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KNOWLEDGE, ATTITUDE, AND PRACTICE REGARDING PERIOCULAR COSMETIC PROCEDURES PERFORMED BY UNTRAINED PROVIDERS

Ophthalomology

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ABSTRACT

Background: Periocular cosmetic procedures such as eyelash extensions, eyebrow microblading, botulinum toxin injections and dermal fillers have gained widespread popularity in recent years. While these procedures are often perceived as minimally invasive and safe, the periocular region is anatomically complex and functionally critical, making it particularly vulnerable to serious ocular and periocular complications when interventions are performed incorrectly. Adverse outcomes may range from allergic reactions, infections, and scarring to more severe consequences such as ptosis, diplopia, corneal injury, retinal vascular occlusion and permanent visual loss. **Objective:** To assess community knowledge, attitudes, and practices (KAP) regarding the risks of periocular cosmetic procedures performed by untrained providers, and to identify predictors of poor awareness and unsafe behaviour. **Methods:** A community-based cross-sectional study was conducted among adults aged ≥ 18 years across selected urban and semi-urban areas of Andhra Pradesh. Using multistage cluster sampling, 1000 participants were interviewed using a validated, pretested KAP questionnaire. Knowledge (15 questions), attitude (8 questions), and practice (7 questions) scores were categorized into adequate/inadequate levels. Data were analysed using descriptive statistics and multivariable logistic regression to identify predictors of poor knowledge and unsafe practices. **Results:** Among participants, 64% were female and 46% urban; 41% had graduate-level education or higher. Awareness of periocular cosmetic procedures was 71%, but only 41% demonstrated adequate knowledge (mean score 8.9 ± 3.2). Knowledge gaps included vision-threatening complications (43%) and vascular anatomy requirements (59%). A favourable attitude was observed in 64%, with 83% preferring certified professionals and 89% supporting government regulation. Despite this, 39% considered low-cost beauty-parlour procedures acceptable. Twenty-eight percent had previously undergone procedures; among them, 43% were performed in non-medical settings. Social media influenced 52% of participants, and cost pressures were strongly associated with unsafe practices (OR = 3.9; $p < 0.001$). **Conclusion:** Community knowledge regarding the risks of untrained periocular cosmetic procedures is limited, and a substantial proportion of individuals exhibit attitudes that may predispose them to unsafe practices. Targeted public awareness programmes, stricter regulation of non-medical cosmetic service providers, and community-level ophthalmic education are needed to reduce preventable periocular and ocular complications.

KEYWORDS

community-based study, cross-sectional studies, periocular cosmetic procedure , public awareness

INTRODUCTION

Periocular cosmetic procedures-including botulinum toxin injections, fillers, thread lifts, chemical peels, and non-surgical eyelid lifting-are increasingly sought for aesthetic enhancement. Their popularity has expanded beyond medical establishments, with many individuals obtaining services from untrained, informal, or uncertified providers. The periocular region, however, is anatomically delicate and highly vascular, and procedures performed by unqualified personnel can result in serious complications, including periorbital cellulitis, eyelid necrosis, ophthalmic artery occlusion, and even irreversible vision loss.

The demand for low-cost aesthetic procedures has led to the growth of beauty parlours, spas, and informal home-based practitioners offering periocular interventions without adequate training or sterile precautions. Reports of severe complications are rising globally. Yet, limited data exist on public understanding of these risks, particularly in India, where cosmetic markets are rapidly expanding and regulation of non-medical providers is inconsistent.

Assessing the population's knowledge, attitudes, and practices (KAP) regarding untrained periocular cosmetic procedures is essential for developing targeted health education, regulatory frameworks, and community outreach by ophthalmologists. To address this gap, we conducted a community-based KAP study in Andhra Pradesh. The findings will contribute to the existing literature and provide valuable insights for healthcare providers and policymakers in increasing the awareness regarding complications caused by untrained cosmetic providers.

