



Family physicians' perceptions and referral preferences for dermatologists in cutaneous and cosmetic procedures: A nationwide study

Aile hekimlerinin kutanöz ve kozmetik girişimler konusundaki algıları ve dermatologlara yönlendirme tercihleri: Ülke çapında bir çalışma

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Abstract

Background and Design: Dermatologic issues constitute a considerable portion of primary care visits, with a steadily increasing demand for cutaneous and cosmetic procedures. Family physicians (FPs) play a pivotal role in addressing these patients and directing them to the appropriate specialties. However, studies on FPs' perceptions and referral practices for cutaneous and cosmetic procedures are limited.

Materials and Methods: An online survey was created and distributed to FPs working in Türkiye. Participants were asked to provide demographic and professional information and identify the specialists to whom they primarily referred their patients for various procedures. Additionally, participants were asked to indicate whether they had educational needs regarding these procedures and to specify their preferred methods for receiving such training.

Results: A total of 387 FPs completed the survey. Dermatologists were the preferred specialists for procedures such as biopsies for suspicious skin and nail lesions (91.7% and 89.4%, respectively), facial and non-facial skin cancer treatments (78.6% and 81.5%, respectively), laser treatments (77.5%), platelet-rich plasma (PRP)/mesotherapy injections (74.9%), botulinum toxin injections (72.9%), hair transplantation (54.8%), and ingrown toenail treatment (35.4%). General and orthopedic surgeons were also favored for the treatment of ingrown toenails (28.9% and 24.5%). Plastic surgeons were predominantly preferred for liposuction (84.5%) and thread application (45%). There were significant differences in the preferences of FPs for certain procedures according to their workplace and level of prior dermatology education. FPs expressed notable educational demands for botulinum toxin injections (62.5%), PRP/mesotherapy (61%), and ingrown toenail treatment (57.6%). Practical training programs were the most preferred method of education (89.6%).

Conclusion: This study emphasizes that FPs in Türkiye primarily refer patients to dermatologists for various cutaneous and cosmetic procedures, with other surgical specialists involved in certain cases. Interdisciplinary collaboration and the development of structured training programs are important to ensure patient safety and optimize the referral practices.

Keywords: Cosmetic procedures, cutaneous procedures, dermatology, family medicine, medical education

Öz

Amaç: Dermatolojik sorunlar birinci basamak başvurularının önemli bir bölümünü oluşturmakta olup, kutanöz ve kozmetik işlemlere yönelik talep giderek artmaktadır. Aile hekimleri (AH), bu hastaların karşılanmasında ve uygun uzmanlık dallarına yönlendirilmesinde önemli bir rol oynamaktadır. Ancak, AH'lerin kutanöz ve kozmetik işlemlere ilişkin algılarını ve hastaları yönlendirme tercihlerini yansıtan çalışmalar sınırlıdır.

Gereç ve Yöntem: Türkiye'de görev yapan AH'lere yönelik çevrimiçi bir anket hazırlanmıştır ve dağıtılmıştır. Katılımcılardan demografik ve mesleki bilgilerini paylaşmalarını, çeşitli kutanöz ve kozmetik işlemler için hastalarını hangi uzmanlık alanına yönlendirmeyi tercih

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ettiklerini belirtmeleri istenmiştir. Ayrıca, katılımcılara bu işlemlerle ilgili eğitim ihtiyaçlarının olup olmadığı ve bu eğitimler için hangi yöntemleri tercih ettikleri sorulmuştur.

Bulgular: Toplam 387 AH anketi tamamlamıştır. Şüpheli deri ve tırnak lezyonlarından biyopsi alınması (%91,7 ve %89,4), yüz ve vücuda yerleşen deri kanserlerinin tedavisi (%78,6 ve %81,5), lazer tedavileri (%77,5), botulinum toksin enjeksiyonları (%72,9), trombositten zengin plazma (TZP)/mezoterapi enjeksiyonları (%74,9), saç ekimi (%54,8) ve tırnak batması tedavisi (%35,4) gibi işlemler için dermatologlar en çok tercih edilen uzmanlar olmuştur. Tırnak batması tedavisinde genel cerrahlar ve ortopedistler de sırasıyla %28,9 ve %24,5 oranında tercih edilmiştir. Plastik cerrahlar ise ağırlıklı olarak liposuction (%84,5) ve ip uygulamaları (%45) için tercih edilmiştir. AH'lerin bazı işlemler için tercihleri, çalışma yerlerine ve önceki dermatoloji eğitimi düzeylerine göre anlamlı farklılıklar göstermiştir. AH'ler botulinum toksin enjeksiyonları (%62,5), TZP/mezoterapi (%61) ve tırnak batması tedavisi (%57,6) için ileri eğitime ihtiyaçları olduğunu ifade etmişlerdir. Pratik eğitim programları (%89,6), bu tür eğitimler için en çok tercih edilen yöntem olmuştur.

