Acta Medica Young Doctors
ISSN: 3108-4532
Volume 2 Issue 2

Dermocosmetic Training in Dermatology Residency in Türkiye: Current Status and Changes Over Time

Orginal Article

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ABSTRACT

Aim: This study aimed to evaluate dermatology residents' opinions, practical opportunities and perceived adequacy of dermocosmetic training in Türkiye and to identify the current status by comparing the findings with previous national and international studies.

Methodology: This descriptive cross-sectional study was conducted between April and July 2025 among active dermatology residents across Türkiye using a 31-item online questionnaire administered via Google Forms. Data were analyzed using IBM SPSS version 26.0. Descriptive statistics, chi-square and Mann–Whitney U tests were applied and multivariable logistic regression was used to assess factors associated with the likelihood of performing dermocosmetic procedures.

Results: A total of 117 dermatology residents participated in the study, yielding a participation rate of 7.8%. Among the participants, 79.5% reported that dermocosmetic procedures influenced their choice of specialty and 77.8% indicated that they considered dermocosmetics among their long-term career goals. While 43.6% of the residents reported having opportunities to perform dermocosmetic procedures, 92.3% perceived their dermocosmetic training as insufficient and only 3.4% rated their procedural skills as adequate. The likelihood of performing dermocosmetic procedures was significantly higher among residents who had an active dermocosmetic trainer in their clinics (OR = 6.93; 95% CI: 2.32–20.68; p <0.001).

Conclusion: Despite the high level of interest and career motivation regarding dermocosmetics among dermatology residents in Türkiye, training opportunities remain limited and heterogeneous. The presence of an active trainer appears to be the key determinant of practical dermocosmetic training, underscoring the need for nationally structured and standardized training programs within residency education.

Keywords: Dermocosmetics, dermatology, residency training, resident perspectives, survey

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Doi: 10.66288/actamedi.2026.59

Introduction

Cosmetic and aesthetic dermatologic procedures represent an important and steadily expanding component of contemporary dermatology practice. Globally, the frequency of interventional dermatologic procedures has increased and in parallel, dermatology residents' expectations of acquiring competence in this field have also risen (1). Nevertheless, studies from various countries indicate that dermatology residency programs often do not adequately meet training expectations in cosmetic and aesthetic dermatology (2).

The standardization and adequacy of dermocosmetic training in Türkiye have been a subject of discussion for many years. National studies have reported marked variations among training clinics in terms of procedural opportunities, number of trainers and training content and have indicated that dermocosmetic training is insufficient both theoretically and practically (3-6).

Similarly, international literature has demonstrated that dermatology residents have difficulty gaining sufficient hands-on experience in cosmetic dermatology and report a low perception of training adequacy across different countries (7-9).

However, studies assessing the current state of dermocosmetic training among dermatology residents in Türkiye and examining temporal changes through comparison with previous research are limited. Therefore, this study aims to evaluate dermatology residents' opinions and experiences regarding dermocosmetic training and to identify current trends by comparing the findings with previously published national and international data.

Materials and Methods

This descriptive cross-sectional survey study was conducted to evaluate dermatology residents' opinions and experiences regarding dermocosmetic training in Türkiye. The study was approved by the Non-Interventional Clinical Research Ethics Committee of Mustafa Kemal University (Decision No: 35; March 19, 2025). A 31-item online questionnaire developed in accordance with the relevant literature was administered via Google Forms between April and July 2025. Of the items, 22 were closed-ended (yes/no), while the remaining items were multiple-choice or open-ended. Dermatology residents actively enrolled in residency training programs in Türkiye who voluntarily agreed to participate and completed the questionnaire in full were included in the study. Incomplete or invalid responses, duplicate submissions and questionnaires completed by individuals from non-dermatology specialties were excluded. Prior to analysis, responses were screened for missing data, duplication and eligibility; no participants were excluded beyond the predefined exclusion criteria. The overall response rate was 7.8%.

