

Original Article



Survey on Resident Education for Surgical Dermatology in South Korea

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Received: Oct 31, 2023

Revised: Dec 8, 2023

Accepted: Dec 11, 2023

Published online: Apr 2, 2024

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ABSTRACT

Background: With the increasing demand for surgical procedures in dermatology, resident education in surgical dermatology has become important for delivering high-quality treatment. However, it remains unclear if a sufficient number of residency programs with quality standards exist, as there has been little research on this subject in South Korea.

Objective: To identify the status of surgical dermatology education among residents and assess dermatologists' perceptions of the subject.

Methods: A 35-question survey was developed and distributed to all resident training hospitals and local clinics listed by the Korean Society of Dermatologic Surgery. Only third- and fourth-year residents were included and board-certified specialists from training hospitals and local clinics responded to the surveys.

Results: Survey participants included 88 residents and 120 specialists of whom one-quarter of the residents attended regular monthly educational sessions. Most residents (93%) participated in cosmetic procedures, and many performed laser therapy. However, the opportunity for toxin or filler injection was rare, with only 12% of the residents having experience with filler injections. In response, 49% of residents and 32% of specialists said that more cosmetic training was required, whereas 28% of residents and 50% of specialists said that more training for both cosmetic and conventional surgeries was necessary.

Conclusion: The survey demonstrated a need for more training programs in surgical dermatology during residency and a perception gap between residents and specialists. Therefore, developing educational residency programs that focus on basic dermatologic surgery principles and their applications in cosmetic procedures is essential.

Keywords: Cosmetic techniques; Dermatologic Surgical Procedures; Education; Residency; Survey

INTRODUCTION

Over the past few decades, the field of dermatology has witnessed significant changes in terms of diversity and complexity. In the past, emphasis was primarily on the diagnosis and medical treatment of cutaneous diseases; however, there has been a gradual shift toward performing more surgical procedures. The incidence of skin cancer is increasing, leading to an increase in skin cancer surgeries^{1,2}. Additionally, there is a growing demand for a wide range of minimally invasive cosmetic procedures, from injectable treatments, such as botulinum toxin and fillers, to various treatments using energy-based devices, including lasers. This has prompted dermatologists to practice aesthetic procedures more than in the past³; however, dermatology residency education has not evolved at the same rate in the real world.

Undoubtedly, dermatosurgical procedures should be performed based on sound knowledge and well-trained surgical technique, but providing high-quality education to residents may be challenging during residency training^{4,5}. Currently, surgical dermatology training is grudgingly included in residency curricula and varies depending on individual training institutes. Good surgical skills must be taught early in a doctor's career to perform well. Although it is essential to first assess the current state of dermatosurgical training before discussing the ideal objectives and appropriate levels of surgical skills, there is currently limited data on this subject in South Korea. Therefore, we surveyed the state of surgical dermatology education among dermatologists and tried to assess the perceptions of board-certified dermatologists (specialists) and learners (residents) on this subject.

MATERIALS AND METHODS

This multi-institute, cross-sectional study assessed the status of surgical dermatology education using a 35-question survey. The survey comprised eight questions on demographics, three on education, fifteen on residents' experiences, and nine on specialists' experiences (**Supplementary Data 1 and 2**). An Institutional Review Board (IRB) application was submitted, and the survey was granted an exemption (Seoul National University Hospital, IRB No.2201-013-1287). The survey was distributed by mail to all resident training hospitals and local clinics listed by the Korean Society of Dermatologic Surgery (KSDS). Only third- and fourth-year residents were included, as first- and second-year residents typically have little experience in dermatologic procedures, especially cosmetic procedures, in most training hospitals. Specialists from training hospitals and local clinics responded to the survey. The questions addressed the quantity and methods of dermatosurgical training and opinions regarding the level and state of

surgical procedures expected in the future. The survey also asked about the evaluation of the current educational program. Descriptive statistics, including frequency tables for categorical variables, were generated in Microsoft Excel (Microsoft Corporation, Redmond, WA, USA). Chi-square and Fisher's exact tests were used to compare the differences in perceptions. Statistical analyses were performed using IBM SPSS (version 23.0; IBM Corporation, Armonk, NY, USA) for Windows, and a p -value < 0.05 was considered statistically significant.