Sonuç: Bu çalışma, Türkiye'de AH'lerin, deri ve kozmetik işlemler için hastalarını öncelikli olarak dermatologlara yönlendirdiklerini, bazı işlemler için diğer cerrahi uzmanlık dallarının da tercih edildiğini ortaya koymaktadır. Hasta güvenliğini artırmak ve sevk uygulamalarını optimize etmek için disiplinler arası iş birliği ve yapılandırılmış eğitim programlarının geliştirilmesi önem taşımaktadır.

Anahtar Kelimeler: Aile hekimliği, dermatoloji, kozmetik işlemler, kutanöz işlemler, tıp eğitimi

Introduction

The demand for cutaneous and cosmetic interventions has been steadily increasing, and dermatology has become more procedure-oriented than ever before^{1,2}. Dermatologists have not only expanded their practical expertise but have also established themselves as academic pioneers in the field³. Despite these achievements, only a few studies have explored the perceptions of dermatologists' roles in cutaneous surgery and cosmetic procedures among other medical specialties, particularly family physicians (FPs)⁴. Understanding FPs' perceptions is crucial, as they are frequently the first point of contact and play a key role in directing patients to appropriate specialists in the healthcare system. The overlap of dermatologists' responsibilities with other specialties, such as plastic surgery, otolaryngology, general surgery, and orthopedics, further blurs the boundaries and complicates referral practices and interdisciplinary collaboration.

This study aimed to identify the specialists primarily preferred by FPs for referring patients seeking cutaneous and cosmetic procedures. It also explored whether FPs expressed a need for additional training in these areas. By analyzing referral patterns and educational needs, this study aims to offer suggestions about how FPs guide patients in this growing field. These findings may contribute to the development of more effective referral strategies, ensuring that patients have access to appropriate expertise and accurate information regarding these procedures.

Materials and Methods

This study was designed as a cross-sectional survey. The survey was created using Google Forms (<http://forms.google.com>) and distributed to FPs working in Türkiye through online communication platforms. The survey questions were organized into three main sections to ensure a comprehensive evaluation. The first section gathered demographic and general professional information, including the participants' gender, years of practice, workplace details, and patient load. The second section focused on referral preferences and asked participants to identify the specialists to whom they would refer patients for various procedures. Each referral-related question allowed participants to select only one specialty to simplify the analysis and highlight their primary preferences. The third section explored the participants' opinions on the necessity of training in specific dermatological and cosmetic procedures. Responses were gathered using a 5-point Likert scale (1= Strongly disagree, 5= Strongly agree). Additionally, participants were asked about their preferred methods and sources for obtaining further

dermatology-related education and training. The survey underwent a pilot testing phase with a sample of 20 FPs to ensure its clarity, relevance, and reliability. Feedback from the pilot group was used to refine the question wording and format. The final version of the survey was reviewed by the authors to confirm its validity.

A power analysis was conducted to determine the required number of participants for the study. The sample size was calculated using a 95% confidence interval, 80% statistical power, and a small effect size (Cohen's $h=0.2$). According to the 2023 Health Statistics Yearbook, there were 28,054 FPs in Türkiye⁵. Applying a finite population correction, the minimum required sample size was determined to be 388. Once the target number of participants was reached, further participation in the survey was terminated. Statistical analyses were performed using SPSS version 23.0 for Mac (SPSS Inc., Chicago, IL, USA). Normality tests were performed, and appropriate descriptive statistics were provided based on the data distribution. The chi-square test was used to evaluate the differences between categorical variables. Statistical significance was set at $p<0.05$. Heatmaps and bar charts were created using ChatGPT, a large language model developed by OpenAI (OpenAI, 2024). Participant anonymity was maintained throughout the study. Ethical Committee of Istanbul Medipol University Non-Interventional Clinical Research (approval number: 1024, date: 24.10.2024), and the study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki for medical research involving human subjects.

Results

A total of 395 FPs participated in the survey; however, 387 completed it fully, achieving a completion rate of 97.9%. Table 1 provides an overview of the demographic and professional characteristics of the 387 participants.

The participants were distributed across Türkiye, with the Marmara region contributing the most (174, 44.8%), followed by Central Anatolia (57, 14.7%) and the Mediterranean region (50, 12.9%). The Aegean (44, 11.3%), Black Sea (41, 10.6%), Southeast Anatolia (12, 3.1%), and Eastern Anatolia (10, 2.6%) regions had lower representations (Figure 1).

The daily patient number reported by the surveyed participants had a median of 60 patients per day, with an interquartile range of 35 patients (40-75). Among the 387 participants, 161 (41.6%) reported that 3-5 of their daily patients had dermatologic complaints, while 167 (43.2%) reported managing more than five such patients daily. In contrast, 13

participants (3.4%) did not encounter any patients with dermatologic complaints. On a weekly basis, 145 participants (37.5%) reported encountering at least one patient with suspected or confirmed skin cancer. Similarly, 232 participants (59.9%) reported interacting with patients seeking cosmetic procedures or information related to these procedures (Figure 2). Additionally, 296 participants (76.5%) indicated that they referred at least one patient to dermatology on a weekly basis (Figure 3).