Statistical Analysis

Statistical analyses were performed using the IBM SPSS Statistics for Windows, version 26.0 (IBM Corp., Armonk, NY, USA). Categorical variables are presented as frequencies and percentages, while continuous variables are reported as mean ±

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standard deviation or median (minimum–maximum), as appropriate. The chi-square test was used to compare categorical variables and the Mann–Whitney U test was applied for comparisons of continuous variables. To identify factors associated with the likelihood of performing dermocosmetic procedures in the clinical setting, variables with a p value <0.10 in univariable analyses were entered into a multivariable logistic regression model. Multivariable analysis could not be performed for the variables 'training adequacy' and 'self-perceived competence' because of an insufficient number of positive responses. A p value <0.05 was considered statistically significant.

Results

A total of 117 dermatology residents participated in the study, yielding a response rate of 7.8%. The mean age of the participants was 27.89 ± 2.97 years; 65.8% were female and 34.2% were male. The distribution by year of residency training was as follows: first year, 37.6%; second year, 28.2%; third year, 18.8%; and fourth year, 15.4%. Training institutions were predominantly university hospitals (64.1%), followed by training and research hospitals (32.5%) and other institutions (3.4%). Participants were geographically distributed across the Marmara (28.2%), Mediterranean (27.4%), Central Anatolia (16.2%), Aegean (12.0%), Black Sea (7.7%), Eastern Anatolia (5.1%) and Southeastern Anatolia (3.4%) regions. Overall, 88.9% of training institutions were located in metropolitan areas. Demographic and training characteristics are summarized in Figure 1.

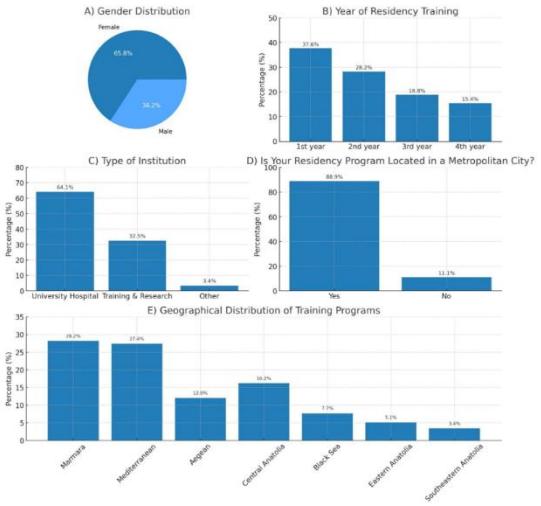

Figure 1. Demographic and training-related characteristics of dermatology residents. **(A)** Gender distribution of participants. **(B)** Distribution of residency seniority (first- to fourth-year). **(C)** Types of institutions where residents are trained (university hospitals, training and research hospitals, and other institutions). **(D)** Proportion of residents whose training programs are located in a metropolitan city. **(E)** Geographical distribution of residency programs across Türkiye.

Dermocosmetic procedures were reported to have influenced the choice of dermatology as a specialty by 79.5% of residents; however, only 23.1% identified dermocosmetics as their primary motivation for selecting dermatology. A total of 77.8% of respondents reported considering dermocosmetics as a long-term career goal. The mean age was significantly higher among residents who identified dermocosmetics as a career goal (28 years) compared with those who did not (26 years) (p = 0.017).

Overall, 43.6% of residents reported having the opportunity to perform dermocosmetic procedures during their training, whereas 56.4% reported no such opportunity. The most commonly available dermocosmetic

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procedures in clinics were mesotherapy (74.3%), platelet-rich plasma (PRP) therapy (70.3%), botulinum toxin injections (52.7%) and laser treatments (41.9%). Among residents who actively performed cosmetic procedures, the most frequently practiced interventions were mesotherapy (78.0%), PRP injections (78.0%), botulinum toxin injections (61.0%) and laser treatments (47.5%). The availability of procedural training and the types of procedures performed are presented in Figure 2.

