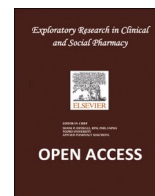


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Exploring the landscape of aesthetic pharmacy practice

Kamal Alhallak*

Alberta Cosmetic Pharmacist Association (ACPA), Edmonton, AB, Canada

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ABSTRACT

Background: As pharmacy practice evolves, an increasing number of pharmacists are diversifying into non-traditional roles such as aesthetic procedures. Despite this shift, comprehensive research exploring demographic patterns, motivations, practice settings, and perceived support and barriers among pharmacists in this specialty, particularly in Alberta, Canada, remains scant.

Objectives: This study aimed to explore the demographics, experience, practice settings, types of aesthetic services offered, and perceptions of support from the Alberta College of Pharmacy (ACP) among Alberta pharmacists. It also sought to understand the relationship between pharmacists' years of practice and the complexity of the aesthetic services they provide and to assess the impact of contacting the ACP on their perceptions of clarity in the aesthetic injection regulatory framework.

Methods: An online survey was disseminated to registered pharmacists in Alberta, gathering data on demographics, experience, practice settings, aesthetic services offered, and perceived barriers and support. Statistical analysis was used to identify significant trends and associations, employing Chi-square, Kendall's tau-c, and Gamma tests.

Results: The results showed a significant association between younger age and involvement in aesthetic practice, with a substantial presence in hospital settings. Part-time pharmacists showed stronger involvement, and those with less than five years of experience were more likely to practice aesthetic injections. No statistically significant relationship was found between the years of practice and the complexity of aesthetic services. Clear dissatisfaction was evident regarding the support and communication from the ACP, with contact with the ACP not necessarily resulting in clarity regarding aesthetic practice regulations.

Conclusion: The findings suggest that aesthetic practices are becoming a significant part of pharmacy practice, particularly among younger, part-time pharmacists associated with hospital settings. However, this shift calls for improved support, clearer guidelines, and better communication from the ACP, particularly around aesthetic practice regulations.

It also emphasizes the need for regulatory bodies to ensure pharmacists are equipped to offer these services safely and effectively, which could be crucial in shaping future policy-making and professional development initiatives.

1. Introduction

Pharmacy practice has been undergoing a global transformation in the past few decades, evolving from a product-centered model to a more patient-centered and clinical role. This paradigm shift has been characterized by an increased focus on health promotion, disease prevention, and patient counseling, all while providing safe and effective pharmaceutical care. Ever since the option to add Additional Prescribing Authorization (APA) to their practice was introduced in 2007, there has been an exponential increase in the number of registrants in the province who have successfully applied for and received APA.¹⁻³ Pharmacy

practice in Alberta is now assumed to be one of the most advanced globally, with their scope of practice encompassing a multitude of tasks beyond traditional dispensing roles.⁴ This includes immunization, minor ailment management, chronic disease management, and medication therapy management. In a recent study, nearly 90% of pharmacists surveyed indicated that authorization to administer medications by injection was a part of their pharmacy practice.⁵

In recent years, increased interest has been in expanding pharmacy practice to include aesthetic services. Aesthetics can contribute to both physical and psychological well-being. Individuals often feel satisfied and in harmony with their image while improving their quality of life.⁶⁻⁹

* Corresponding author.

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Aesthetic pharmacy involves providing services related to administering injections for aesthetic purposes, such as neuromodulator and dermal filler injections. This trend has been recognized internationally, with countries like the United Kingdom (UK), Australia, Scotland, Wales, and Brazil acknowledging and integrating aesthetic services into pharmacy practice.¹⁰⁻¹³

For instance, the UK's General Pharmaceutical Council has allowed registered pharmacists to provide neuromodulators and filler injections after receiving appropriate training, acknowledging the growing demand for these services and the capacity of pharmacists to fulfill this need safely and effectively. Likewise, in Australia, the Pharmaceutical Society of Australia has supported the inclusion of aesthetic services in the scope of community pharmacy practice, emphasizing the importance of adequate training and adherence to professional and ethical standards (6). Those initiatives were faced with mixed reactions.¹⁴

In Alberta, the potential expansion of pharmacy practice to include aesthetic services represents a new frontier since pharmacists are authorized to prescribe Schedule 1 drugs and administer them by injection.^{1,4,15,16} A recent study identified Alberta as one of the places where pharmacists are authorized to perform non-invasive aesthetic procedures after receiving adequate training and certification and fulfilling eligibility criteria.¹⁷ Yet, standards and regulations, specialized training, and regulatory guidance for pharmacists interested in providing such services are poorly developed.