RESULTS

Demographics

Thirty-nine of the 51 institutions (76%) responded to the survey. The response rates of training hospitals and local clinics were 89% (22 of 27 institutes) and 71% (17 of 24 institutes), respectively. Eighty-eight residents and 120 specialists responded, and there were more men than women. Among the specialists who responded to the survey, 84 (70%) worked in training hospitals, and 36 belonged to local clinics. The number of residents was smaller than that of specialists because only third- and fourth-year residents were included in this study. Most residents wanted to enter local clinics as employees or operate private clinics, and 21% wanted academic careers in university hospitals after completing training. Most specialists who responded had less than 20 years of clinical experience after acquiring board membership (**Fig. 1**).

Curriculum and clinical exposure

Residents usually acquire surgical knowledge through lectures at academic conferences rather than from the curriculum in training hospitals; however, they also gain practical experience from training hospital clinics to develop surgical skills. Regardless, opportunities for surgical skills and knowledge training are limited for residents. Only 25% had regular surgical education programs more than once per month (**Fig. 2**). When trained, they typically used artificial skin (62.5%), and only 17% had experience with pig feet and had never worked with cadavers. By contrast, they actively participated in cosmetic procedures performed by specialists (**Fig. 3**). Many residents had experience with cosmetic procedures, but most were limited to laser therapies, and there was little familiarity with toxins (44%) or filler injections (11.9%) (**Fig. 4**).

Perception of training

Fig. 5 shows how dermatologists perceived surgical dermatology education. Residents preferred increased training in cosmetic procedures over conventional dermatosurgery; however, half of the specialists thought training for both was insufficient ($p < 0.001$).

Regarding satisfaction with the current surgical dermatology education, 40 of 88 residents (45.4%) and 35 of 84 specialists in training hospitals (41.7%) were satisfied or very satisfied, which was not statistically significant.

When we asked them, “What level do you think you should be at the end of residency?” we can infer that the residents did not want to undergo more conventional dermatosurgical training. They responded that excisional biopsy was essential, but competency in complicated surgical skills, such as cutaneous flaps, was not required. This was the same for the specialists. However, they reported contrasting results regarding cosmetic procedures. Residents thought that they should be proficient in most laser treatments and toxin or filler injections, but for more invasive cosmetic procedures, such as sclerotherapy, dermabrasion, photodynamic therapy, hair transplantation, and liposuction, they believed that observation or experience was sufficient. Specialists responded that observation or experience was sufficient for all types of cosmetic procedures, which was statistically significant ($p < 0.001$; Fig. 6).

DISCUSSION

Every year, approximately 70 residents in South Korea become board-certified dermatology specialists. The Korean Dermatological Association (KDA) controls the dermatology residency educational program, and an annual evaluation of their suitability is conducted to assess their eligibility for specialist certification. After completing the four-year training program, residents may choose to work in university hospitals, but most opt to work in private clinics. This trend is expected to continue, and approximately 80% of the surveyed residents planned to enter the local clinic market after training (Fig. 1). These specialists primarily focus on dermatological procedures, particularly cosmetic procedures. However, the market has become highly competitive. Dermatology specialists and physicians from various subspecialties have entered this field because of the increased demand driven by rising income levels and the distorted healthcare cost system in Korea. Given this situation, evaluating whether dermatology residents’ surgical education aligns adequately with the current reality is essential.