MATERIALS AND METHODS

Study Design And Setting

A community-based cross-sectional study was conducted between **AUGUST 2025 – NOVEMBER 2025** across urban and semi-urban regions of Andhra Pradesh.

Study Population

Adults aged ≥ 18 years residing in the selected areas for ≥ 6 months were eligible.

Exclusion Criteria:

- Cognitive impairment or inability to provide informed consent.
- Severe illness preventing participation

Sample Size

Assuming 50% prevalence of adequate knowledge, 95% confidence level, 5% precision, and design effect 1.5, the minimum sample size was 578. Adding a 10% nonresponse rate and rounding for cluster allocation, the target sample size was set at **1000**.

Sampling Method

Multistage cluster sampling:
1. Random selection of wards/villages.
2. Systematic household sampling within clusters.
3. One eligible adult selected per household using the last-birthday method.

Data Collection:

Validated KAP questionnaire:
- Section A – Knowledge (15 items, True/False/Don't know, scored 1 for correct)
- Section B – Attitude (8 items, 5-point Likert scale)
- Section C – Practices (7 items, including prior procedures, provider type, risk counseling, social media influence, response to complications)

Data Analysis:

Descriptive statistics summarized demographics and KAP scores. Adequate knowledge defined as score ≥10/15. Associations analyzed using Chi-square and odds ratios. SPSS v25.0 used.

RESULTS

Study Population Characteristics (n = 1000)

Table 1. Socio-demographic Characteristics Of Study Participants (n = 1000)

Variable	Category	n (%)
Age (years)	18–30	320 (32.0)
	31–45	420 (42.0)
	46–60	210 (21.0)
	>60	50 (5.0)

Gender	Female	640 (64.0)
	Male	350 (35.0)
	Other	10 (1.0)
Education	No formal schooling	120 (12.0)
	≤10th class	260 (26.0)
	Intermediate	210 (21.0)
	Graduate	270 (27.0)
	Postgraduate	140 (14.0)
Residence	Urban	460 (46.0)
	Semi-urban	310 (31.0)
	Rural	230 (23.0)

Awareness
- Heard of periocular cosmetic procedures: **710 (71.0%)**
- Never heard of such procedures: **290 (29.0%)**

Section A: Knowledge
Maximum score: 15
Adequate knowledge defined as ≥10 correct responses

Table 2. Knowledge Responses

Question	Correct n (%)
Definition of periocular procedures	780 (78.0)
Botox only by trained professionals	820 (82.0)
Chemical peels safe with beauticians	310 (31.0)
Fillers can cause serious complications	690 (69.0)
Risk of infection in unsterile setting	760 (76.0)
Incorrect technique → ptosis	540 (54.0)
Vision loss possible with fillers	430 (43.0)
Home-based beauticians are safe	360 (36.0)
Only derm/ophthal trained	470 (47.0)
Allergic reactions possible	720 (72.0)
Untrained providers miss warning signs	610 (61.0)
Redness/swelling needs doctor visit	680 (68.0)
Vascular anatomy knowledge needed	590 (59.0)
Social media shows true safety	290 (29.0)
Complications preventable with supervision	650 (65.0)

Overall Knowledge Score
- Mean knowledge score: 8.9 ± 3.2
- Adequate knowledge (≥10): 410 (41.0%)
- Poor knowledge (<10): 590 (59.0%)

Key Knowledge Gaps Identified
- Vision-threatening complications
- Role of vascular anatomy
- False sense of safety from social media
- Legitimacy of non-medical providers

Section B: Attitude
Positive attitude = **Agree / Strongly Agree** to medically safe options

Table 3. Attitude Responses

Statement	Positive Attitude n (%)
Only certified professionals should perform	830 (83.0)
Accept parlor if cheaper	390 (39.0)
Prefer trained doctor even if costly	710 (71.0)
Parlor complications are rare	420 (42.0)
Anyone with experience is safe	450 (45.0)
Certification must be mandatory	870 (87.0)
Seek medical help for complications	760 (76.0)
Govt regulation needed	890 (89.0)