Medical spas, often referred to as medi-spas, offer a unique blend of services. They incorporate treatments traditionally available in beauty salons or day spas with medical procedures, non-invasive cosmetic surgery, and dermatological treatments. This fusion allows for a comprehensive approach to aesthetics and wellness underpinned by medical knowledge and expertise.^{18,19} However, medical spas may be perceived differently based on regulation and geographical location. In Alberta, under the Personal Services Regulation, a medical spa is defined as an establishment that offers personal services, which are activities performed on a person's skin, hair, nails, teeth, or other body parts, primarily aimed at enhancing, preserving, or altering one's appearance.²⁰ A recent study suggests that the medical spa industry can potentially reposition itself as a supportive element within national healthcare systems.²¹

Established in 2019, the Alberta Cosmetic Pharmacist Association is a professional body dedicated to supporting, educating, and representing pharmacists practicing aesthetic medicine within Alberta.²² The association is committed to promoting high standards of practice and ethical care, encouraging ongoing education, and fostering collaboration among cosmetic pharmacists. It serves as a resource for its members by providing up-to-date information, training opportunities, and a platform for networking, professional development, academic publishing, and research.²³⁻²⁷ Moreover, it plays a pivotal role in advocating for the rights and interests of cosmetic pharmacists to regulatory bodies and the broader healthcare community. Since its inception, the association has fielded many inquiries concerning the regulatory framework for the practice of aesthetic medicine by pharmacists. This could suggest some ambiguity regarding the legal requirements outlined by the Alberta College of Pharmacy (ACP), the sole regulatory authority for the pharmacy profession in Alberta. The aim of this survey, conducted by the Alberta Cosmetic Pharmacist Association, was to reveal trends in the emerging practice of aesthetics among pharmacists in Alberta and to explore the readiness and willingness of Alberta's pharmacists to embrace this new aspect of patient care and the challenges and barriers they face in doing so.

2. Methods

The present study utilized a cross-sectional design to examine the landscape of aesthetic pharmacy practice in Alberta, Canada. The data were collected via an internet-based survey targeting licensed pharmacists in the region. The survey spanned five months, from January to

May 2023, and served as an initial phase of a more comprehensive study to explore the intricacies of this specialized aesthetic pharmacy practice.

The survey platform employed for this research was Survey Monkey, a recognized web-based tool that facilitates the collection of participant responses in a systematic and streamlined manner. The reporting of findings adhered rigorously to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines, which specifically guided the conduct and reporting of web-based surveys.²⁸ This adherence ensures the reliability and validity of the results presented, further contributing to the rigor and scientific integrity of the study.

Eligibility for inclusion in this study was predicated on two key criteria: holding an active permit to practice pharmacy from Alberta College of Pharmacy and an expressed consent to collect and use the survey data for research purposes. The recruitment of pharmacists was executed through various channels such as social media platforms—Facebook, Instagram, and Twitter—as well as direct engagement via known professional WhatsApp groups, emails, and text messaging. The study did not utilize paid advertisements nor offer any incentives for participation. Interested participants were redirected to the open-access survey upon clicking the shared URL. Additionally, the survey was embedded on the Alberta Cosmetic Pharmacist website, offering an alternate access point for potential participants.

The shared URLs led participants directly to a dedicated response collector hosted by Survey Monkey or a study-specific webpage on the Alberta Cosmetic Pharmacist Association website with a general call for participation and response collector. Upon reaching these sites, potential participants encountered two screening questions to confirm eligibility based on the established inclusion criteria. In the event that a potential participant failed to meet the set inclusion criteria during the screening phase, their participation was disallowed. Therefore, this method ensured the recruitment of a study population accurately representative of the defined criteria. The survey response collectors allowed the survey to be taken more than once from the same device or IP address.

The survey instrument was designed to be completed within the maximum of a 5-min timeframe and incorporated a series of closed-ended questions. The survey was assessed by one clinical expert, followed by a pilot test among a sample of pharmacists who were members of the Alberta Cosmetic Pharmacist Association ($n = 5$) using cognitive interviews.^{29,30} The survey was designed to gather information across eight distinct domains (Fig. 1):

- **Eligibility and Practice in Aesthetic Injection:** This domain assesses whether the respondent met the preliminary eligibility to practice in the aesthetic field by holding the APA designation and a license to inject. Moreover, it branched the respondents into three categories, which will be explained later.
- **Primary Practice Information:** This domain collected data on the primary practice setting, role in the primary practice setting, and years of practice in Alberta.
- **Aesthetic Practice Information:** These questions collected details about aesthetic practice professional information, such as the location of aesthetic services and the complexity of aesthetic injections.
- **Regulatory Framework Information:** These questions focused on the level of satisfaction with the Alberta College of Pharmacists (ACP) support and clarity of eligibility and requirements for practice in the aesthetic field.
- **Training Information:** These questions were dedicated to collecting data about training acquired and satisfaction rates.
- **Standards of Operation for a Licensed Pharmacy:** These questions collected information on communication with other health professionals, the uploading of aesthetic activities to Netcare, and the provincial health information exchange platform.
- **Difficulties and Barriers to Practice:** This domain sought to understand the challenges and reasons preventing some participants from



Fig. 1. Flow chart showing adaptive questioning and survey branching logic for question sequencing.

practicing in the aesthetic field. It aimed to identify systemic barriers or personal constraints that may inhibit adopting aesthetic practices.