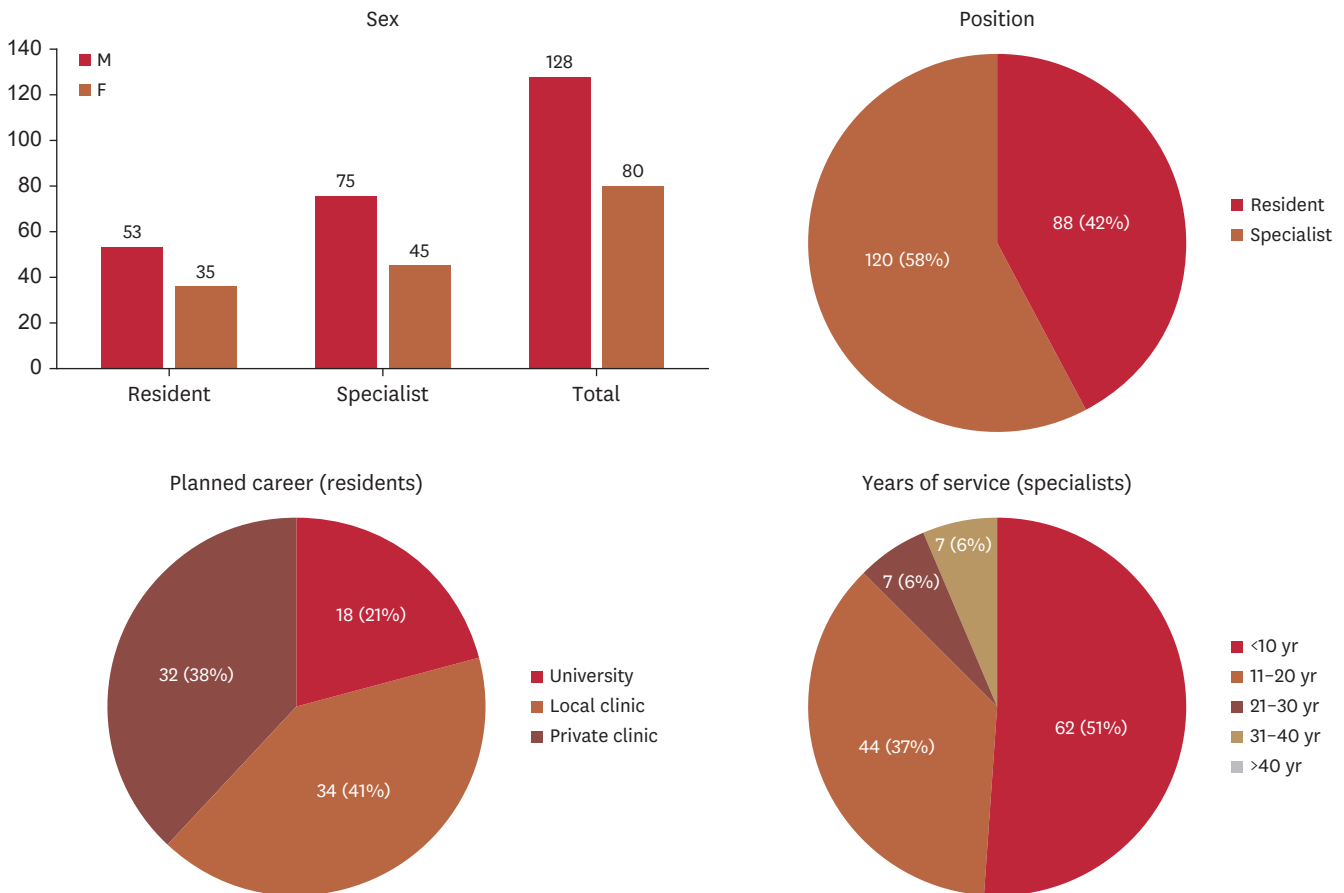


Fig. 1. Demographics of participants. M: male, F: female.