Attitude Summary
- Favorable attitude overall: 640 (64.0%)
- Cost sensitivity remains a major driver of unsafe acceptance
- Strong public support for government regulation

Section C: Practices
Table 4. Practice Patterns

Practice	Response	n (%)
Ever underwent periocular procedure	Yes	280 (28.0)
	No	720 (72.0)
Place of procedure (n=280)	Medical clinic	140 (50.0)
	Beauty parlor/spa	80 (28.6)
	Home-based beautician	40 (14.3)
	Friend/relative	20 (7.1)
Risks explained by provider	Yes	120 (42.9)
	No	100 (35.7)
	Partial	60 (21.4)
Would consider non-medical due to cost	Yes	330 (33.0)
Watched social media videos	Yes	520 (52.0)
Check provider certification	Yes	460 (46.0)
Action after complications	Visit doctor	540 (54.0)
	Contact provider	260 (26.0)
	Ignore	120 (12.0)
	Online remedies	80 (8.0)

Association Analysis
Education vs Knowledge

Education	Adequate Knowledge (%)
≤10th class	24.5
Intermediate	36.2
Graduate	58.1
Postgraduate	71.4

χ^2 = significant ($p < 0.001$)

Social Media Exposure vs Unsafe Practice
- Watched social media videos: **52%**
- Among them, **48%** considered non-medical providers
- Non-watchers considering non-medical providers: **17%**

Odds Ratio = 3.9 (95% CI: 3.1–4.9)

Knowledge vs Practice Gap
- Adequate knowledge but unsafe practice intent: **22%**
- Poor knowledge + unsafe intent: **47%**

Indicates Strong Attitude-practice Disconnect
Educational status was significantly associated with adequate knowledge: participants with graduate-level or higher education were more likely to have adequate knowledge compared to those with lower education ($p < 0.001$). Social media exposure was strongly associated with choosing non-medical providers (OR = 3.9; 95% CI 3.1–4.9). Age and gender were not significantly associated with knowledge levels but influenced practice patterns with younger participants more likely to consider non-medical providers.

DISCUSSION
This community-based KAP study among 1000 participants provides valuable insights into public understanding and behaviour regarding periocular cosmetic procedures, highlighting important gaps in knowledge and unsafe practices despite generally favourable attitudes. Knowledge Gaps and Awareness.

The study found that 71% of participants were aware of periocular cosmetic procedures, but only 41% demonstrated adequate knowledge. Participants were reasonably aware that botulinum toxin injections should only be administered by trained professionals (82%) and that unsterile conditions pose infection risks (76%). However, knowledge regarding vision-threatening complications (43%) and the requirement of understanding periocular vascular anatomy (59%) was limited. This is consistent with prior studies indicating that while awareness of cosmetic procedures is widespread, comprehension of potential complications and anatomical risk factors remains low [1–4]. The low proportion of participants (29%) who recognized that social media videos do not accurately represent procedural safety underscores the pervasive influence of online misinformation on cosmetic decision-making. This aligns with previous findings suggesting that social media can both educate and mislead, creating a dual challenge for public health [5].

Attitudes Towards Safety
The study revealed that 64% of participants held favourable attitudes toward safe practice, including preference for certified medical professionals (83%), support for mandatory training (87%), and government regulation of non-medical providers (89%). This indicates that although knowledge is limited, there is general public support for safe, regulated practice, reflecting attitude–behaviour discrepancy observed in other KAP studies [6].

However, 39% of participants considered low-cost beauty-parlour procedures acceptable, highlighting the impact of cost as a driver of

unsafe practices, particularly in economically constrained populations. This is consistent with literature suggesting that affordability often overrides safety concerns in elective cosmetic procedures [7].

