correct sun protection factor (SPF) values, application technique, and reapplication frequency despite general awareness that ultraviolet exposure is harmful.[5,6] Sunscreens help to reduce the effects of photoaging such as sagging, wrinkling and photocarcinogenesis by increasing the skin's tolerability to ultraviolet (UV) radiation.[7] India is a tropical country and has exposure to higher degree of both UVA and UVB due to proximity to the equator.

Similar gaps have been described for cosmetic and product-selection behaviour, where students often report knowledge without consistent translation into safe, professionally guided practice.[8,9] Acne, a near-universal concern in this age group, has likewise been shown to have a complex, only partially direct relationship between knowledge, attitude, and practice, with attitude appearing to mediate the effect of knowledge on behaviour rather than knowledge acting on practice directly.[10]

Environmental factors and inadequate skin care can exacerbate or trigger various skin disorders, including common dermatitis, and impair the skin's barrier function.[11] Moisturizers, as a fundamental component of daily skin care, play a significant role in improving skin hydration and overall skin health.[12] Daily skincare increases skin regeneration, elasticity, smoothness and thus, temporarily changes the skin condition.

Because university students in particular are expected to translate correct knowledge into both personal practice and future patient counselling, quantifying this knowledge-practice gap has direct relevance to medical education and preventive dermatology. Hence, this study was therefore undertaken to comprehensively assess the level of knowledge, attitude, and practice regarding general skin care among university students as an integrated construct, and to examine how these domains relate to gender, year of study, and prior dermatology consultation.

MATERIALS AND METHODS:

This observational, cross-sectional, questionnaire-based Knowledge, Attitude, and Practice (KAP) study was conducted among university students. A total of 307 students who provided informed consent were included in the study. The study population predominantly comprised undergraduate and postgraduate medical students (96.4%), while 3.6% were from non-medical courses. Data were collected using a structured, self-administered questionnaire comprising demographic details, six knowledge questions, four attitude statements rated on a three-point Likert scale, and six practice-related questions on skin care behaviors. And questions evaluating skin care practices, including routine adherence, ingredient awareness, product selection, unsupervised use of prescription-strength topical agents, sun-protection behavior, and frequency of introducing new products. Knowledge, attitude, and practice scores were calculated separately, and participants scoring ≥50% of the maximum score in each domain were categorized as having adequate knowledge, a positive attitude, and good practice, respectively. Data were analyzed using spss ver.25. Categorical variables were expressed as frequencies and percentages, and continuous variables as mean ± standard deviation. Associations were assessed using the Chi-square test or Fisher's exact test, continuous variables using Welch's independent-samples t-test, and correlations using Spearman's rank correlation coefficient. A p value <0.05 was considered statistically significant.

Results

A total of 307 university students participated in the study. The demographic profile of respondents is summarised in Table 1.

Table 1: Demographic profile of study participants (N = 307)

Variable	Category	n	%
Age (years)	Mean ± SD: 22.53 ± 1.81 (range 19-34)	307	100.0
Gender	Female	184	59.9
	Male	123	40.1
Course	Medical (MBBS/MD)	296	96.4
	Non-medical	11	3.6
Year of study	1st-2nd year	22	7.2
	3rd year	106	34.5
	4th year	130	42.3
	Final year/Internship/PG	38	12.4
	Unspecified	11	3.6
Skin type (self-reported)	Combination	123	40.1
	Oily	88	28.7
	Dry	41	13.4

Variable	Category	n	%
	Normal	23	7.5
	Sensitive	19	6.2
	Not sure	13	4.2
Ever consulted a dermatologist	Yes	164	53.4
	No	143	46.6

Overall knowledge scores ranged from 0 to 6 (mean 4.90 ± 1.30). Item-wise correct-response rates are shown in Table 2. Two hundred and eighty-three respondents (92.2%) achieved an adequate knowledge score (≥3/6).

Table 2: Knowledge of participants regarding skin care (N = 307)

Knowledge item	Correct response	n (%) correct
Minimum SPF recommended for daily sun protection	SPF 30	244 (79.5%)
Product that helps maintain the skin barrier and prevents dryness	Moisturizer	262 (85.3%)
Recommended approach to initiating retinoid (retinol) use	Introduce gradually, increase as tolerated	223 (72.6%)
Specialist best qualified to diagnose/treat skin disease	Dermatologist	268 (87.3%)
Most important factor when choosing a skin care product	Suitable for skin type	267 (87.0%)
Ingredient commonly used for acne treatment	Salicylic acid	240 (78.2%)

Overall attitude scores ranged from 0 to 8 (mean 6.54 ± 1.99). Two hundred and eighty-nine respondents (94.1%) demonstrated a positive attitude (≥4/8). Item-wise responses are shown in Table 3.