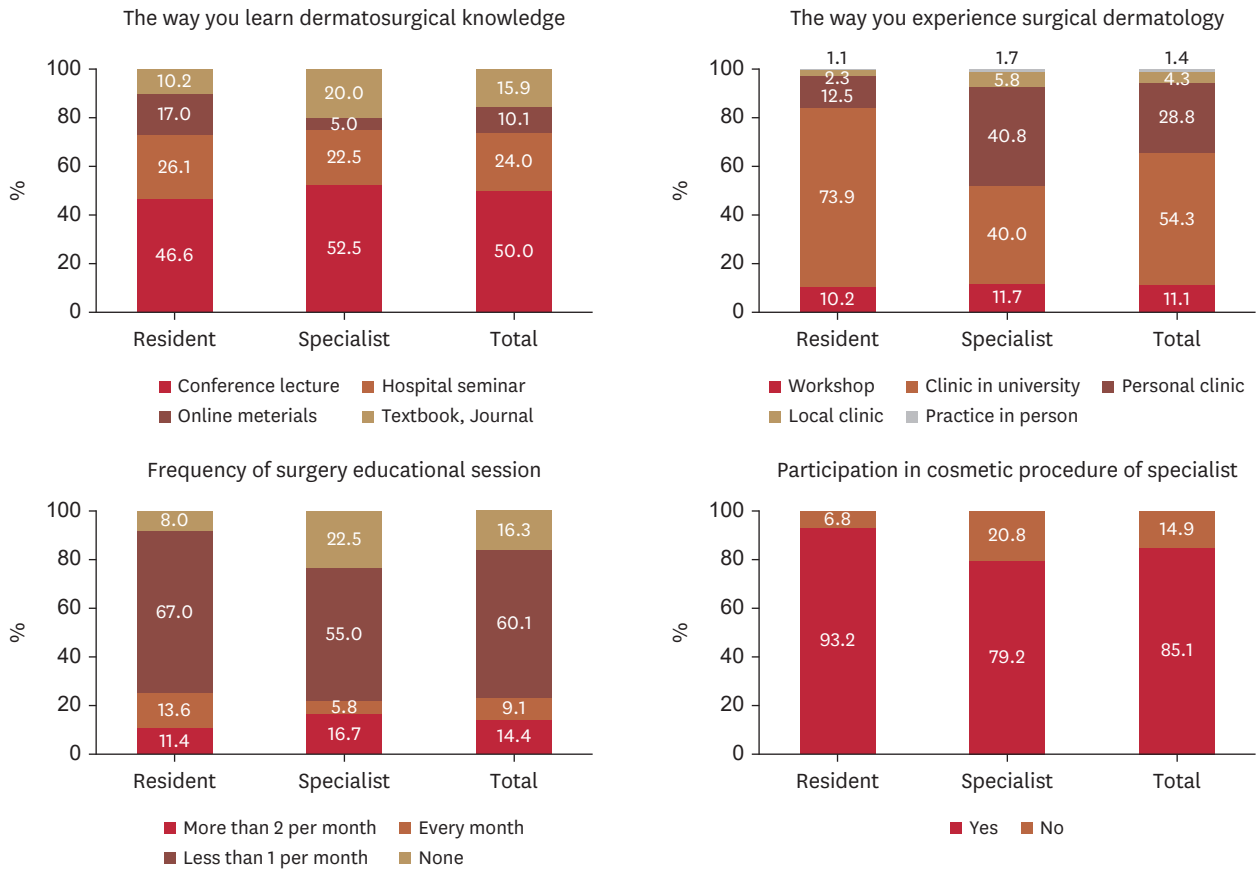


Fig. 2. The way and frequency of training for surgical dermatology currently.

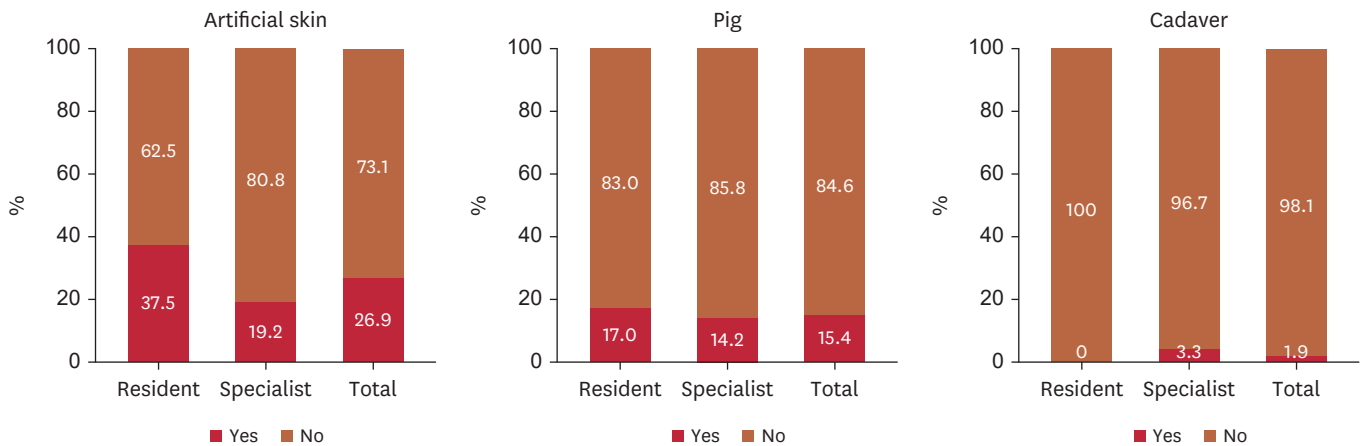


Fig. 3. Current training tools used for surgical practice.