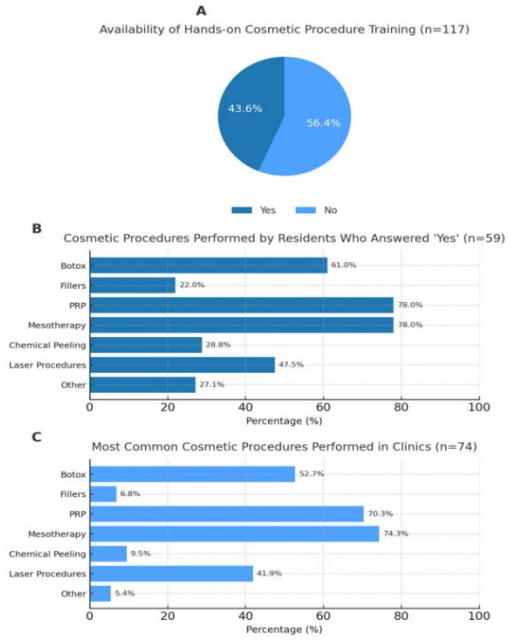

Figure 2. Distribution of dermocosmetic training opportunities and procedural experience among dermatology residents.
(A) Availability of hands-on dermocosmetic training among participating residents (n = 117). **(B)** Percentages of specific dermocosmetic procedures performed by residents who reported having hands-on training (n = 59). **(C)** Most commonly performed dermocosmetic procedures in participating clinics (n = 74).

At least one faculty member with an interest in dermocosmetics was reported in 56.4% of clinics, while an actively teaching dermocosmetic trainer was present in 32.5%. The proportion of residents who were able to perform dermocosmetic procedures was significantly higher in clinics with a faculty member interested in dermocosmetics compared with those without such faculty (56.1% vs. 27.5%; $p = 0.0037$). This difference was even more pronounced in clinics with an active dermocosmetic trainer (76.3% vs. 27.8%; $p < 0.001$). Similarly, the proportion of residents who considered their dermocosmetic training adequate was significantly higher in clinics with an active trainer (18.4% vs. 2.5%; $p = 0.008$).

Overall satisfaction with dermocosmetic training was low: only 7.7% of residents rated their training as sufficient, while 92.3% considered it insufficient. Self-perceived practical competence in dermocosmetic procedures was reported by 3.4% of participants, whereas 96.6% reported feeling inadequately trained. The need for additional dermocosmetic training was expressed by 95.7% of residents and 96.6% emphasized the necessity of incorporating more hands-on training into the residency curriculum. No statistically significant associations were identified between training adequacy or self-perceived competence and demographic or institutional characteristics (all $p > 0.05$). Findings related to practice opportunities and training indicators according to the presence of an active dermocosmetic trainer are shown in Figure 3.

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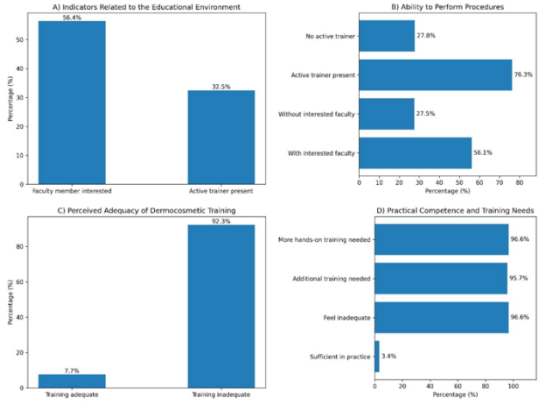

Figure 3. Indicators related to the dermocosmetic educational environment, procedural practice opportunities, and residents' perceptions of dermocosmetic training. **(A)** Clinics with at least one faculty member interested in dermocosmetics and those with an active dermocosmetic trainer. **(B)** Residents able to perform dermocosmetic procedures according to faculty interest and the presence of an active trainer. **(C)** Perceived adequacy of dermocosmetic training. **(D)** Self-perceived practical competence and training needs, including the need for additional and hands-on training**.**

In the multivariable logistic regression analysis assessing factors associated with the likelihood of performing dermocosmetic procedures during residency, the presence of an active dermocosmetic trainer emerged as an independent and significant predictor. Residents training in clinics with an active trainer were approximately seven times more likely to perform dermocosmetic procedures (OR = 6.93; 95% CI, 2.32–20.68; p < 0.001). Other variables—including year of residency training, sex, type of institution, metropolitan location, presence of a faculty member interested in dermocosmetics and reporting dermocosmetics as a career goal—did not significantly contribute to the model (all p > 0.05). The results of the multivariable logistic regression analysis are presented in Table 1.