Table 3: Attitude of participants regarding skin care (N = 307)

Attitude item	Agree n (%)	Neutral n (%)	Disagree n (%)
Social media creates unrealistic expectations regarding skin appearance	200 (65.1%)	87 (28.3%)	20 (6.5%)
Product effectiveness depends more on ingredients than brand name	206 (67.1%)	75 (24.4%)	26 (8.5%)
Consulting a dermatologist is better than relying only on social media advice	219 (71.3%)	71 (23.1%)	17 (5.5%)
Important to understand one's skin type before choosing products	233 (75.9%)	60 (19.5%)	14 (4.6%)

Overall practice scores ranged from 1 to 6 (mean 3.63 ± 1.27). Two hundred and forty-four respondents (79.5%) reported good practice (≥3/6). Notably, while awareness of active ingredients was reasonably good, dermatologist-guided product selection and cautious introduction of new products lagged behind, as shown in Table 4.

Table 4: Practice of participants regarding skin care (N = 307)

Practice item	**Favourable practice n (%)**
Follows a skin care routine (any steps, vs. none)	237 (77.2%)
Aware of the active ingredients used in own products	221 (72.0%)
Decides on new products based on dermatologist recommendation	165 (53.7%)
Never uses prescription-strength products (e.g., tretinoin) without consulting a dermatologist	188 (61.2%)
Regularly uses broad-spectrum sunscreen (SPF 30+)	190 (61.9%)
Introduces new products only when advised by a dermatologist	114 (37.1%)

Overall KAP summary:

Table 5: Summary of knowledge, attitude, and practice scores (N = 307)

Domain	**Maximum score**	**Mean ± SD**	**Adequate/Positive/Good, n (%)**
Knowledge	6	4.90 ± 1.30	283 (92.2%)
Attitude	8	6.54 ± 1.99	289 (94.1%)
Practice	6	3.63 ± 1.27	244 (79.5%)

Gender showed a significant association with two of the three KAP domains: female students scored significantly higher than male students on both knowledge ($p<0.001$) and practice ($p<0.001$), while the gender difference in attitude was not statistically significant ($p=0.093$). Prior consultation with a dermatologist was significantly associated with all three domains students who had previously consulted a dermatologist scored higher on knowledge ($p=0.002$), attitude ($p=0.015$), and practice ($p<0.001$) than those who had not.

DISCUSSION:

In the present study of 307 university students, an overwhelming majority demonstrated adequate knowledge (92.2%) and positive attitude (94.1%) regarding skin care, yet good practice was reported by a comparatively smaller, though still substantial, proportion (79.5%). This pattern - knowledge and attitude outpacing practice - is a recurring finding in skin care and cosmetic-use KAP literature and reflects the well-documented difficulty of translating awareness into consistent behaviour. Upadhyay H et al., in a cross-sectional survey of 300 medical students in Western India, reported considerably lower awareness of the recommended sun protection factor, with 70.3% of students unaware of the correct SPF

range and only 15.7% identifying it correctly.[5] Similarly, Xaviar S et al., surveying 100 undergraduate medical students (mean age 19.9 ± 0.73 years) in South India, found that only 17.5% knew the correct quantity of sunscreen required for effective protection, 65% did not apply sunscreen at least 30 minutes before sun exposure, only 40% could name even one sunscreen ingredient, and regular reapplication was practised by only 39.1% of respondents.[6] In marked contrast, 79.5% of respondents in the present study correctly identified SPF 30 as the minimum recommended value. This higher figure may reflect greater contemporary exposure to sun-protection messaging through social media and dermatology curricula, cohort-specific awareness efforts, or differences in question framing between studies. Nonetheless, actual sunscreen-related practice in the present cohort was less reassuring - only 61.9% reported regular use of broad-spectrum sunscreen - a gap that echoes the application-technique and reapplication deficits reported by Xaviar et al.[6] despite comparatively high baseline awareness, reinforcing the observation that sun-protection knowledge does not reliably predict sun-protection behaviour.[1,3]

When compared with Wang et al.'s comparative KAP study of atopic dermatitis patients and healthy individuals in China, the present cohort of university students showed a distinctly higher proportion with adequate knowledge (92.2% vs 67.0% among AD patients) and good/proactive practice (79.5% vs 59.2% among AD patients and 62.3% among the general healthy population).[13] This gap is plausible given that the present study population was drawn predominantly from medical students (96.4%), who receive at least indirect exposure to dermatological concepts through their curriculum, whereas Wang et al.'s comparator groups were drawn from the general population and a patient cohort without such training.[13] This comparison lends indirect support to the hypothesis that formal medical education contributes to higher baseline skin care knowledge, even though it does not fully close the practice gap.