Figure 4 presents a heatmap of the surveyed participants' referral preferences for various procedures across different specialties. Accordingly, surveyed participants predominantly referred suspicious skin and nail lesions for biopsy to dermatologists, with 91.7% and 89.4%, respectively, indicating dermatologists as their first choice for referral. Similarly, dermatologists were the primary referral specialty for treating skin cancer, with 78.6% and 81.7% for facial and non-facial skin cancers, respectively. For the cosmetic removal of benign facial lesions, participants primarily referred patients to plastic surgeons (52.5%) and dermatologists (46.8%). In contrast, for the removal of benign non-facial lesions, dermatologists were the most preferred (49.1%), followed by plastic (42.6%) and general surgeons (8.3%).

Among minimally invasive cosmetic procedures, dermatologists were the most frequently preferred for chemical peeling (79.6%), laser treatments (77.5%), botulinum toxin injections (72.9%), and dermal filler applications (64.6%), with plastic surgeons (2.8%, 4.4%, 11.6%, and 21.4%, respectively) and medical estheticians (15.5%, 15.0%, 7.8%, and 7.5%, respectively) being secondary choices. Plastic surgeons were the most commonly chosen for liposuction (84.5%) and subcutaneous thread applications (45.0%).

For hair treatments, dermatologists were the primary choice for platelet-rich plasma (PRP) and mesotherapy injections (74.9%) and hair transplantation (54.8%), while medical estheticians (13.7% and 18.9%, respectively) and plastic surgeons (6.2% and 22.2%, respectively) were preferred as alternative options. Dermatologists were the first referred specialty for ingrown toenail treatment (35.4%), although general (28.9%) and orthopedic (24.5%) surgeons were also frequently consulted. Similarly, nail tumor treatment was primarily

referred to dermatologists (55.3%), with plastic surgeons (17.1%), orthopedic surgeons (14.7%), and general surgeons (11.4%) also being considered.

The subsequent analysis examined the relationship between physicians' preferences for specific procedures and the type of institution where the participants worked. The results revealed that FPs employed in primary care health facilities were more likely to prefer non-dermatologist specialists for procedures such as botulinum toxin injections, PRP and mesotherapy injections, and ingrown toenail treatments than their counterparts in hospitals or academic institutions ($p=0.007$, $p=0.002$, and $p=0.006$, respectively). Figure 5 illustrates the proportion of participants' preferences for dermatologists versus other specialties for relevant procedures, categorized by the type of institution in which they worked. When participants were asked which procedures they believed FPs should be trained in, the highest agreement rates (responses of "agree" and "strongly agree") were observed for the following: botulinum toxin injection (242 participants, 62.5%), PRP and mesotherapy for hair loss (236 participants, 61.0%), and ingrown toenail treatment

Table 1. Demographic and professional characteristics of participants

Characteristics		Participants (n=387)
Gender, n (%)	Female	235 (60.7)
	Male	152 (39.3)
Position, n (%)	FM resident	263 (68)
	FM specialist	93 (24)
	Authorized GP	27 (7)
	Other specializations	4 (1)
Workplace, n (%)	Primary care health facility	213 (55)
	Hospital or academic institution	174 (45)
Years in practice, median (min-max)		8 (1-42)
Years as FP, median (min-max)		5 (0-20)
FM: Family medicine, GP: General practitioner		

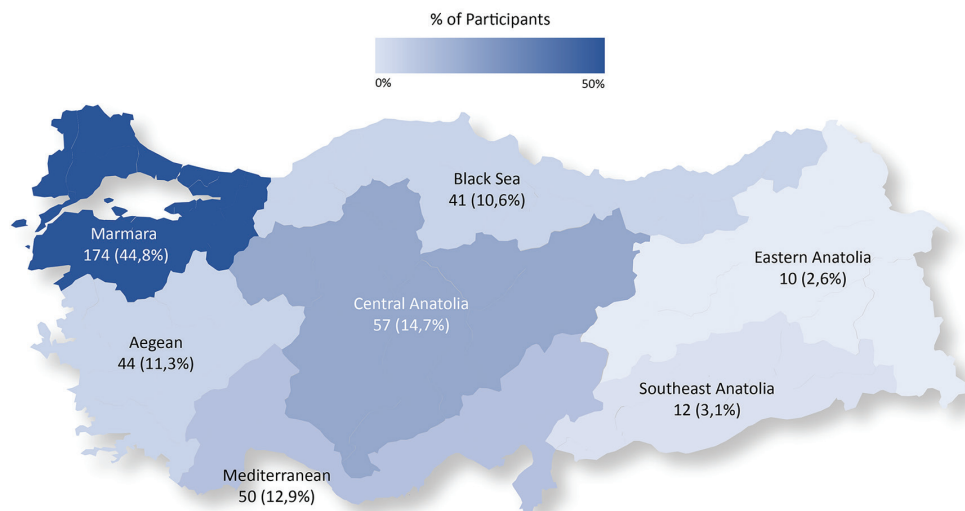


Figure 1. Regional representation of participants across Türkiye

(223 participants, 57.6%). Conversely, the procedures with the highest disagreement rates (responses of "disagree" and "strongly disagree") were liposuction (244 participants, 63.0%), thread application (199 participants, 51.4%), and diagnostic biopsy for nail diseases (187 participants, 48.3%). Figure 6 shows the distribution of participants' responses to various procedures.