Table 1. Multivariable logistic regression analysis of factors associated with the ability to perform dermocosmetic practical procedures among dermatology residents.

Variable	**OR**	**95% CI**	**P**
Presence of an active dermocosmetic trainer (yes/no	6,93	2,32–20,68	<0,001
Residency year	1,12	0,86–1,45	0,39
Gender (male/female)	1,28	0,51–3,18	0,60
Type of institution (University/TRH)	1,41	0,55–3,64	0,48
Institution located in a metropolitan city (yes/no)	1,19	0,42–3,39	0,74
Considering dermocosmetics as a career goal (yes/no)	1,87	0,69–5,07	0,22
Presence of a faculty member with an interest in dermocosmetics (yes/no)	1,63	0,61–4,33	0,33

Regarding participation in cosmetic-related scientific activities, 24.8% of residents had attended at least one national dermocosmetic congress or symposium, whereas only 1.7% had participated in an international meeting. More than half of the

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respondents (58.1%) considered the number of national dermocosmetic educational events to be insufficient. While 17.9% of residents reported regularly following developments in dermocosmetics, only 8.5% indicated that new cosmetic technologies or techniques were actively implemented in their clinics.

Finally, the vast majority of dermatology residents (93.2%) believed that dermocosmetic procedures should be performed exclusively by dermatologists or plastic surgeons, whereas 6.8% felt that physicians from other specialties could perform these procedures provided they receive appropriate training.

Discussion

Cosmetic and aesthetic dermatology procedures constitute an increasingly expanding component of dermatology practice today and the frequency of cosmetic dermatologic interventions has been rising markedly on a global scale (1). In parallel with these developments, dermatology residents' expectations of gaining competence in the field of dermocosmetics have also increased. Previous studies have reported a widespread perception that cosmetic dermatology training within current residency programs is insufficient (2). Consistent with these findings, the present study demonstrated that although dermatology residents show high levels of interest and career motivation regarding dermocosmetics, the rates of perceived training adequacy and practical self-competence were considerably low, indicating a marked discrepancy between residents' expectations and the training opportunities available to them.

Early studies on dermatology residency training in Türkiye highlighted structural problems encountered during the training process and the need for improvement (3). Subsequent national investigations reported substantial variability among training clinics in terms of available opportunities and number of trainers and indicated that dermocosmetic training was considered insufficient both theoretically and practically (4). Studies evaluating the status of cosmetic and aesthetic procedures in dermatology training centers similarly demonstrated that the range of procedures was limited and resident participation remained inadequate (5). More recent research has shown that dissatisfaction among dermatology residents regarding cosmetic dermatology training largely persists (6). In our study, the proportion of residents able to perform dermocosmetic procedures remained below 50% and only a small proportion rated their training as sufficient, suggesting that a marked improvement in dermocosmetic training at the national level has not yet been achieved over time.

Findings from the international literature also point to similar challenges in dermatology residency education. Studies from different countries have shown that dermatology residents have difficulty gaining sufficient procedural experience in cosmetic dermatology and report a low perception of training adequacy (7). Research based on resident perspectives has particularly emphasized limited access to core cosmetic procedures such as botulinum

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toxin, fillers and laser treatments (8). Studies from Middle Eastern countries likewise indicate that dermocosmetic training is insufficiently structured and that hands-on training opportunities remain limited (9).

Studies conducted in the United States have reported substantial institutional variability in dermatology residents' exposure to cosmetic procedures and have shown that training and procedural experience are inadequate in many centers (10). Another study involving third-year dermatology residents demonstrated restricted hands-on experience in cosmetic and procedural dermatology (11). The underlying factors contributing to these deficiencies have been attributed to structural constraints such as concerns regarding patient safety, lack of qualified trainers and limited access to suitable clinical training environments (12). Similar findings from Canada have shown that cosmetic dermatology training is not standardized within residency education and that substantial differences exist across training programs (13,14). In this regard, the findings of our study are consistent with globally reported challenges in dermocosmetic education.