The knowledge-practice gap identified here was most apparent in two specific practice items: only 53.7% of respondents based their choice of a new skin care product on a dermatologist's recommendation, and only 37.1% introduced new products exclusively on professional advice, despite 87.3% correctly identifying a dermatologist as the appropriate specialist for skin disease. Similarly, 38.8% of respondents reported at least occasional unsupervised use of prescription-strength products such as tretinoin. A comparable reliance on non-professional information sources has been documented in other cosmetic-product KAP surveys, Alrawaiq NS et al, studying 405 female university students regarding skin-whitening products, found that although 98.2% were aware of such agents and 85.4% acknowledged their potential side effects, the predominant sources of information were media (38%) and friends (32.8%) rather than dermatologists.[14] Similar patterns of cosmetic-use awareness without consistently professional guidance have also been reported among university and medical student populations more broadly. Taken together, these findings suggest that unsupervised product experimentation, whether with sunscreens, cosmetics, skin-whitening agents, or active pharmacological ingredients such as retinoids, remains common in this age group even when general knowledge of appropriate or safe use is present. Given that inappropriate retinoid initiation and unsupervised use of prescription-strength agents can cause irritant dermatitis and other adverse effects, this represents a practically important target for structured counselling.

Prior consultation with a dermatologist was consistently associated with better scores across all three domains in the present study ($p<0.05$ for attitude, $p<0.01$ for knowledge and practice), suggesting that direct clinical exposure reinforces both correct knowledge and its translation into safer practice. This is consistent with the general premise, echoed across the KAP literature on skin care and cosmetic use, that professional contact, rather than passive exposure to information sources such as social media or friends

is associated with more favourable outcomes across all three domains. Female students in the present study also scored significantly higher than male students on both knowledge and practice. A directly comparable gender difference was reported by Zhang Y et al. in a KAP study of acne among 453 Chinese university students, where female students had significantly higher attitude scores than males (27.2 vs 26.6 out of 40, $p<0.001$).[10] This convergence across independent cohorts and skin conditions supports gender as a consistent correlate of more favourable skin care engagement in university populations, although the specific domain most affected varied.

Year of study did not show a statistically significant association with any KAP domain in this cohort, suggesting that the modest gains expected from progressive exposure to the medical curriculum may not, by themselves, be sufficient to meaningfully shift skin care knowledge, attitude, or practice without a more structured or dermatology-focused educational intervention.

The consistent, statistically significant positive correlations observed between knowledge, attitude, and practice scores in the present study ($p<0.001$ for all pairs) support the internal coherence of the KAP framework in this population, while the modest magnitude of these correlations reaffirms that knowledge and attitude alone are insufficient to guarantee good practice. This finding closely parallels the path-analytic results reported by Zhang Y et al. in their acne-focused KAP study, where knowledge exerted only a small direct effect on attitude and an indirect effect on practice mediated through attitude, while the direct effect of knowledge on practice was not statistically significant.[10] Together, these findings suggest that attitude may act as a proximate mediator between knowledge and practice in skin-care related behaviour, and that interventions aimed solely at improving factual knowledge without also engaging attitudes and addressing access to professional guidance are unlikely to translate fully into safer practice.

This study is limited by its cross-sectional design, which precludes causal inference; the predominance of medical students in the sample (96.4%), which limits generalisability to the broader university student population; reliance on self-reported practice, which may be subject to social-desirability bias; and the use of a study-specific questionnaire that has not undergone formal external validation.

CONCLUSION:

The present study demonstrates that university students, particularly medical students, possess good knowledge and a positive attitude toward skin care; however, this does not consistently translate into appropriate skin care practices. Notable deficiencies were observed in adherence to sun-protective measures and the unsupervised use of topical agents such as retinoids, highlighting important areas for intervention. Female students and students with a history of dermatologist consultation exhibited significantly better knowledge, attitudes, and practices, emphasizing the value of professional dermatological guidance in promoting healthy skin care behaviors.

These findings underscore the need for structured educational interventions focusing on effective sun protection, rational use of topical dermatological products, and appropriate health-seeking behavior. Incorporating evidence-based skin care education into university health programs and medical curricula may help bridge the gap between knowledge and practice and promote healthier long-term skin care behaviors among future healthcare professionals.

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