- Demographic Information: These questions included demographic details, such as gender and age group.

Participants were initially segregated based on their eligibility to

practice in the aesthetic field, i.e., holding an APA and a license to inject. Both designations were paramount for determining eligibility to practice in the aesthetic field.¹⁷ This was followed by a secondary branching based on participants' current engagement in the aesthetic field. The eligible participants were categorized into three distinct cohorts of pharmacists eligible for aesthetic field practice:

- Pharmacists who were actively practicing in the aesthetic field
- Pharmacists who were not currently engaged in active aesthetic practice but considering future involvement
- Pharmacists with no intent of considering practice in the aesthetic field

A unique set of questions was assigned to each of the first three groups. The questions were deployed using adaptive questioning and survey branching logic, tailoring the survey experience to the distinct categorization of each respondent. This customized approach aimed to generate the most relevant data from each participant category, thereby enhancing the richness and applicability of the study findings.

The survey questions were designed to gather insights into several key areas and their impact on the inclination to practice in the aesthetics field. These included the influence of gender and age on the practice of aesthetic injections, the impact of primary practice settings and roles, the correlation between years of pharmacy experience in Alberta and the practice of aesthetic injections, how the location of aesthetic practice influences the complexity of injections, the perceived role and regulatory framework of the Alberta College of Pharmacists in the aesthetics field, and the satisfaction rate with the current available aesthetic training. Moreover, the survey collected information about the current understanding and interpretation of regulatory frameworks for personal services and the standard of practice. All questions in the survey were required, and the survey platform was configured only to record complete responses. Therefore, there were no missing data.

This study employed an unrestricted, self-selected sampling approach, which did not necessitate the pre-calculation of a specific sample size. Nevertheless, health-related studies often recommend a sample size representing two to 5 % of the population. The ACP website states that 2450 individuals hold the APA designation.³¹ In our study, data were collected from 64 participants, 55 of whom have the APA and license to inject designation. This sample represents 2.25% of the assumed total population, falling within the conventionally acceptable range of 2%–5%.³²

The analytical phase incorporated all survey respondents who satisfied the study inclusion criteria, and signed the informed consent. The selection of statistical tests within this analysis was grounded in the nature of the variables involved in each respective context. For comparisons involving categorical variables, the Chi-Square test was employed. Symmetric measures such as Gamma or Kendall's Tau-c were adopted when dealing with ordinal variables. These choices reflect methodological considerations to maintain the validity and accuracy of our results, given the distinct characteristics and distributions of the data under scrutiny. The collected data comprise categorical and nominal variables, thus eliminating the need for normality tests. Statistical analyses were performed utilizing Statistical Package for the Social Sciences software version 24 (SPSS®, International Business Machines Corp., Armonk, New York, USA). A p -value threshold of <0.05 was adopted as the criterion for statistical significance in reporting results.

The study underwent an assessment by the Health Research Ethics Boards of Alberta via their online tool and received a score of 0, indicating a low risk. This tool evaluates various factors, including the risk of harm, the principle of informed voluntary consent, privacy considerations, the potential for deception, conflicts of interest, financial inducements for participants, and the requirements of external organizations. Moreover, given its focus on the nature of the organization's operations and the fact that all participants were regulated members of the ACP, our study was deemed exempted according to the Institutional Review Board (IRB).

3. Results

Among the 64 respondents, 55 (85.9%) had preliminary eligibility to practice in the aesthetic field in Alberta by holding the APA designation and a license to inject. Conversely, nine (14.1%) pharmacists did not

have either the APA designation or a license to inject. Out of the 55 pharmacists who reported having preliminary eligibility to practice in the aesthetic field, twenty pharmacists (36.4%) reported practicing aesthetic injections, and 35 pharmacists (63.6%) did not engage in aesthetic practices.