Practices And Risk Behaviours

Among participants, 28% had undergone periocular procedures, with 43% performed in non-medical settings. Only 43% reported receiving adequate counselling about potential risks. Social media influenced 52% of participants, and 33% were willing to undergo procedures by non-medical providers due to cost. These findings emphasize the knowledge–practice gap and suggest that favourable attitudes alone are insufficient to prevent unsafe practices.

The observed pattern of unsafe practice aligns with prior reports of home-based or mobile cosmetic services, which are often unregulated and performed without adequate anatomical knowledge, increasing the risk of serious ocular complications, including retinal artery occlusion, ptosis, cellulitis, and vision loss [2,3,8].

Association With Education And Social Media

Higher educational status was significantly associated with adequate knowledge ($p < 0.001$), consistent with evidence that education enhances health literacy and risk awareness [9]. Conversely, social media exposure was strongly associated with the likelihood of choosing non-medical providers (OR = 3.9; 95% CI 3.1–4.9), highlighting its dual role as both an information source and a risk factor. These findings suggest that targeted interventions via social media could be a powerful tool to improve public knowledge and influence behaviour positively.

Public Health And Clinical Implications

This study has several key implications:

1. Awareness campaigns must emphasize anatomical risks and the potentially severe ocular complications associated with untrained periocular procedures.
2. Mandatory certification and training should be enforced for all practitioners performing periocular cosmetic interventions.
3. Regulation of non-medical providers (beauty Parlors, home-based practitioners) is critical to prevent adverse outcomes.
4. Ophthalmologists and dermatologists should actively participate in patient education, supervision, and advocacy for safe cosmetic practice.

Strengths And Limitations

Strengths of the study include a large sample size (n=1000), inclusion of urban, semi-urban, and rural populations, and use of a validated KAP questionnaire. Limitations include the self-reported nature of responses, potential recall bias, and the cross-sectional design, which prevents causal inferences. Social desirability bias may have influenced attitude and practice responses, potentially overestimating favourable behaviour.

CONCLUSION

This community-based study among 1000 participants highlights a significant gap between awareness, knowledge, and safe practices regarding periocular cosmetic procedures. While a majority were aware of such procedures (71%) and demonstrated favourable attitudes toward certified medical providers (64%), only 41% exhibited adequate knowledge of procedure-related risks, particularly regarding vision-threatening complications and vascular anatomy considerations.

A substantial proportion of procedures (43%) were performed by non-medical providers, often without adequate risk counselling, and social media influence (52%) and cost considerations (33%) were identified as major factors driving unsafe practices. These findings emphasize the discrepancy between knowledge and actual behaviour, indicating that favourable attitudes alone are insufficient to prevent unsafe practices.

Higher education was associated with better knowledge, whereas social media exposure increased the likelihood of seeking non-medical providers nearly fourfold. This suggests that targeted educational interventions through trusted media channels could play a pivotal role in promoting safe practices.

The study underscores the urgent need for:

1. Public education campaigns highlighting the anatomical risks of periocular procedures.
2. Mandatory certification and training for all practitioners performing cosmetic procedures in the periocular region.
3. Regulation of non-medical cosmetic services to minimize complications.
4. Active involvement of ophthalmologists and dermatologists in guiding patients and supervising procedures to ensure safety.

In summary, despite favourable attitudes, knowledge gaps and unsafe practices persist, putting participants at risk of potentially serious ocular complications. Coordinated efforts involving education, regulation, and professional supervision are essential to reduce these risks and promote safe periocular cosmetic practices in the community.

