

The Differences in the Practice of Cosmetic Dermatologic Procedures Between Physicians and Nonphysicians

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BACKGROUND With a rise in demand for cosmetic dermatologic procedures comes an increase in nonphysician providers performing such procedures. However, little is known about the practice of cosmetic procedures performed by nonphysicians.

OBJECTIVE To assess the differences in the practice of cosmetic procedures provided by physicians and nonphysicians.

MATERIALS AND METHODS A cross-sectional analysis was performed using participant ($n = 4,062$) responses to an 18-point, web-based survey about previous cosmetic procedures.

RESULTS In total, 1,328 participants reported having previous cosmetic procedures done by a physician ($n = 828$), a nonphysician ($n = 413$), or an unknown provider ($n = 87$). Respondents of all age ranges and male respondents ($p < .001$) tended to choose physicians over nonphysician providers when choosing a practice. Moderate adverse events were more frequently seen when nonphysician providers completed cosmetic procedures ($p < .001$). Despite a higher frequency (73.3% vs 51.8%) of more moderate complications seen in procedures done by nonphysician providers, over 70% of respondents believe that nonphysician providers are qualified enough to continue performing cosmetic procedures.

CONCLUSION People should be encouraged to make an informed decision when choosing a provider because cosmetic procedures are still considered medical procedures.

Cosmetic dermatologic procedures, such as neurotoxins, fillers, laser hair removal, or chemical peels, have become increasingly popular in the United States during recent years. According to the American Society for Dermatologic Surgery (ASDS), there was an increase in the number of cosmetic procedures completed in the United States, rising from 12.5 million procedures in 2018 to 14 million procedures in 2019.^{1,2} With an increasing demand for cosmetic dermatologic procedures, there is an accompanying rise of nonphysician providers performing cosmetic procedures in nonmedical settings. As delegated by 48% of state boards, unlicensed nonphysician providers are permitted to perform cosmetic procedures under the assumption that there has been adequate training.³ However, in a 2014 survey conducted by Rossi and

colleagues,⁴ there was a higher number of skin discoloration and burns when cosmetic procedures were performed by nonphysicians in a spa setting, with improper technique by nonphysician providers being the most common cause.

A different study done in millennials, defined as those born between 1981 and 1996, found that 70% of surveyed patients thought that physician practices were “more trustworthy” in comparison with medical spas.³ In total, 72% of the surveyed patients reported interest in returning for future procedures done at a physician practice, but only 56% of patients indicated that they were interested in returning to a medical spa, with credentials, safety, and reputation cited as the most highly valued parameters for selecting or reselecting a practice.³ Although research has established that patients tend to prefer physician practices to medical spas likely because of implied greater safety, there is little literature that explores patient-reported complications of procedures done by physicians compared with nonphysicians.

Although increasingly common to have cosmetic procedures done by nonphysician providers, patient safety in such situations continue to be a concern. The purpose of this study was to compare patient-reported differences in the practice of cosmetic procedures performed by physicians and nonphysicians.

Methods

An 18-point, web-based targeted survey pertaining to previous cosmetic procedures was delivered through

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electronic mail to respondents 18 years of age and above, in all regions of the United States using Survey Monkey (<http://www.SurveyMonkey.com>). Respondents answered by completing and returning the survey electronically via the web.

The survey contained multiple-choice questions regarding the type of provider, the location where the procedure was performed in, adverse events, influential factors in choosing a provider, and perceptions regarding type of provider.

A cross-sectional analysis was performed using participant ($n = 4,062$) responses to the web-based survey. Written informed consent was obtained for each participant. Responses were analyzed using Chi-square test for categorical variables and the t -test for continuous variables, with $p < .05$ considered statistically significant.

Results

Of the 4,026 survey participants, 1,328 participants (33%) reported that they had previous cosmetic procedures done by a physician ($n = 828$, 62%), a nonphysician ($n = 413$, 31%), or an unknown provider ($n = 87$, 7%). Physician providers were most commonly dermatologists, plastic surgeons, and facial plastic surgeons, whereas nonphysician providers were most commonly estheticians/cosmetologists, physician assistants, nurses, medical assistants, and medical spa employees. Of the providers performing procedures, dermatologists comprised 48% of physicians and estheticians/cosmetologists comprised 42% of nonphysicians.

Respondents Demographics

Respondents within ages 25 to 34 years were more likely to have cosmetic procedures ($p = .002$). The most common respondents to the survey were respondents residing in Southern US regions and reporting an annual household income of \$50,000–74,999. Respondents in all groups tended to select physician providers more often than nonphysician providers for procedures (Table 1). Male respondents were significantly more likely to have their cosmetic procedures done by physicians, whereas female respondents were more likely to have procedures done by nonphysician providers ($p < .001$).