In terms of future consideration for aesthetic practice, out of the pharmacists who are not practicing aesthetic injections ($n = 35$), 22 (62.9%) expressed considering aesthetic practice in the future, whereas 13 (37.1%) pharmacists are not contemplating the adoption of such practice. Participating pharmacists reported five distinct reasons for their unwillingness. Only one pharmacist (6.7%) cited that aesthetics were out of their scope of practice. One pharmacist (6.7%) gave personal or religious reasons for not considering aesthetic practice. Two pharmacists (13.3%) reported being satisfied with their current practice. Three pharmacists (20%) expressed concerns about logistics and liability. Finally, eight pharmacists (53.3%) indicated they were deterred by the unclear regulatory framework from the Alberta College of Pharmacists (ACP) or by the ACP's responses to inquiries about the aesthetic field.

In our sample of forty-seven pharmacists, thirty-one were females, and sixteen were males. Among these, thirteen females and six males were currently practicing in the aesthetic field, whereas eighteen females and 10 males did not practice aesthetic injections. According to the Chi-Square Tests, there appears to be no significant difference between genders in practicing aesthetic injections, with a Chi-Square value of 0.086 and a significance (p -value) of 0.769.

Regarding the respondents' ages, the highest representation was within the 30–39 age group, including 11 practitioners, followed closely by the 20–29 age group, with six practitioners. Participation markedly dropped for the 40–49 and 50–59 age groups, with only two and one practitioners, respectively, and no practitioners were reported in the 60+ age group. A Chi-square test yielded a value of 15.787 with 4 degrees of freedom and a p -value of 0.003. Kendall's Tau-c value was 0.502, indicating a moderate positive correlation. Table 1 summarizes the association between aesthetic injection practice by pharmacists relative to age groups.

Six pharmacists who engaged in aesthetic practice worked in community pharmacies (30%), twelve in hospitals (60%), and two pharmacists reported different settings. The Chi-Square test showed a significant relationship between practicing aesthetics and the primary practice settings.

The role of respondent pharmacists across three primary practice settings was examined: 'Others,' 'Community Pharmacies,' and 'Hospitals.' Each respondent was classified by their work role (part-time pharmacist, full-time pharmacist, licensee/not owner, or licensee and owner) and whether they practiced aesthetics.

Survey responses indicated a complex relationship between the role of pharmacists in their primary practice setting (community versus hospital) and their involvement in aesthetic practices. In the community pharmacy setting, no significant correlation was found between the pharmacists' roles and their aesthetic practice. This suggests that full-time pharmacists and licensees/owners were equally likely to engage in aesthetics. On the other hand, in the hospital setting, the data suggested a borderline significant relationship between work roles and aesthetic practices. Both full-time and part-time pharmacists seemed to participate in aesthetic practices. However, when data from community and hospital settings were pooled, a statistically significant association was identified between work role and aesthetic practice. This implies that when considering a broader scope of practice settings, the pharmacist's role does seem to influence their engagement in aesthetic practices. Table 2 summarizes pharmacists' statistical analysis of aesthetic injection practice relative to their role in primary practice settings.

Among the eighteen pharmacists reported to have less than five years of practice, ten were involved in aesthetic practices, while eight were not. In contrast, out of the thirty-seven pharmacists with more than five

Table 1
Statistical analysis of aesthetic injection practice by pharmacists relative to age group.

| | | Age Group | | | | | Total |
|-----------------------|-----------------|-----------|-------|---------------------------|--------|---------------|-----------------------------------|
| | | 20-29 | 30-39 | 40-49 | 50-59 | 60+ | |
| Practice in Aesthetic | Yes | 6 | 11 | 2 | 1 | 0 | 20 |
| | No | 0 | 16 | 10 | 8 | 1 | 35 |
| sTotal | | 6 | 27 | 12 | 9 | 1 | 55 |
| Pearson Chi-Square | Value | df | | | | | Asymptotic Significance (2-sided) |
| | 15.787 | 4 | | | | | 0.003 |
| Ordinal by Ordinal | Kendall's Tau-c | Value | | Asymptotic Standard Error | | Approximate T | Approximate Significance |
| | | 0.502 | 0.115 | 4.378 | <0.001 | | |
| N of Valid Cases | | 55 | | | | | |

Table 2
Statistical analysis of aesthetic injection practice by pharmacists relative to their role in primary practice setting.