Additionally, participants were asked questions regarding their dermatology education background and preferences (Table 2). The majority of participants (86.8%) reported receiving dermatology-

related education during medical school, while 58.2% received training during residency; however, only 8.1% continued to receive post-residency training. Regarding preferred methods for further education, practical training programs were the most favored (89.6%), followed by seminars and conferences (66.5%). When participants were asked about their preferred sources for dermatology training, academicians at universities and research hospitals were selected by the majority (96.4%), while professional organizations (30.4%) and physicians at private healthcare institutions (24.2%) were less commonly preferred.

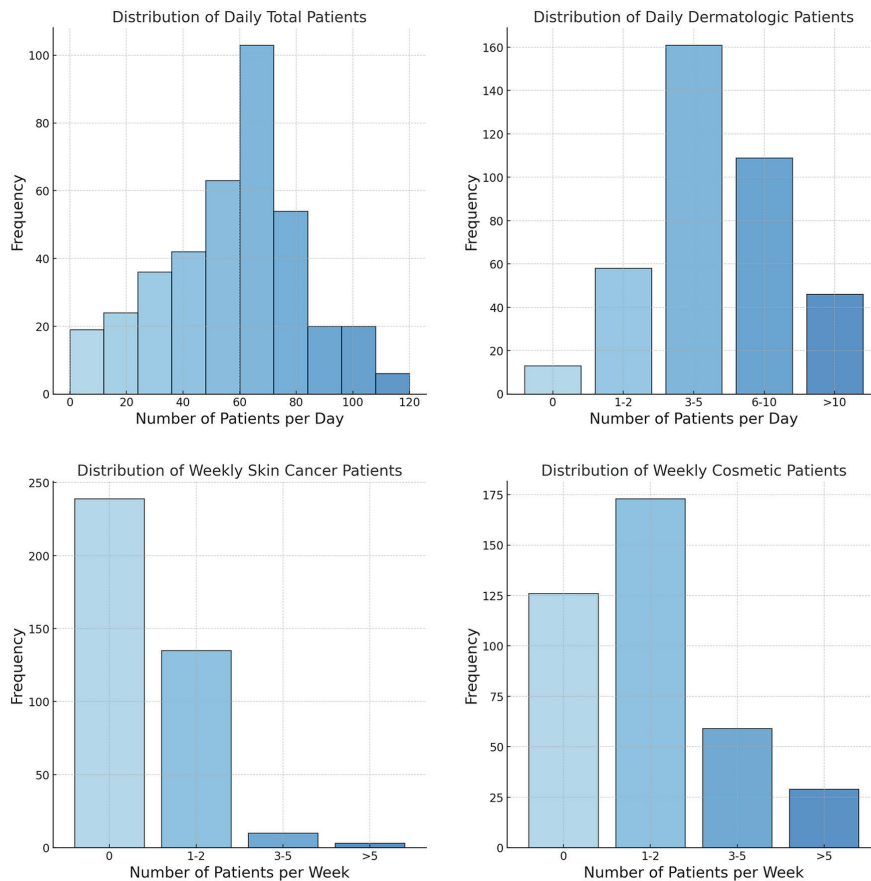


Figure 2. Distribution of the number of patients in the family medicine practice of the participants

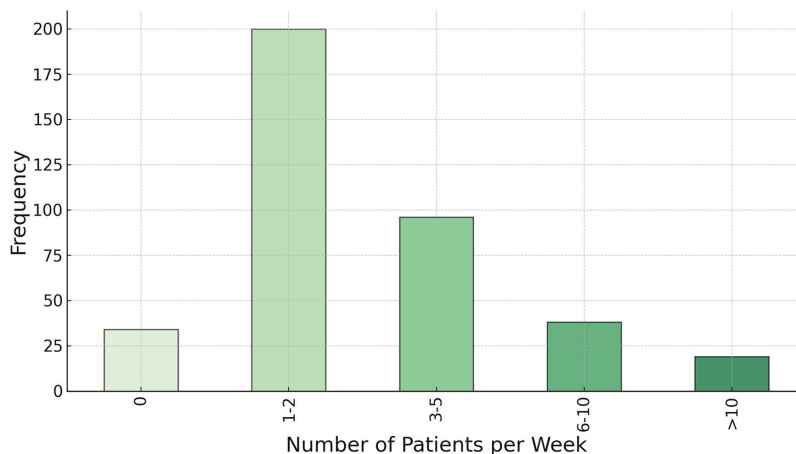


Figure 3. Distribution of the weekly number of patients referred to dermatology by the participants