However, in the real world, the quality of training varies among institutions, and opportunities to participate in conventional and cosmetic surgeries are limited. Therefore, most dermatologists acquire surgical skills through self-directed learning after obtaining board memberships. This was reflected in the survey results as shown in Fig. 2. The residents responded that they acquired more dermatosurgical knowledge through conference lectures than

hospital seminars. Although residents typically learn surgical skills through experience in the clinics of their training hospitals, regular educational programs for surgical dermatology are available in only approximately one-fourth of the training hospitals. This is much less than in other countries, where there have been constant efforts to improve the quality of dermatologic surgery training; 57% spend 10–30 hours, and 21% spend more than 30 hours

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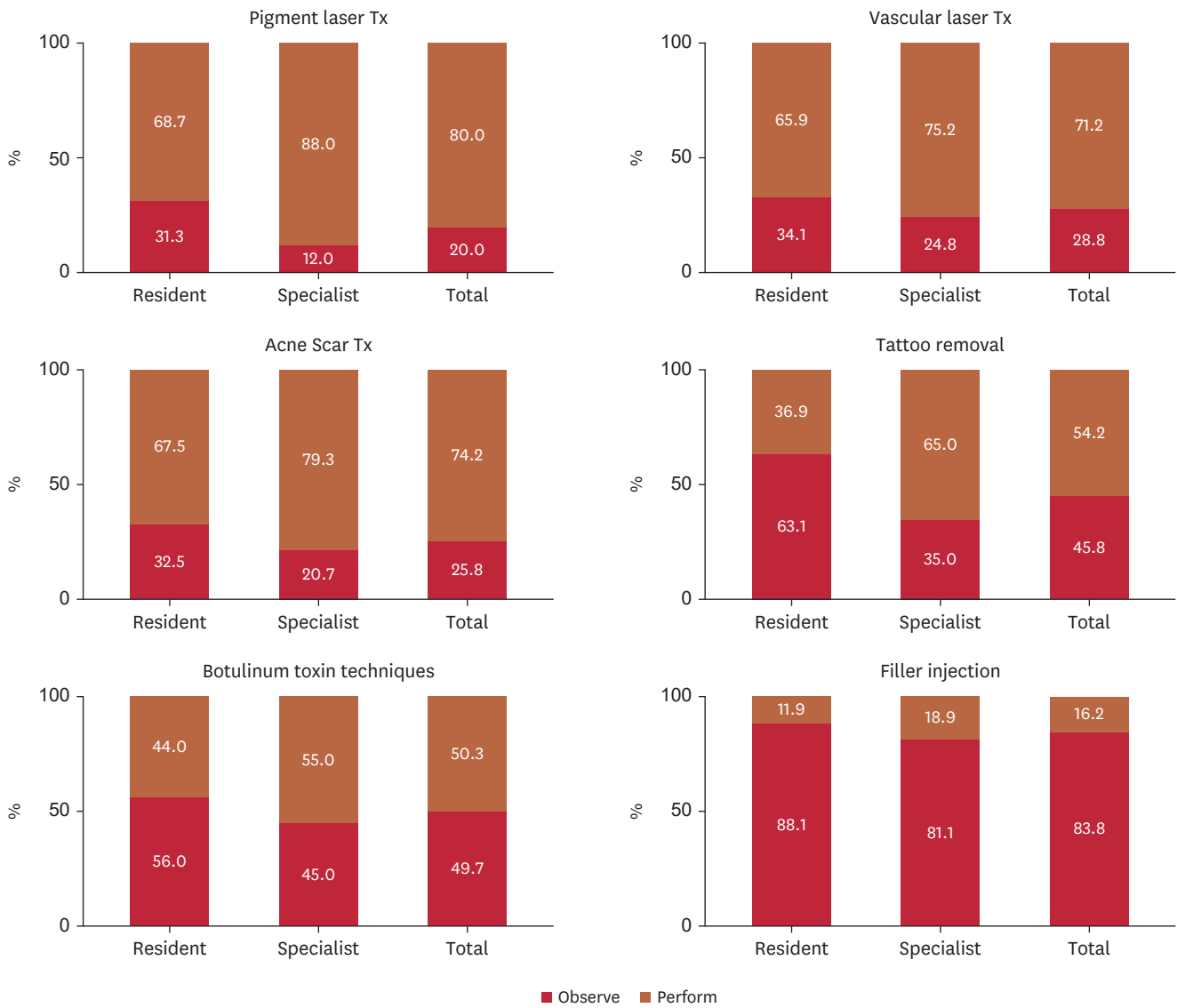


Fig. 4. Clinical exposure for cosmetic procedures at residency period. Tx: treatment.