| | | Pharmacist Role | | | | Total | |
|--------------------|-----------------------|----------------------|---------------------------|-----------------------------------|--------------------------|-------|----|
| | | Part time pharmacist | Full time pharmacist | Licensee/not owner | Licensee and owner | | |
| Others | Practice in Aesthetic | Yes | 2 | 0 | | 2 | |
| | No | 2 | 2 | | | 4 | |
| Total | | 4 | 2 | | | 6 | |
| Community | Practice in Aesthetic | Yes | 0 | 0 | 2 | 6 | |
| | No | 2 | 11 | 8 | 6 | 27 | |
| Total | | 2 | 15 | 8 | 8 | 33 | |
| Hospital | Practice in Aesthetic | Yes | 9 | 3 | | 12 | |
| | No | 1 | 3 | | | 4 | |
| Total | | 10 | 6 | | | 16 | |
| Total | Practice in Aesthetic | Yes | 9 | 9 | 0 | 2 | 20 |
| | No | 3 | 16 | 10 | 6 | 35 | |
| Total | | 12 | 25 | 10 | 8 | 55 | |
| Chi-Square Tests | | Value | df | Asymptotic Significance (2-sided) | | | |
| Others | Chi-Square | 1.500 | 1 | 0.221 | | | |
| | N of Valid Cases | 6 | | | | | |
| Community | Chi-Square | 3.198 | 3 | 0.362 | | | |
| | N of Valid Cases | 33 | | | | | |
| Hospital | Chi-Square | 3.200 | 1 | 0.074 | | | |
| | N of Valid Cases | 16 | | | | | |
| Total | Pearson Chi-Square | 13.903 | 3 | 0.003 | | | |
| | N of Valid Cases | 55 | | | | | |
| Symmetric Measures | | | | | | | |
| Practice_Setting | | Value | Asymptotic Standard Error | Approximate T | Approximate Significance | | |
| Others | Gamma | 1.000 | 0.000 | 1.732 | 0.083 | | |
| | N of Valid Cases | 6 | | | | | |
| Community | Gamma | 0.057 | 0.391 | 0.146 | 0.884 | | |
| | N of Valid Cases | 33 | | | | | |
| Hospital | Gamma | 0.800 | 0.240 | 1.732 | 0.083 | | |
| | N of Valid Cases | 16 | | | | | |
| Total | Gamma | 0.671 | 0.162 | 3.596 | <0.001 | | |

Table 3
Distribution of Aesthetic Practice Settings Among Pharmacists Providing Aesthetic Services.

| | | Aesthetic Services Type | | | Total |
|------------------------------|----------|------------------------------------|--|--|--------------------------|
| | | Neuromodulator only (less complex) | Fillers + Neuromodulators (more complex) | Fillers + Neuromodulator and More (most complex) | |
| Years of Practice in Alberta | <5 years | 4 | 2 | 4 | 10 |
| | >5 years | 3 | 2 | 5 | 10 |
| Total | | 7 | 4 | 9 | 20 |
| Symmetric Measures | | Value | Asymptotic Standard Error | Approximate T | Approximate Significance |
| Kendall's tau-c | | 0.120 | 0.237 | 0.506 | 0.613 |
| N of Valid Cases | | 20 | | | |

years of practice, ten practiced in aesthetics, and twenty-seven did not. A Chi-Square value of 4.259 and an asymptotic significance of 0.039 suggested a statistically significant association between the number of years of pharmacy practice and involvement in aesthetic practices.

The study examined the complexity of aesthetic injections provided by respondent pharmacists relative to their years of practice in Alberta. The aesthetic services were categorized into three levels of complexity: ‘Neuromodulator only’ (less complex), ‘Fillers + Neuromodulators’ (more complex), and ‘Fillers + Neuromodulator and More’ (most complex). Our results indicated no significant relationship between the number of years practicing in Alberta and the complexity of the aesthetic services provided by pharmacists. These results suggest that the complexity of the aesthetic services pharmacists provided did not significantly vary with their years of practice in Alberta. Less experienced and more experienced pharmacists provided various complex levels of aesthetic services. Table 3 summarizes the distribution of aesthetic practice settings among pharmacists providing aesthetic services.

In terms of aesthetic practice setting, out of the 20 pharmacists who provided aesthetic services, nine (45%) practiced in community pharmacies, three (15%) in clinics, and eight (40%) in medical spas. These data indicate that community pharmacies and medical spas were the most common settings for the practice of aesthetic services among pharmacists. The relationship between the complexity of aesthetic services and aesthetic settings was examined. The majority of the less-complex services were provided at community pharmacies, while more complex services were more common at clinics and medical spas. Particularly, the most complex services were predominantly offered at medical spas, with a strong positive correlation between the complexity of aesthetic services and the advancement level of the location where these services were provided. Table 4 summarizes the statistical analysis of the complexity of aesthetic services relative to aesthetic practice settings.

Regarding the satisfaction level among respondents regarding the support provided by the ACP for aesthetics, the majority expressed dissatisfaction. Out of the 28 respondents, over half (53.6%) reported feeling “Absolutely No Support” from the ACP. A significant proportion (39.3%) indicated that they had received only “Minimal Support.” A small percentage (7.1%) felt they had received “Neutral/Moderate Support.”