Finally, we analyzed whether the level of dermatology training received by the participants influenced their physician preferences for each procedure. When comparing those who received dermatology education only in medical school with those who pursued additional training after graduation, a statistically significant preference for dermatologists was observed only for ingrown toenail treatment (Figure 7). Accordingly, participants with postgraduate dermatology training preferred dermatologists more often than those without such training (42.7% vs. 25.3%, respectively, $p < 0.001$).

Discussion

This study provides valuable insights into the perceptions and referral preferences of FPs in Türkiye for cutaneous and cosmetic procedures. The findings highlight that FPs perceive dermatologists as central to

managing various procedures, particularly in treating skin cancers, hair and nail diseases, and minimally invasive cosmetic interventions. Additionally, the study revealed that FPs, who play a critical role in primary healthcare, expressed a significant demand for training in certain dermatologic and cosmetic procedures. To ensure patient safety and improve outcomes, it is crucial to foster interdisciplinary collaboration and develop training programs that guide patients toward the most qualified specialists.

Dermatological complaints constitute a significant proportion of primary care visits. Previous studies conducted in the United States of America (USA) have reported that 8% to 36.5% of daily primary care patient visits involve dermatological issues⁶⁻⁸. Although large-scale retrospective studies evaluating primary care patient visits in Türkiye are lacking, nearly half of the FPs in our study reported managing more than five patients with dermatological complaints per day. Despite the high proportion

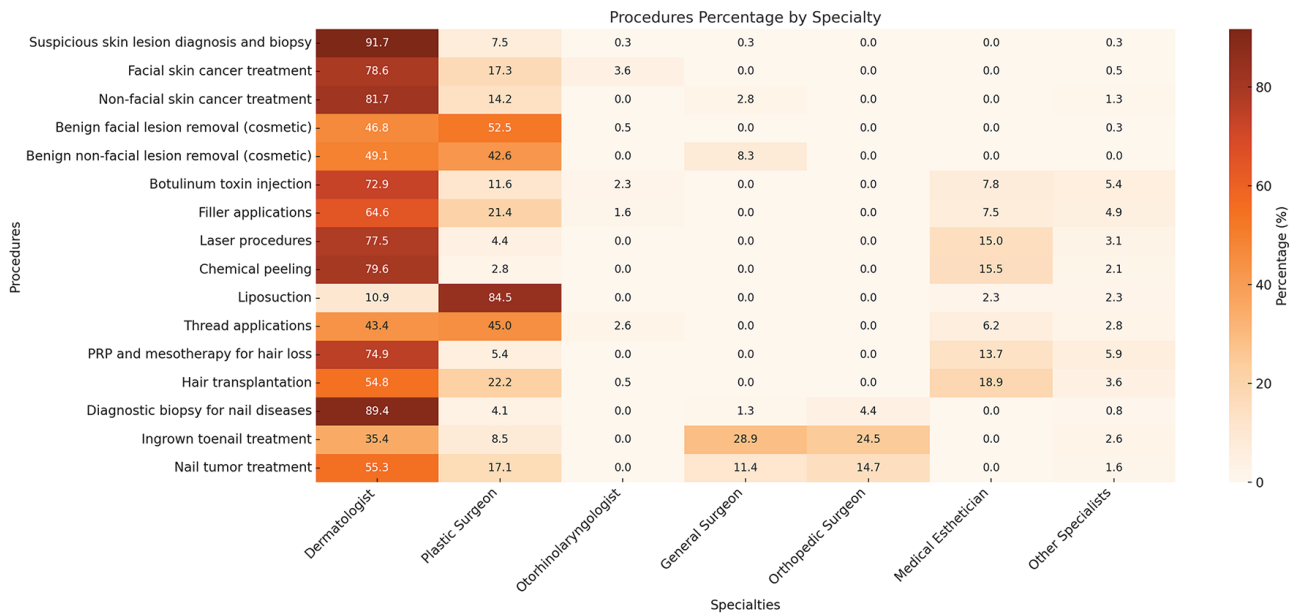


Figure 4. Distribution of participants' referral preferences by specialty for various dermatologic and cosmetic procedures. The heatmap illustrates the percentage distribution of participants' referral preferences across different specialties. Rows represent procedures, columns indicate medical specialties, and color intensity reflects the percentage of each procedure associated with a particular specialty