Fig. 5. Perceptive degree of needs and satisfaction for surgical dermatology training.

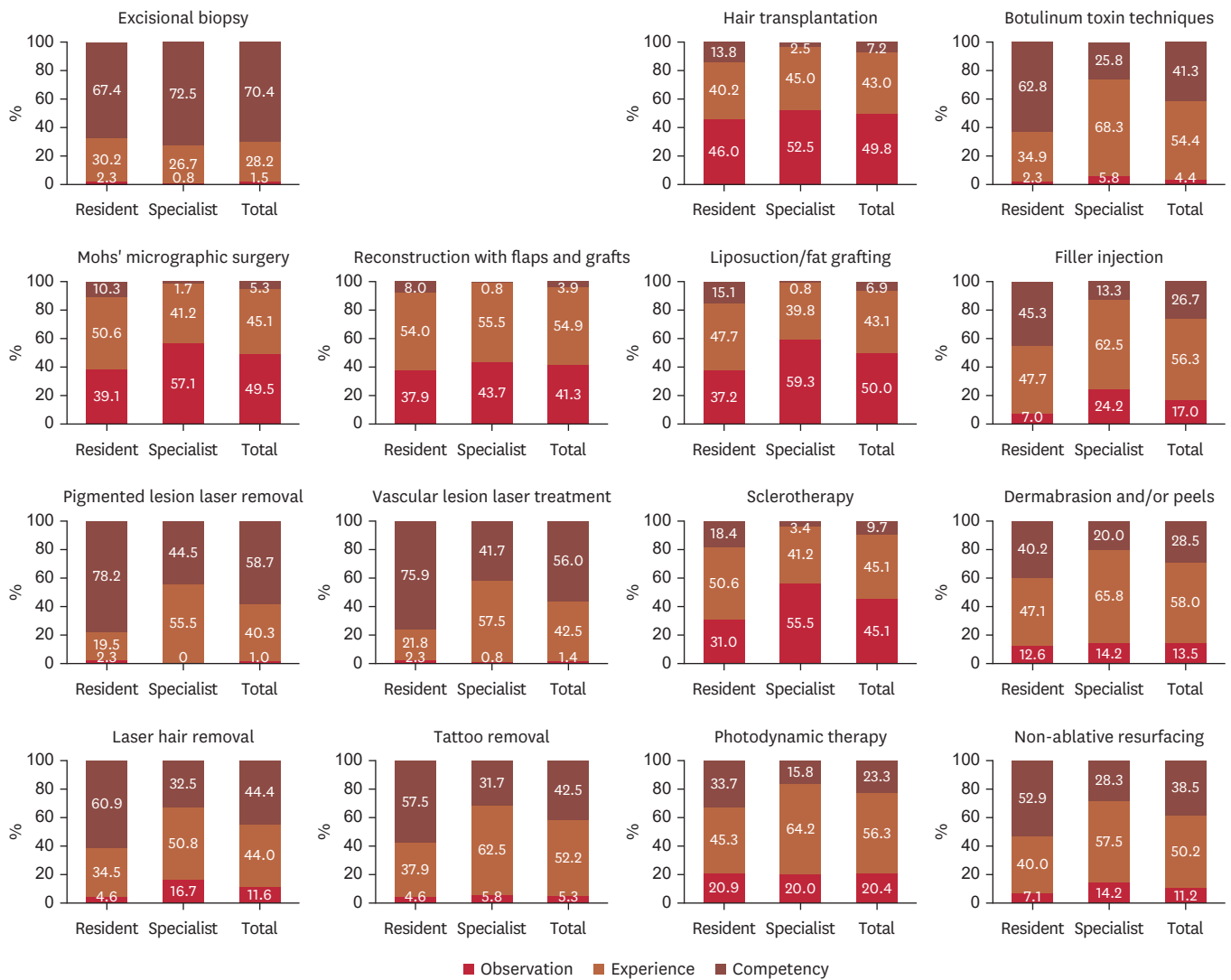


Fig. 6. Expected level of competency at the end of residency training.

each year training in surgical skills^{6,7}. Therefore, we need to develop regular programs to train surgical dermatologists that faculty members in charge of surgical education, such as program directors, must monitor.