Additionally, a significant majority (54.4%) “Strongly Disagreed” that the ACP clearly communicates the aspects of aesthetic injection practice eligibility and requirements. A significant proportion of respondents (38.6%) also “Disagreed,” while a small fraction (7%) remained neutral, choosing “Neither Agree nor Disagree.” Interestingly, among the 32 pharmacists who reached out to the ACP, 25 strongly disagreed with the statement regarding clarity of communication, while seven disagreed, and none remained neutral. Comparatively, among the 23 who did not contact the ACP, nine strongly disagreed, 12 disagreed,

and two remained neutral. The Chi-square test revealed a significant association between these two variables, with a p-value of 0.008. These data suggest that pharmacists who had direct contact with the ACP were more likely to disagree about the clarity of communication from the ACP strongly.

In response to the question: ‘Do you choose to communicate with the patient’s primary health care provider(s) to inform them about the aesthetic injections you administered?’, only two (10%) who practiced aesthetic procedures reported that they choose to communicate with the patient’s primary health care providers about the aesthetic injections they administered. In contrast, the majority, 18 respondents (90%), reported not engaging in such communication. A similar trend was observed when participants were asked if they uploaded information about aesthetic injection activities to Netcare.

Our study revealed that all pharmacists engaged in aesthetic practice had completed aesthetic training. Among those who had undergone training, a range of satisfaction levels was reported, with 52.2% claiming neutrality, 43.5% expressing satisfaction, and a small proportion (4.3%) reporting very high satisfaction. Table 5 summarizes respondents’ aesthetic training experience and satisfaction rates.

4. Discussion

To our knowledge, this study represents a pioneering effort to assess the interest of pharmacists in providing aesthetic services in Alberta and to identify the challenges and barriers they face in securing endorsement for this practice. The context in which this study was situated is unique in that despite a lack of formal endorsement from the Alberta College of Pharmacy, Alberta pharmacists have widely adopted aesthetic injections. However, it is crucial to note a recent development that adds another layer of complexity to our study. In April 2022, the Alberta College of Pharmacy proposed a new set of standards prohibiting Alberta pharmacists from providing aesthetic injections. At the time of writing this article, these proposed standards were still under review. In Canada, the authority for pharmacists to administer injections for aesthetic purposes is specifically denied in six provinces, while the rest have not implemented any measures to enable this practice.³³ As such, the landscape surrounding the provision of aesthetic injections by pharmacists in Alberta is subject to change, which could have significant implications for our findings and their interpretation.

Our survey’s results demonstrate a noteworthy trend in Alberta’s pharmacy practice landscape. In contrast, a recent study profiling injectable aesthetic practitioners in the UK discovered that nearly 17% of all pharmacists with independent prescribing authority were engaged in aesthetic practice.³⁴ The seemingly lower percentage in the UK could be attributable to the significant disparity in the total number of pharmacists in 2022 between Alberta and the UK, 6136 and 61,140, respectively.^{35,36}

The results indicated that gender did not significantly influence

Table 4
Statistical analysis of complexity of aesthetic services relative to aesthetic practice setting.

| | | Type and Complexity of Aesthetic Services | | | Total |
|----------------------------|--|---|--|--|-------|
| | | Neuromodulators only (less complex) | Fillers + Neuromodulators (more complex) | Fillers + Neuromodulator and More (most complex) | |
| Aesthetic Practice Setting | Community Pharmacy (least specialized) | 7 | 2 | 0 | 9 |
| | Clinic (more specialized) | 0 | 1 | 2 | 3 |
| | Medi Spa (most specialized) | 0 | 1 | 7 | 8 |
| Total | 7 | 4 | 9 | 20 | |

| Symmetric Measures | Value | Asymptotic Standard Error | Approximate T | Approximate Significance |
|--------------------|-------|---------------------------|---------------|--------------------------|
| Kendall’s tau-c | 0.750 | 0.057 | 13.131 | <0.001 |
| N of Valid Cases | 20 | | | |

Table 5
Respondents aesthetic training experience and satisfaction rates.

| Have you received formalized-structured training before commencing the aesthetic injection activities? | | Training | | | Total |
|--|-----|----------|----|---------------------|-------|
| | | Yes | No | No, but Considering | |
| Practice in Aesthetics | Yes | 20 | 0 | 0 | 20 |
| | No | 3 | 13 | 19 | 35 |
| Total | | 23 | 13 | 19 | 55 |