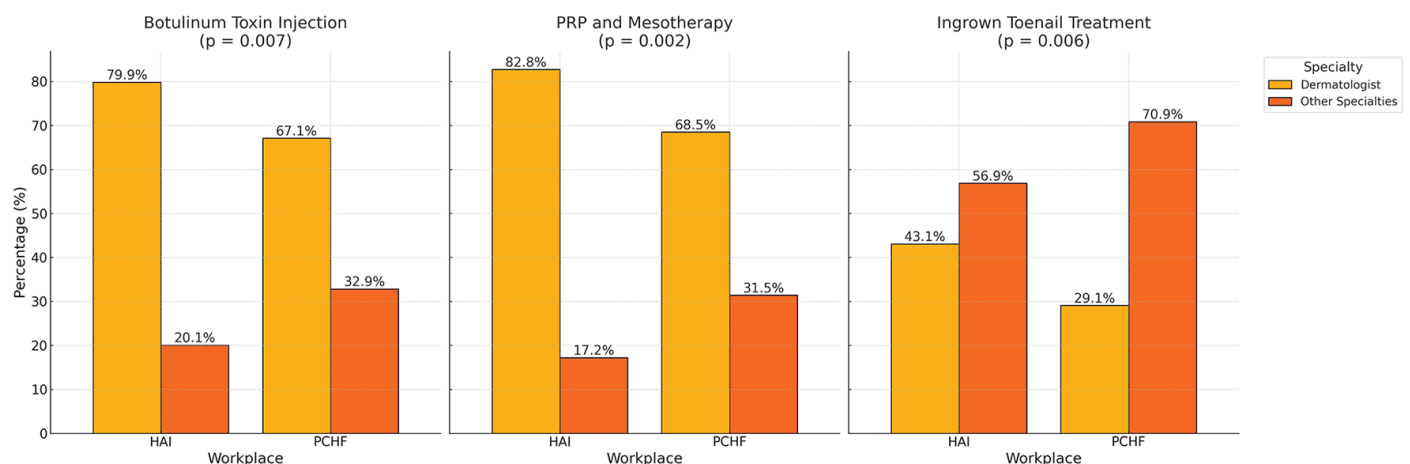


Figure 5. Illustrates the distribution of participants' referral preferences for procedures with a statistically significant difference by workplace.

HAI: Hospital or academic institution, PCHF: Primary care health facility, PRP: Platelet-rich plasma

of dermatologic patients, referral rates varied significantly across the studies. Lowell et al.⁸ reported a 37.5% referral rate in their patient cohort, whereas Fien et al.⁷ documented extremely low referral rates. In contrast, 76.5% of the participants in our study reported that they referred at least one patient to dermatology weekly, demonstrating that FPs in Türkiye frequently feel the need to refer their patients to dermatologists.

Previous studies have demonstrated that FPs who completed a dermatology rotation during residency⁹ or participated in short-term

dermatology training programs^{10, 11} achieved better diagnostic and referral accuracy for several skin conditions, particularly skin cancer. However, only a few studies have evaluated FPs' preferences for referring patients seeking cutaneous or cosmetic interventions. A study from the USA conducted by Ibrahim et al.⁴ found that primary care physicians (PCPs) overwhelmingly view dermatologists as the most qualified specialists for various procedures. Dermatologists were the first choice for evaluating and performing biopsies of worrisome skin lesions (95%), laser treatment (75%), botulinum toxin injection (61%),