Cosmetic Procedure Providers

In all surveyed procedure types, physicians were more often the performing provider, with laser hair removal treatments as the least frequent procedures done by physicians (55% of all providers), but the most frequent procedures done by nonphysician providers (37% of all providers). Moreover, hair transplantation was done by mostly physicians (79% of all providers). Laser and light treatments, chemical peels, laser hair removal treatments, and microdermabrasions were outsourced to nonphysician providers approximately one-third of the time (Figure 1).

There was a significant difference in severity of adverse events when cosmetic procedures were performed by physicians compared with nonphysician providers

($p < .001$). Respondents reported having more moderate adverse events when having cosmetic procedures done by a nonphysician provider ($n = 55$, 73.3%), whereas respondents reported having more mild than moderate or severe adverse events when procedures were done by a physician provider ($n = 125$, 41.8%). There was no statistically significant difference in adverse events between different physician specialties.

Influential Factors in Choosing a Provider

The most influential factor for choosing any provider (physician and nonphysician) was a referral from a physician. Most respondents who ultimately chose a nonphysician over a physician cited price as the reason (Table 2).

Perceptions Regarding the Type of Provider

In total, 70.3% of the respondents ($n = 394$) believed that nonphysicians were qualified to perform cosmetic procedures. The most commonly cited reason for belief that nonphysician providers were not qualified being “inadequate level of training” ($n = 295$, 74.9%). Patient suggestions to limit frequency of adverse events included having a physician in the room or on-site during procedures, more thorough training or certification processes, and restricting the scope of practice for nonphysician providers to only performing less invasive cosmetic procedures.

Discussion

Although approximately one-third of cosmetic procedures done are performed by nonphysician providers, the survey results demonstrate that adverse events after procedures completed by nonphysician providers are more likely to be greater in severity than complications after procedures completed by physician providers. Furthermore, many cosmetic procedures are being performed by estheticians/cosmetologists. Men were more likely to choose physicians over nonphysicians for their cosmetic treatments. There were no significant differences in the practice of cosmetic procedures performed by the different specialties of physicians.

A potential explanation could be the robust surgical training and anatomy education through exposure to cadavers in medical schools that build the foundation of cosmetic procedures. Further, longer educational and training requirements mandated of physicians in comparison with nonphysician providers. After obtaining a baccalaureate/bachelor's degree from an accredited university, physicians are required to undergo a minimum 7 years of medical training, pass an end-of-residency examination to become officially board certified for independent practice, and fulfill Maintenance of Certification requirements by passing a recertification examination every 10 years.⁵ In contrast, in Pennsylvania, estheticians are

TABLE 1. Demographics of Respondents Who had Cosmetic Procedures

% of Provider Type	Physicians	Nonphysicians	Unknown	p
Age (yr)				.002
25–34 (n = 342)	65.79	25.15	9.06	
35–44 (n = 419)	66.35	27.45	6.21	
45–54 (n = 349)	59.03	35.53	5.44	
>55 (n = 217)	54.38	40.55	5.07	
Gender				<.001
Male (n = 540)	73.33	19.81	6.85	
Female (n = 774)	54.91	38.76	6.33	
Region of residence in the United States				.114
Northeast (n = 290)	66.90	26.90	6.21	
Midwest (n = 215)	56.28	37.21	6.51	
South (n = 439)	62.41	31.21	6.38	
West (n = 371)	63.34	29.65	7.01	
Household income (\$)				.162
50,000–74,999 (n = 444)	63.51	28.15	8.33	
75,000–99,999 (n = 318)	60.38	32.70	6.92	
100,000–124,999 (n = 230)	58.26	36.09	5.65	
125,000–149,999 (n = 154)	68.18	28.57	3.25	
150,000–174,999 (n = 117)	59.83	35.04	5.13	
175,000–199,999 (n = 54)	64.81	29.63	5.56	

Respondents who more frequently elected to have cosmetic procedures done were those aged 25 to 34 years ($p = .002$), residing in the Southern region of the United States ($p = .114$), and had an annual household income of \$50,000–74,999 ($p = .162$). Overall, physicians were more commonly selected by patients to conduct cosmetic procedures than nonphysician providers.

required to obtain a 10th grade equivalence of education, complete 300 hours of skin care education at an accredited cosmetology school, and pass an end-of-training examination issued by the State Board of Cosmetology with no continuing education requirements. Requirements for estheticians may fluctuate per state, but do so only minimally.⁶ Physician assistants are required to obtain a

baccalaureate/bachelor’s degree, graduate from an accredited 2 to 2½ years of PA program, pass the Physician Assistants National Certifying Examination to become certified for practice, and fulfill continuing education requirements by completing 100 hours of education credits per 2 years and passing a recertification examination every 10 years.⁷