APPENDICES

KAP Questionnaire:
Participant Information
Participant Name: _____

Age: _____

Gender: ☐ Male ☐ Female ☐ Other

Education: ☐ No formal schooling ☐ ≤10th class ☐ Intermediate ☐ Graduate ☐ Postgraduate

Residence: ☐ Urban ☐ Semi-urban ☐ Rural

Have you heard of periocular cosmetic procedures? ☐ Yes ☐ No

Section A: KNOWLEDGE (15 Items)
(Mark one answer for each. Score: 1 = Correct, 0 = Incorrect/Don't know)

1. Periocular cosmetic procedures involve treatments around the eyelids and eye area.
☐ True ☐ False ☐ Don't know

2. Botulinum toxin injections should be administered only by trained medical professionals.
☐ True ☐ False ☐ Don't know

3. Chemical peels around the eyelids are safe when done by beauticians or spa technicians.
☐ True ☐ False ☐ Don't know

4. Fillers injected near the eye can cause serious complications.
☐ True ☐ False ☐ Don't know

5. Infection can occur if periocular procedures are done in unsterile environments.
☐ True ☐ False ☐ Don't know

6. Incorrect injection technique around the eyes can cause eyelid drooping (ptosis).
☐ True ☐ False ☐ Don't know

7. Vision loss is a possible complication of wrongly administered fillers near the eye.
☐ True ☐ False ☐ Don't know

8. Home-based or mobile beauticians can safely perform periocular procedures.
☐ True ☐ False ☐ Don't know

9. Only dermatologists and ophthalmologists are formally trained to inject fillers near the eyes.
☐ True ☐ False ☐ Don't know

10. Allergic reactions can occur after chemical or injectable procedures.
☐ True ☐ False ☐ Don't know

11. Untrained providers may not recognize early warning signs of complications.
☐ True ☐ False ☐ Don't know

12. Swelling, pain, or sudden redness after a procedure should be evaluated by a doctor immediately.
□ True □ False □ Don't know

13. Filler injections around the eye require knowledge of vascular anatomy.
□ True □ False □ Don't know

14. Social media videos accurately represent the safety of cosmetic procedures.
□ True □ False □ Don't know

15. Complications from untrained providers can be prevented with proper medical supervision.
□ True □ False □ Don't know

Section B: ATTITUDE (8 Items)
(5-point Likert scale: Strongly Agree to Strongly Disagree) (Positive attitude = choosing trained professionals)
1. Periocular cosmetic procedures should be done only by certified medical professionals.
□ Strongly Agree □ Agree □ Neutral □ Disagree □ Strongly Disagree

2. Low-cost procedures at parlors/spas are acceptable if results look good.
□ SA □ A □ N □ D □ SD

3. I would prefer a trained dermatologist or ophthalmologist even if the procedure costs more.
□ SA □ A □ N □ D □ SD

4. Complications from beauty-parlor procedures are rare and not serious.
□ SA □ A □ N □ D □ SD

5. I believe periocular procedures are completely safe if done by anyone with experience.
□ SA □ A □ N □ D □ SD

6. Training and certification should be mandatory for anyone performing periocular cosmetic procedures.
□ SA □ A □ N □ D □ SD

7. I would seek medical help immediately if I notice any swelling, pain, or vision changes after a procedure.
□ SA □ A □ N □ D □ SD

8. Government should regulate non-medical cosmetic providers.
□ SA □ A □ N □ D □ SD

Section C: PRACTICES (7 Items)
1. Have you ever undergone any cosmetic procedure around the eye area?
□ Yes □ No

2. If yes, where was the procedure done?
□ Dermatologist/Ophthalmologist clinic
□ Beauty parlor/spa
□ Home-based beautician
□ Friend/relative

3. If you had a procedure, did the provider explain risks and complications?
□ Yes □ No □ Partially

4. Would you consider doing periocular procedures from a non-medical provider due to lower cost?
□ Yes □ No □ Maybe

5. Have you ever watched cosmetic procedure videos on social media before choosing a provider?
□ Yes □ No

6. Do you check if a provider is trained and certified before undergoing any procedure?
□ Yes □ No

7. If you experience redness, swelling, or pain after a procedure, what do you do first?
□ Ignore and wait
□ Contact the person who did the procedure
□ Visit a doctor immediately
□ Look for remedies online

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