One of the most notable findings of the present study was that the presence of an active dermocosmetic trainer emerged as the strongest and independent predictor of the likelihood of performing dermocosmetic procedures. The approximately seven-fold increase in procedural practice opportunities among residents in clinics with an active trainer suggests that structured, supervised training plays a critical role in the acquisition of practical experience. The lack of significant contributions from variables such as year of residency training, type of institution or metropolitan location implies that the presence of a trainer may be a more influential determinant than institutional or physical conditions. This result is in line with the "resident cosmetic clinic" model described by Desai et al., which has been reported to yield positive outcomes when implemented under faculty supervision (15). However, the absence of significant associations for residency year, institution type or metropolitan location in our study may also be related to the limited sample size and uneven distribution across seniority groups. Indeed, a considerable proportion of participants were in the first two years of residency, during which training is largely focused on general dermatology practice; this may have contributed to restricted opportunities for dermocosmetic practice in the earlier years and to higher rates of perceived inadequacy.

The low levels of participation in scientific activities related to dermocosmetics represent another important finding of this study, suggesting that limitations in dermocosmetic education are not restricted to clinical practice but also extend to access to academic and scientific events. Restricted attendance at national dermocosmetic meetings and the near-absence of participation in international activities may reduce residents' exposure to emerging techniques and new technologies, thereby indirectly affecting training quality. Furthermore, the fact that the majority of residents stated that dermocosmetic procedures should be performed only by

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dermatologists or plastic surgeons indicates that the field is perceived as a discipline requiring specialist-level training, underscoring the importance of addressing dermocosmetics in a more structured manner within residency education.

This study provides the opportunity to evaluate the current status of dermocosmetic training among dermatology residents in Türkiye in comparison with previous national and international studies. Comparisons with earlier survey studies conducted using similar methodologies suggest that there is no strong evidence indicating a substantial improvement over time in access to dermocosmetic training or in perceptions of training adequacy. The persistence of limited procedural opportunities and low satisfaction levels reported in previous research appears to remain largely unchanged in the current data. These findings suggest that dermocosmetic training continues to rely heavily on trainer- and institution-dependent variability and that a nationally standardized and structured transformation has not yet been fully implemented.

This study has several limitations. The relatively low response rate and the cross-sectional design may limit the generalizability of the findings. In addition, the online and voluntary nature of the survey may have introduced selection bias. The absence of a priori sample size estimation or power analysis may also suggest that the statistical power was limited, particularly for subgroup analyses. Furthermore, the use of self-reported data may prevent perceptual responses from fully reflecting the objective level of procedural experience. Nevertheless, the participation rate was comparable to that reported in physician-based survey studies and the study provides up-to-date nationwide data and allows comparison with previous research, which represent important strengths.

Conclusion

This study demonstrates that although dermatology residents in Türkiye show a high level of interest and strong career motivation toward the field of dermocosmetics, training opportunities in this area remain limited and heterogeneous. Practical exposure and hands-on dermocosmetic training were found to be insufficient and perceptions of training adequacy and self-competence remained low. In the multivariable analyses, the presence of an active dermocosmetic trainer within the institution emerged as the strongest and independent determinant of the likelihood of performing dermocosmetic procedures.

These findings suggest that dermocosmetic training in Türkiye is currently largely dependent on trainer- and institution-based variability and that national standardization has not yet been fully achieved. The expansion of structured, practice-oriented dermocosmetic training models within dermatology residency education, the development and support of trainer training programs and the integration of increased hands-on practice into the curriculum may represent priority strategies to help bridge the existing gap in dermocosmetic training.

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Acknowledge

Cite: Taner Akbay S, Buğday U. Dermocosmetic Training in Dermatology Residency in Türkiye: Current Status and Changes Over Time. Acta Medica Dr. 2026;2(2):21-9.

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