In the survey, artificial skin was the most common tool used to train surgical skills (Fig. 3). These results are indicative of an annual workshop managed by the KSDS. This shows that there is a paucity of practice courses for surgical dermatology education and that most residents have no opportunity to train their surgical skills without the KSDS workshop. Simulation model-based training provides an opportunity for deliberate practice that is unavailable in a procedure room⁸. The American Society for Dermatologic Surgery provides simulated skin to all dermatology residents, demonstrating the utility of simulation models. Based on an evaluation of the simulation models for basic dermatological

surgery skills, pig feet were preferred as the teaching model. Although less useful for training in more sophisticated procedures such as flaps and grafts, it is an effective and low-cost solution for teaching basic surgical skills⁹. Therefore, it is necessary to introduce a practical program using simulation models for resident education and provide more opportunities to train their surgical skills. This should be regular and operated continuously by an organized association.

Ironically, it revealed that residents need more experience performing cosmetic procedures than the specialists in the past resident period. It is possible that the specialists who responded were more interested in the procedure because this survey was distributed to institutes listed in the KSDS. The possibility of recall bias or confusion with the present acting cannot be excluded. We focused on the current experiences of residents and found that

they actively participated in cosmetic procedures and played the roles of assistants or operators in various laser therapies. However, the possibility of administering botulinum toxin or filler injections is limited, particularly filler injections, possibly because of the complexity and potential complications associated with these procedures (Fig. 4). This contrasts with the United States, where the most commonly encountered and performed procedures are botulinum toxin and filler injection in residency^{10,12}. This indicates that Korean residents have fewer opportunities to perform injectable cosmetic procedures. Although few patients visit training hospitals for the purpose of taking cosmetic procedures, most want faculty physicians to perform such procedures. Another problem is that these procedures do not include residency training programs, and no program director exists, as in the USA.

There were differences in the perceptions of residents and specialists regarding the need for surgical dermatology training. While residents expressed a stronger desire for training in cosmetic procedures, specialists felt that surgical and cosmetic procedure training was equally important. Most were satisfied with training, but more specialists in training hospitals expressed some dissatisfaction than residents (23.8% vs. 21.6%, Fig. 5). This indicates that specialists realized the importance and need for surgical dermatology education during residency. To gain a deeper understanding, respondents were asked about their desired level of skill in surgical techniques and cosmetic procedures at the end of their residence. This response is interesting. The residents and specialists had the same opinions regarding conventional surgical procedures. They believed a skilled surgical technique for excisional biopsy was essential; however, complicated surgical procedures such as Mohs' micrographic surgery and cutaneous flaps were unnecessary. However, they had different opinions regarding cosmetic procedures. While specialists responded that only observation or experience was sufficient for all cosmetic procedures, residents thought they should be proficient in administering most laser treatments and toxin or filler injections. Considering that residents want more training in cosmetic procedures and have fewer opportunities for injection therapies, they are not satisfied with cosmetic procedure education, especially for botulinum toxin and filler injections.

This survey highlighted the need for better surgical dermatology education, especially regarding practice courses for residents and the perception gap between residents and board-certified specialists. Although residents required only basic surgical skills for conventional surgery, there was a clear tendency toward more opportunities for cosmetic procedures such as laser treatments and toxin or filler injections. There has also¹³ been a controversy regarding resident education in cosmetic dermatology in the United States, and the trend of change in perception is clear. According to a survey conducted in 2004¹⁴, cosmetic techniques

were most frequently viewed as unimportant. However, a 2012¹² survey found that residents wanted more training and practice in cosmetic procedures. This indicates that residents want to perform all cosmetic procedures skillfully immediately after resident training; however, they must train themselves after graduating from their residency.

In contrast, specialists still consider it not too late to learn cosmetic procedures after residency. It is time for specialists, especially those in training hospitals, to understand what residents want. They should make greater efforts to educate residents on cosmetic dermatology, and basic surgery, and give them more chances to do so in person. However, it is worrisome for the residents to focus solely on profit-generating cosmetic procedures. They need to recognize that expertise in cosmetic procedures requires precise knowledge of surgical anatomy, basic skin pathology, and physiology. The ability to accurately assess patients and provide appropriate care for skin changes and complications resulting from the procedure is a powerful tool for dermatologists who require extensive experience. Fundamental dermatosurgical knowledge and training serve as a sound foundation for competence in cosmetic procedures. Therefore, it is essential to develop existing educational residency programs that focus on basic dermatological surgical principles and their applications in cosmetic procedures. Academic institutions, such as the KDA and KSDS, should continue to manage these programs.