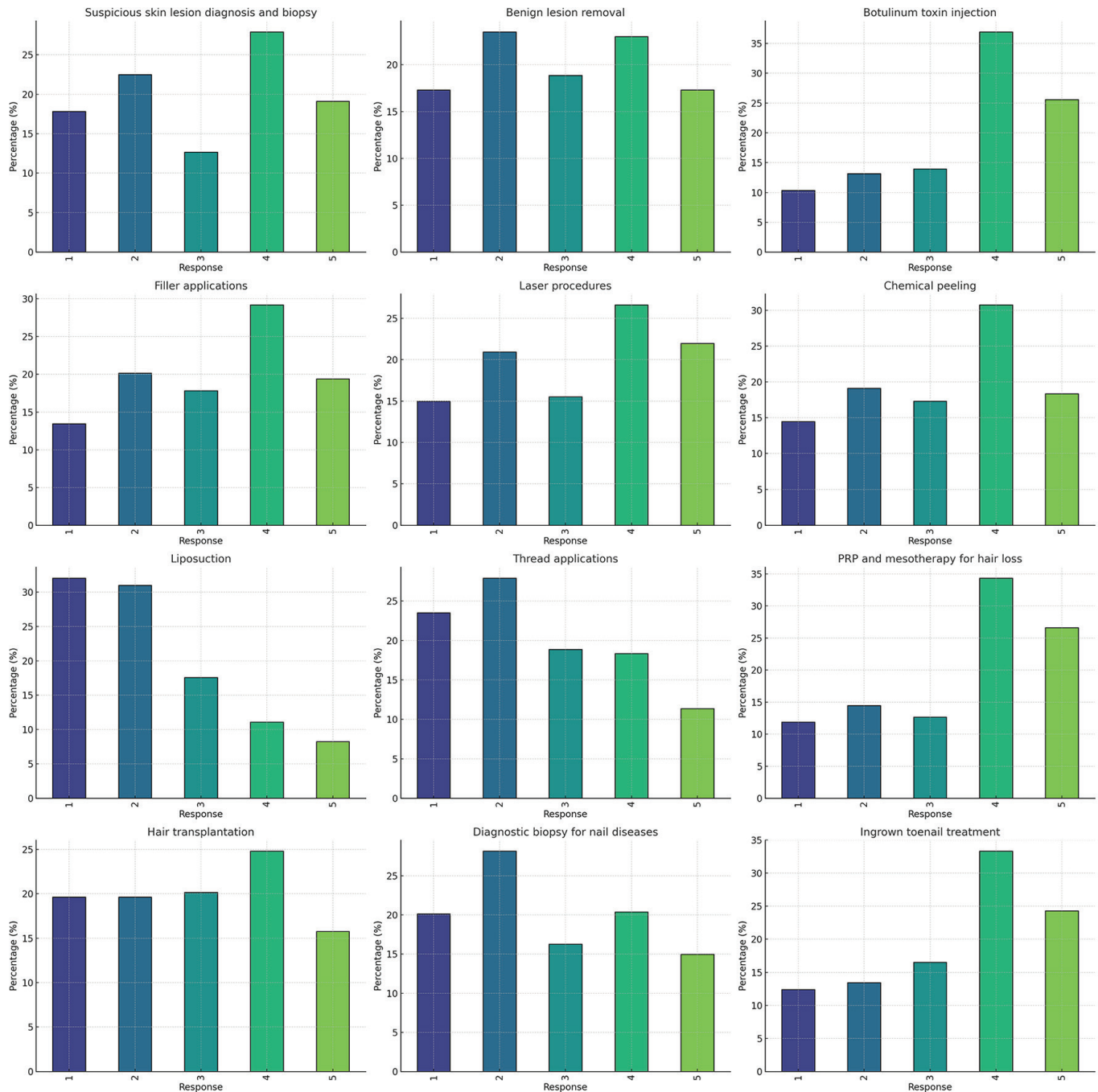


Figure 6. Percentage distribution of participants' Likert-scale responses (1= Strongly disagree, 5= Strongly agree) to the question of whether they needed training for various procedures

PRP: Platelet-rich plasma

skin cancer surgery (56%), and filler injection (55%). In contrast, PCPs in the USA predominantly preferred plastic surgeons for liposuction (97%) and hair transplantation (67%) procedures. Another study from the USA also showed that PCPs perceive dermatologists as the preferred experts for treating skin cancers on the face (89%)¹². These findings reflect the primary role of dermatologists in the diagnosis and treatment of skin cancers and in performing minimally invasive cosmetic procedures. However, as demonstrated in our study, there is an overlap between specialties for certain procedures, indicating that there is no firmly established delineation of responsibility. The development of official guidelines and referral algorithms could help clarify this ambiguity.

A more recent study by Alfurayh et al.¹³ from Saudi Arabia reinforced the prominent role of dermatologists in performing a wide range of surgical and cosmetic procedures. They found that dermatologists were the most frequently selected specialists by PCPs for performing hair transplantation (60%), laser treatments (60%), removal of small nevi (56%), botulinum toxin injections (49%), filler applications (49%), and excision of small benign and malignant skin tumors (46%). The study also noted an overlap between dermatologists and plastic surgeons in nail surgery and scar correction. Similar to the data from the USA, there was a significant preference for plastic surgeons for liposuction (64%). Additionally, awareness of dermatologic surgery as a subspecialty was higher among FPs working in tertiary healthcare settings and those with prior exposure to dermatology clinics. This reflects a greater awareness of dermatologists' competence in interventional procedures among PCPs who closely collaborate with dermatologists.

Our study also found that FPs working in hospital and academic settings were more likely than those in primary healthcare centers to prefer dermatologists over other specialists for procedures such as botulinum toxin injections, PRP and mesotherapy applications, and ingrown toenail treatments. This preference may be attributed to the closer collaboration between FPs and dermatologists in secondary and tertiary care settings, fostering greater trust in dermatologists for these procedures. While postgraduate dermatology training did

not significantly influence physicians' overall preferences, it impacted ingrown toenail treatment preferences, with FPs who received postgraduate dermatology training being more likely to choose dermatologists than those without such training. These findings emphasize the value of continued interdisciplinary collaboration and structured training programs in increasing FPs' awareness of the central role dermatologists play in these areas.