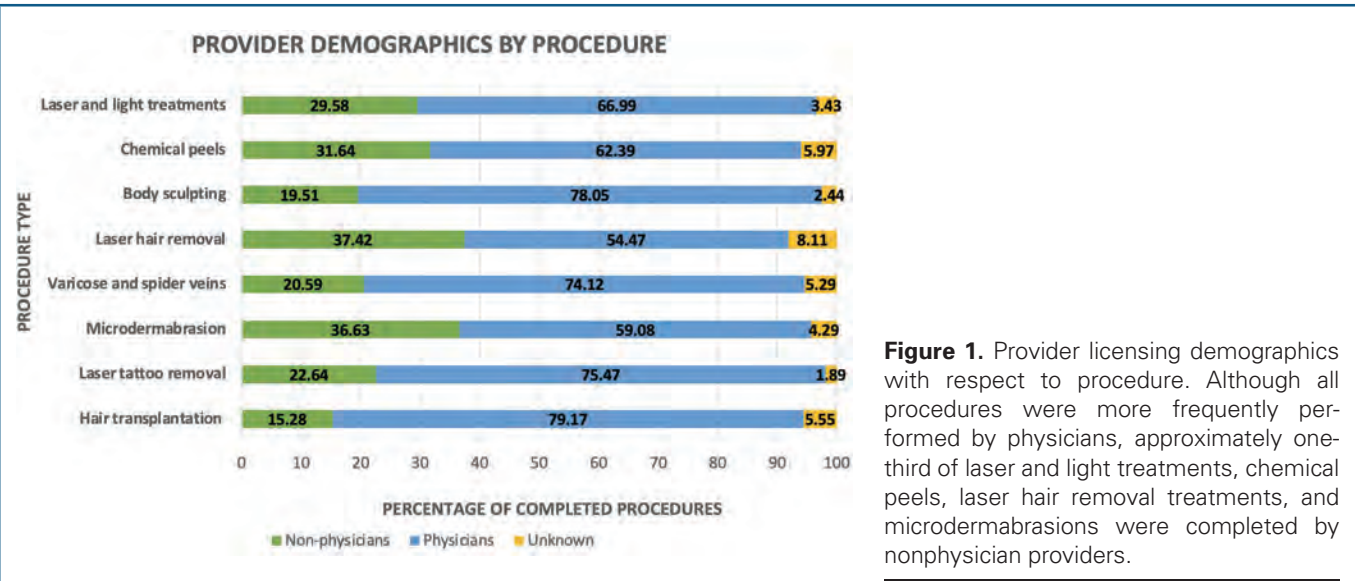


Figure 1. Provider licensing demographics with respect to procedure. Although all procedures were more frequently performed by physicians, approximately one-third of laser and light treatments, chemical peels, laser hair removal treatments, and microdermabrasions were completed by nonphysician providers.

TABLE 2. Patient-Reported Reasons for Choosing Physician or Nonphysician Providers for Cosmetic Procedures

	Physician, %	Nonphysician, %	Unsure, %
Referral from a physician	66.81	25.73	7.46
Referral from a friend	55.70	36.69	7.60
Being affiliated with a professional organization	65.72	28.09	6.19
The specialty in which the physician is board-certified	67.81	26.52	5.67
The level of licensure of the practitioner (i.e. physician, nurse, physician assistant, and cosmetologist)	59.77	34.10	6.13
The location of the practitioner	59.14	35.80	5.06
Physician or practice website	73.14	24.00	2.86
Being a pioneer in the field	75.00	24.22	0.78
Before-and-after photographs	59.83	32.05	8.12
Number of procedures performed by the practitioner	56.46	40.82	2.72
Price	42.50	47.50	10.00

The most frequently cited reasons that patients selected a physician were the physician's reputation as a "pioneer" in the field, the physician's or practice website, and the physician's specialty. Patients most commonly reported selecting nonphysician providers because of price, number of procedures performed by the provider, and referrals from friends.

Although overlap of educational content may occur between different types of providers, greater quantity and quality of research demonstrates improved patient outcomes and avoided medical emergencies. Furthermore, in a study investigating who pioneered the field of cosmetic procedures, dermatologists were found to be the top contributors to most cosmetic procedures.⁸ Furthermore, one study examined the impact of an additional seminar in caring for asthmatic patients. Pediatricians who completed the seminar more frequently appropriately prescribed corticosteroid treatments and provided adequate patient education than physicians who did not attend the seminar, resulting in significantly fewer symptoms, necessary follow-up visits, crises requiring emergency medical attention, and hospitalizations.⁹ Given the significant improvement that even a single seminar of further medical education provided to better patient outcomes, longer and consequently more thorough educational requirements for cosmetologists, as similarly mandated of physicians, could be key to ensuring patient safety and satisfaction with cosmetic procedures.