This study has some limitations. First, not all dermatology residents were surveyed. First- and second-year residents were excluded, which did not reflect all the opinions of dermatology residents. Second, the survey was distributed to institutes listed in the KSDS, and the members involved, especially specialists, might have been more interested in the surgical procedures. Third, we did not survey the quality of education received by the residents, the impact of different teaching methodologies, or the influence of external factors on the effectiveness of surgical dermatology education.

SUPPLEMENTARY MATERIALS

Supplementary Data 1

Survey on perceptions for surgical dermatology (English)

Supplementary Data 2

Survey on perceptions for surgical dermatology (Korean)

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FUNDING SOURCE

This study was supported by research funding from the Korean Dermatological Association (2021).

CONFLICTS OF INTEREST

The authors have nothing to disclose.

DATA SHARING STATEMENT

The data supporting the findings of this study are available from the corresponding author upon request.

REFERENCES

- Dennis LK. Analysis of the melanoma epidemic, both apparent and real: data from the 1973 through 1994 surveillance, epidemiology, and end results program registry. *Arch Dermatol* 1999;135:275-280. [PUBMED](#) | [CROSSREF](#)
- Hannuksela-Svahn A, Pukkala E, Karvonen J. Basal cell skin carcinoma and other nonmelanoma skin cancers in Finland from 1956 through 1995. *Arch Dermatol* 1999;135:781-786. [PUBMED](#) | [CROSSREF](#)
- Neville JA, Housman TS, Letsinger JA, Fleischer AB Jr, Feldman SR, Williford PM. Increase in procedures performed at dermatology office visits from 1995 to 2001. *Dermatol Surg* 2005;31:160-162. [PUBMED](#) | [CROSSREF](#)
- Alam M. Dermatologic surgery training during residency: room for improvement. *Dermatol Surg* 2001;27:508-509. [PUBMED](#) | [CROSSREF](#)
- Callen JP. Should dermatologic surgery training in residency be expanded? *Dermatol Surg* 2001;27:509-510. [PUBMED](#) | [CROSSREF](#)
- Dai J, Bordeaux JS, Miller CJ, Sobanko JF. Assessing surgical training and deliberate practice methods in dermatology residency: a survey of dermatology program directors. *Dermatol Surg* 2016;42:977-984. [PUBMED](#) | [CROSSREF](#)
- Lee EH, Nehal KS, Dusza SW, Hale EK, Levine VJ. Procedural dermatology training during dermatology residency: a survey of third-year dermatology residents. *J Am Acad Dermatol* 2011;64:475-483, 483.e1-483.e5. [PUBMED](#) | [CROSSREF](#)
- McGaghie WC, Issenberg SB, Cohen ER, Barsuk JH, Wayne DB. Does simulation-based medical education with deliberate practice yield better results than traditional clinical education? A meta-analytic comparative review of the evidence. *Acad Med* 2011;86:706-711. [PUBMED](#) | [CROSSREF](#)
- Adams CC, Marquart JD, Nicholas LL, Sperling LC, Meyerle JH. Survey of medical student preference for simulation models for basic dermatologic surgery skills: simulation platforms in medical education. *Dermatol Surg* 2014;40:427-435. [PUBMED](#) | [CROSSREF](#)
- Kirby JS, Adgeron CN, Anderson BE. A survey of dermatology resident education in cosmetic procedures. *J Am Acad Dermatol* 2013;68:e23-e28. [PUBMED](#) | [CROSSREF](#)
- Bauer B, Williams E, Stratman EJ. Cosmetic dermatologic surgical training in US dermatology residency programs: identifying and overcoming barriers. *JAMA Dermatol* 2014;150:125-129. [PUBMED](#) | [CROSSREF](#)
- Group A, Philips R, Kelly E. Cosmetic dermatology training in residency: results of a survey from the residents' perspective. *Dermatol Surg* 2012;38:1975-1980. [PUBMED](#) | [CROSSREF](#)
- Schleichert R, Hostetler SG, Zirwas M. The perceived influence of cosmetic dermatology on dermatology resident education. *J Am Acad Dermatol* 2010;63:352-353. [PUBMED](#) | [CROSSREF](#)
- Reichel JL, Peirson RP, Berg D. Teaching and evaluation of surgical skills in dermatology: results of a survey. *Arch Dermatol* 2004;140:1365-1369. [PUBMED](#) | [CROSSREF](#)