A survey conducted by Özyurt et al.¹⁴ in Türkiye highlighted the knowledge levels and educational needs of FPs regarding common dermatological disorders; however, it did not examine cutaneous or cosmetic procedures. In our study, the participating FPs expressed a

Table 2. Participants' educational background and preferences

Questions	Responses (n=385)
Have you received any training on dermatologic diseases or procedures?	
Received training in medical school	334 (86.8%)
Received training during residency	224 (58.2%)
Received post-residency training	31 (8.1%)
Did not receive any training	6 (1.6%)
What are your preferred methods for further education in dermatology?	
Practical training programs	345 (89.6%)
Seminars and conferences	256 (66.5%)
Online courses and webinars	181 (47.0%)
Professional books and guidelines	155 (40.3%)
What are your preferred sources for dermatology training?	
Academicians at universities or training and research hospitals	371 (96.4%)
Professional organizations and associations	117 (30.4%)
Physicians at private healthcare institutions	93 (24.2%)
*Participants could select multiple answers; therefore, the total percentages exceed 100%	

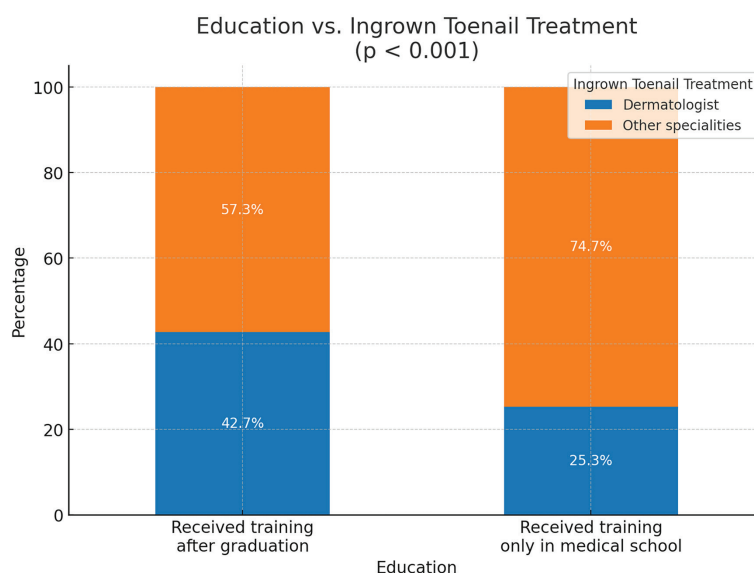


Figure 7. Distribution of participants' preferences by level of dermatology education for treating ingrown toenails

significant desire for training in procedures such as botulinum toxin injections, PRP/mesotherapy, and ingrown toenail treatments. Practical training programs were identified as the most preferred method for acquiring such education, indicating a strong demand for hands-on learning. Although our study did not specifically investigate the motivations driving these training demands, reports from the USA^{15, 16} suggest that FPs are often motivated to adopt minimally invasive procedures by a combination of professional satisfaction from performing procedures, opportunities to diversify their practice, and the potential for increased revenue. However, integrating these procedures into family medicine presents serious difficulties for healthcare systems. These include the risks of inadequate training leading to complications, potential diversion of focus from core primary care responsibilities, and overlapping roles with specialists, such as dermatologists and plastic surgeons. Addressing these issues is of utmost importance in maintaining the core principles of family medicine, which provides patient-centered, lifelong care that promotes health, prevents disease, and supports the well-being of both individuals and their families.

Study Limitations

This study had several limitations. The use of an online survey may introduce selection bias, as participants with a stronger interest in dermatology may have been more likely to respond. The cross-sectional design captures perceptions at a single point, limiting the ability to observe changes over time. Furthermore, regional disparities in representation may affect the generalizability of these findings. Future research should address these limitations by incorporating longitudinal designs and more representative sampling methods.

Conclusion

This investigation offers useful information about FPs' perceptions of dermatologists and their referral practices for cutaneous and cosmetic procedures from a local perspective. The findings indicate that FPs consider dermatologists to be the most qualified specialists, particularly for diagnosing suspicious skin and nail lesions, treating skin cancer, performing various minimally invasive cosmetic procedures, and managing hair and nail disorders. Additionally, this study highlights the strong demand among FPs for training in minimally invasive procedures. To ensure patient safety and optimize referral practices, interdisciplinary collaboration should be increased, and structured training programs should be developed to guide patients to the most appropriate specialist.

Ethics

Ethics Committee Approval: Ethics committee approval was obtained from Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee (approval number: 1024, date: 24.10.2024).

Informed Consent: Electronic informed consent was obtained from all participants prior to completing the survey; participation was voluntary and responses were collected anonymously.

Footnotes

Authorship Contributions

Surgical and Medical Practices: O.E., M.S.G., Concept: O.E., B.E.Ş., L.H.T., T.H.A., M.S.G., Design: O.E., B.E.Ş., L.H.T., M.S.G., Data Collection or

Processing: O.E., B.E.Ş., L.H.T., T.H.A., M.S.G., Analysis or Interpretation: O.E., M.S.G., Literature Search: O.E., L.H.T., T.H.A., M.S.G., Writing: O.E., L.H.T., M.S.G.

Conflict of Interest: No conflict of interest was declared by the authors.

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