Although the study data demonstrates that physicians continue to more frequently perform all surveyed procedures, approximately one-third of laser and light treatments, chemical peels, laser hair removal treatments, and microdermabrasions are, concerningly, outsourced to nonphysician providers. In a survey completed by the ASDS, physicians reported that 61% to 100% of their complication treatments stemmed from procedures completed at medical spas, which are more likely to employ nonphysician providers such as estheticians or cosmetologists.¹⁰

Furthermore, quantitative evidence supported that the most common treatments leading to complications were laser hair removal treatments, fillers, and intense pulsed light.¹⁰ Although one-third of laser hair removal is performed by nonphysicians, Jalian and colleagues¹¹ reported that 75.5% of hair removal lawsuits from 2004 to 2012 were performed by nonphysicians. Allowing for nonphysician providers to perform treatments evidenced to more frequently lead to complications requiring physician treatment (i.e. laser treatments) at such a high frequency and without guideline change is likely to worsen patient safety prospects moving forward. The ASDS study concluded that 58.8% of the physicians categorized procedures completed at medical spas to be "very" or "extremely" endangering towards patient safety, with 95.8% of the physicians desiring stricter regulations on procedures available at medical spas.¹⁰ In addition to more thorough education requirements, stricter regulations can doubly serve as a line of defense against complications arising from cosmetic procedures.

Although moderate adverse complications were more likely to occur when procedures were performed by a nonphysician in comparison with a physician provider, approximately 70% of respondents believe that nonphysicians are qualified to complete cosmetic procedures. These results may reflect either an unawareness of complication frequency in relation to licensing status of providers or the growing sentiment that nonphysician providers can provide care that is a satisfactory substitute for physician care. In a 2016 study investigating patient perceptions about nurse practitioners in comparison to physicians, patients reported

feeling that nurse practitioners were more holistic in their care.¹² Furthermore, patients reasoned that picking a provider with more experience was more important during selection than provider type, thus influencing patients to pick nurse practitioners who fit these conditions.¹² As such, the current cosmetic landscape has begun to shift toward patients more commonly selecting nonphysician providers for completion of cosmetic procedures.

Factors that may influence whether respondents choose physicians or non-physician providers included sex and procedure costs. As found in the study results, men were more likely to see physicians than nonphysician providers for cosmetic procedures, possibly because of who is more likely to provide referrals. An interview study found that men often underuse health care services because of the societal pressure for men to appear invulnerable, immune, and without need for help.¹³ The findings implicate that men may choose to confide directly in physicians for referrals of cosmetic procedures to avoid demonstrating help-seeking behavior in their personal social circles. As physicians are more likely to refer to other physicians or nonphysician providers within their own practice, men may be choosing to see physicians more often than nonphysician providers for cosmetic procedures simply because of who they have asked for advice. However, no confirmatory data are currently available. Price also plays a large role in the choosing of a provider. As shown by the normality of medical tourism, a phenomenon in which patients will seek to complete cosmetic or health procedures outside of one's own home country in favor of cheaper costs despite the many risks (i.e. infection), patients may choose nonphysician providers for lower prices.¹⁴

Limitations of the study included self-reporting bias and recall of events, as well as patient subjective judgment of severity of adverse outcomes of cosmetic procedures (i.e. mild, moderate, or severe).

Findings of this study support that patient safety is more compromised when nonphysician providers, rather than physicians, complete cosmetic procedures. As respondents indicated in this survey, more rigorous training for nonphysician providers performing cosmetic procedures, ensuring a physician is readily available to reverse complications, or limiting the scope of practice for nonphysician providers may be essential for preventing adverse events. On a consumer level, having more accessible information explaining the differences of training, experience, and qualifications between physicians and nonphysician providers may allow consumers to more accurately perform cost-benefit analyses when deciding on a practice.

Conclusion

The surge in popularity of cosmetic procedures is currently being met by an increase of nonphysician providers completing cosmetic procedures in addition to physicians. However, adverse effects that occur under the care of a nonphysician provider tend to be more severe than adverse

outcomes that occur under physicians. Although people may ultimately choose to have procedures done by nonphysicians because of referrals or reduced costs, patient safety and satisfaction should always remain the utmost priority, which may necessitate encouraging people to make an informed decision when choosing a provider.

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