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|----------------------------|------------------------------------|-----------|---------|---------------|--------------------|
| Training satisfaction rate | Neither satisfied nor dissatisfied | 12 | 18.8 | 52.2 | 52.2 |
| | Satisfied | 10 | 15.6 | 43.5 | 95.7 |
| | Very satisfied | 1 | 1.6 | 4.3 | 100 |
| | Total | 23 | 35.9 | 100 | |
| Total | | 64 | 100 | | |

| Training satisfaction rate | | Pharmacist Trainer | | Total |
|------------------------------------|----------|--------------------|----|-------|
| | | Yes | No | |
| Neither satisfied nor dissatisfied | Training | Yes | 12 | 12 |
| | Total | | 12 | 12 |
| Satisfied | Training | Yes | 9 | 10 |
| | Total | | 9 | 10 |
| Very satisfied | Training | Yes | 1 | 1 |
| | Total | | 1 | 1 |
| Total | Training | Yes | 22 | 23 |
| | Total | | 22 | 23 |

whether a pharmacist practiced aesthetic injections. Moreover, the results reflect a significant concentration of aesthetic practice among younger pharmacists, specifically within the 20–39 age group. The rapid decline of practitioners in the age groups above 40 may indicate potential barriers or reduced interest for these demographics.

Pharmacists operating in hospital environments seemed more inclined to engage in aesthetic practices. This finding aligns with previous studies, suggesting pharmacists in hospital environments exhibit a greater tendency to take on new practices earlier than community pharmacists.³⁷ Moreover, the strongest involvement in aesthetic practices was noted among part-time pharmacists, which could be explained by the fact that part-time pharmacists have more flexible schedules and fewer managerial responsibilities. It also suggested that most pharmacists in Alberta involved in aesthetic practice perform aesthetic injections part-time. A similar pattern has been observed during the early adoption of aesthetic practice among other healthcare professionals, such as nurses.³⁸

The newly graduated pharmacists appeared more inclined towards diversification in their practices, including aesthetics, which could reflect a shift in pharmacy education or market demand trends towards more personalized and comprehensive healthcare services. It is important to consider that graduates from the PharmD program at the University of Alberta automatically acquire the Additional Prescribing Authorization (APA) status and a license to administer injections, facilitating their entry into the aesthetic field.^{39,40}

The increase of aesthetic services in community pharmacies calls attention to the necessity for appropriate regulatory frameworks to be established. Such frameworks are crucial to ensure the safety and quality of these new services, to guide their integration within existing pharmacy practices, and to provide pharmacists with a clear understanding of their professional and ethical obligations within this new scope of practice.⁴¹ Conversely, the significant representation of pharmacists offering aesthetic services in medical spas pointed to the benefit of more specialized settings. These facilities, specifically designed and equipped for advanced aesthetic procedures, can provide a suitable environment for delivering complex aesthetic services. This might be particularly appealing for practitioners seeking to deliver more complex procedures, as these facilities are generally better equipped with advanced

technology and multidisciplinary specialized staff.^{42,43} Adding a pharmacist to the medical spa team could further enhance the safety of these procedures. Pharmacists bring unique knowledge about drug-drug interactions and dosage titration, significantly improving patient safety and procedural success.^{41,44}

Our results suggested clear dissatisfaction among the surveyed pharmacists with the ACP support and communication regarding aesthetic injections. This is noteworthy as it suggests a perceived lack of institutional backing and resources for pharmacists either already practicing or aspiring to practice aesthetics. The lack of clear communication might lead to uncertainty among pharmacists about the boundaries and expectations of their roles in this growing field. Moreover, these findings highlight the necessity for improved communication and support from regulatory bodies like the ACP. There is a need for clearer guidelines regarding aesthetic services and resources and training for pharmacists to ensure safe and effective patient care. Furthermore, a dedicated and clear communication strategy by the ACP could enhance pharmacists' understanding and application of aesthetic services in their practice. This could include detailed guidelines, training resources, FAQs, webinars, and workshops.

Previous research emphasized the importance of fostering open, clear communication channels between regulatory bodies and pharmacists, particularly as pharmacists' roles continue to diversify. Regulatory bodies must support these advancements and ensure pharmacists have the knowledge to provide these services safely and effectively.^{45,46}

Although it is mandatory to upload patients' information and dispensed prescriptions to Netcare for all licensed operational pharmacies in Alberta, Netcare is not accessible to personal service facilities such as medical spas.⁴⁷ Most surveyed pharmacists did not share aesthetic practice information with other healthcare providers or through Netcare, which might be attributed to privacy concerns, the perception that aesthetic injections fall outside core medical issues, and the limitations of the Netcare system. Additionally, in Alberta, medical spas are regulated by Alberta Health Services, while pharmacies come under the purview of the ACP. This regulatory differentiation can lead to confusion in multidisciplinary facilities like medical spas. Notably, nurses and physicians are not required to record their restricted activities in Netcare. Moreover, Netcare does not recognize the Drug

Identification Number (DIN) of cosmetic medications, products, and devices. Alberta's current Netcare system does not attribute prescribing decisions to individual pharmacists using their practice ID. Instead, it refers to them collectively as 'pharmacists' and associates them with their pharmacy's ID, name, and contact information.⁴⁸ Thus, there is a potential need for system upgrades or guidelines to address aesthetic practice complexities better.

Our findings underscored the strong link between aesthetic practice and relevant training among pharmacists. Access to structural training is a critical enabler for pharmacists to venture into the aesthetic domain. Moreover, this indicates inherent emphasis among practicing pharmacists on self-monitoring and self-improvement since aesthetic training is mandatory by the ACP. Interestingly, there was a universal preference for pharmacist trainers among those practicing aesthetics. This unanimous preference indicated high trust within the profession, suggesting potential benefits from incorporating more pharmacists as trainers in these programs.

4.1. Limitations

Several limitations should be considered when interpreting the results. In fact, interpreting studies based on online surveys and utilizing a self-selection recruitment method requires careful consideration due to representation issues.⁴⁹ Moreover, this study relied on self-reported data, which may be subject to social desirability bias. Some respondents might have given responses they believed were expected rather than accurately reflecting their experiences or beliefs. Furthermore, the small sample size of 64 pharmacists could limit the generalizability of the findings. It may not accurately represent the experiences and views of all pharmacists practicing in the aesthetic injection field in Alberta. Future studies would benefit from a larger, potentially more representative, sample size.⁵⁰ The number of respondents for some questions was low, which could bias the results. Non-response bias might be a factor if those who chose not to answer certain questions have different perceptions and experiences than those who did respond. Additionally, the study's cross-sectional design only captures pharmacists' views at one point in time. This design did not consider any changes in the views or practices of pharmacists over time, which might be important given the rapidly evolving nature of the aesthetic practice. Moreover, the study used a single-item measure for several constructs, such as satisfaction with training, which may not have fully captured the nuances of these constructs. Future research could use more comprehensive measures to provide a richer understanding of these aspects. Finally, these results were specific to pharmacy practice in Alberta and may not apply to other provinces or countries.

5. Conclusion

In conclusion, this study uncovered a growing trend among Alberta pharmacists to incorporate aesthetic services into their repertoire, suggesting a possible sea change in the field of pharmacy. Younger practitioners and those working in hospital settings showed a greater propensity towards these services. However, transitioning this interest into practice was constrained by a lack of clear regulation and support, underlining the urgent need for policy refinement and bolstered stakeholder assistance. The study also found a significant link between the complexity of aesthetic services and the location of delivery, with specialized settings like medical spas leaning towards more complex procedures. A prevalent dissatisfaction existed among pharmacists regarding the support and communication from the Alberta College of Pharmacists, indicating a pressing need for better regulatory dialogue. Despite system limitations and privacy issues, there was a marked preference for peer aesthetic training, implying the potential benefits of engaging more pharmacists as trainers. Overall, the study underscores the need for regulatory clarity, resource augmentation, and consistent professional development to leverage aesthetic services' potential in

pharmacy practice fully. As the first study to investigate this specific issue, our findings serve as initial insight into a rapidly evolving area of practice. We believe this study not only contributes valuable insights into the situation in Alberta but could also stimulate further research and policy discussions in other regions where similar practices may be under consideration.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following.

Established in 2019, the Alberta Cosmetic Pharmacist Association is a professional body dedicated to supporting, educating, and representing pharmacists who are practicing in the field of aesthetic medicine within Alberta. The association is committed to promoting high standards of practice and ethical care, encouraging ongoing education, and fostering collaboration among cosmetic pharmacists. It serves as a resource for its members by providing up-to-date information, training opportunities, and a platform for networking, professional development, academic publishing, and research. Moreover, it plays a pivotal role in advocating for the rights and interests of cosmetic pharmacists to regulatory bodies and the broader healthcare community. Since its inception, the association has fielded a multitude of inquiries concerning the regulatory framework for the practice of aesthetic medicine by pharmacists. This could suggest some ambiguity regarding the legal requirements as outlined by the Alberta College of Pharmacy (ACP), the sole regulatory authority for the pharmacy profession in Alberta. The aim of this survey, conducted by the Alberta Cosmetic Pharmacist Association, was to reveal trends in the emerging practice of aesthetics among pharmacists in Alberta, and to explore the readiness and willingness of Alberta's pharmacists to embrace this new aspect of patient care and the challenges and barriers they face in doing so. These might lead to debates or legal disputes with regulatory body, including, but not exclusive to ACP.

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