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# Charting Outcomes After Aesthetic Society Endorsed Aesthetic Surgery Fellowships: A 10-Year Analysis

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## Abstract

# Background

In recent years, interest in aesthetic surgery fellowship training and program offerings has increased significantly. In this study, we evaluated career paths, practice type, and research productivity of residents who completed aesthetic surgery fellowships.

# Methods

A cross-sectional study of graduates of Aesthetic Society-endorsed aesthetic fellowship programs between 2014–2024 was performed. Graduate information was collected from social media and publicly available websites. Graduates' practice settings were categorized as academic practice, private-affiliated practice, or private practice. Descriptive statistics, univariate analyses, and multivariable logistic regression were performed.

# Results

Overall, 177 fellowship graduates were included in this study. Graduates were predominantly male (71.8%) and White (64.4%). Most entered private practice immediately after fellowship (87.5%) and currently remain in private practice (88.1%). Graduates who entered private practice commonly joined group practices (55.7%). Graduates who changed practice settings tended to switch from group to solo practice between 2 to 3.6 years into initial practice. For graduates entering academic practice, median initial h-index was 9 and median initial number of publications was 21, compared to 6 ($p = 0.03$) and 11 ($p < 0.01$) for graduates entering non-academic practice. Those in academia currently have a median of 29 publications compared to 11.5 for those not in academia ($p < 0.01$).

# Conclusions

Most aesthetic surgery fellowship graduates remain in private practice and build experience in a group practice setting before transitioning to solo practice. Graduates in academic practice demonstrate significantly greater research output. Residents interested in academic practice should prioritize research or networking, whereas those interested in private practice should prioritize understanding various practice models.

## Introduction

Pursuing fellowship after plastic surgery residency is increasingly common. Up to 50% of graduating residents pursue further specialized training, an increase from 24% in 2007 [1] [2]. Since 2018, the number of aesthetic fellowship programs sponsored by The Aesthetic Society and positions offered has increased by 150% [3]. This is a significant increase, especially compared to other popular fellowships like microsurgery (30% increase in programs), craniofacial surgery (< 3% increase in programs), and hand surgery affiliated with plastic surgery programs (< 20% increase in programs) [4–6]. This surge in aesthetic fellowship programs reflects growing

interest and procedural volume in aesthetic surgery. For example, the number of plastic surgery residents who participated in the 2024 aesthetic surgery match was 60% greater than number of positions offered in 2018 [3]. The Aesthetic Society also reported over 9 million aesthetic procedures in 2022 compared to under 5 million in 2018 [7] [8]. While aesthetic surgery fellowships have traditionally followed short-term observership models in the community setting, academic plastic surgery programs have become increasingly involved. Of the 37 year-long aesthetic surgery fellowships endorsed by The Aesthetic Society, 10 are in academic centers [9].

Despite the overall increase in plastic surgeons specializing in aesthetic surgery, little has been published on factors associated with pursuing academic efforts after aesthetic surgery fellowship completion. Academic efforts in aesthetic surgery have shown to be correlated with more robust aesthetic surgery training at the residency and fellowship level [10]. In addition, improving the quality of clinically related aesthetic surgery research leads to enhanced evidence-based care and advancement of surgical techniques [11]. Thus, fostering an interest in research on aesthetic surgery is important for improving the safety of aesthetic surgery overall. Recent initiatives to foster these interests have included dedicated aesthetic surgeons at academic programs and aesthetic private practice surgeon mentorship of residents and students [11].

Considering these trends, we aim to investigate the demographics and career paths of plastic surgery trainees who pursue aesthetic fellowships. Secondarily, we hope to characterize research productivity through publication patterns of graduates and whether that influences their pursuit of academic careers. Overall, these insights will help trainees and plastic surgery programs understand the career outcomes of aesthetic fellowship-trained surgeons.

## Methods

This cross-sectional analysis examined 2014–2024 graduates of aesthetic fellowships formally endorsed by The Aesthetic Society, which are all one year long [12]. Fellowships were considered for analysis if they were endorsed by The Aesthetic Society as of August 2024 and were based in the US. Demographic variables included gender, race, residency location, residency ranking, plastic surgery residency type (Integrated vs. Independent), additional fellowship, and additional degrees. Regions for location data were delineated according to the US Census Bureau [13]. Residency ranking was determined via Doximity (San Francisco, CA) rankings for Integrated plastic surgery residencies (based on “Reputation” per Doximity) [14–16]. Rankings were split into tiers: 1–5, 6–20, 21–40, 41–60, 61+, Unranked. Canadian/International programs or programs with only an Independent residency were considered to be Unranked. Race was determined according to racial categories used by the US Census Bureau. Additional plastic surgery specialty fellowships completed (such as microsurgery) were only recorded as such if they were yearlong positions.

Bibliometric indices were measured one year post-fellowship (initial) and in September-October 2024 (current). This was done using Publish or Perish, a publicly available program [17]. Indices of interest were: h-index (number of papers $n$ with citation number at least $n$), g-index (unique largest number $n$ such that the top $n$ articles have combined $n^2$ citations), and number of indexed publications (number of publications searchable in databases such as MedLine, PubMed, EMBASE, SCOPUS) [18] [19]. Academic practice was defined as full-time faculty. “Private affiliated” practice included those who were involved in teaching residents/fellows but not formally listed as full-time faculty. All other graduates were classified as private practice. The initial and current position of graduates were recorded, defined by the following categories: junior faculty (including Assistant

Professor, Clinical Instructor, etc.), senior faculty (including Associate Professor, Professor, etc.), solo practice, group practice (any practice with multiple providers including multi-disciplinary practices), community hospital, and Other (such as full-time Industry positions or consultants). Time to practice change for graduates who changed practice settings at least once was recorded. Only fellows with both initial and current practice data were included for analysis.

Chi-square analysis tested demographic associations with academic practice, and Mann-Whitney U Test compared bibliometric indices between academic and non-academic (private affiliated and private practice) graduates. Multivariable logistic regression was performed to assess for factors associated with greater odds of going into academic practice. Bibliometric indices were also compared in a pairwise fashion between fellows who graduated from the four most attended fellowships and those who graduated from other fellowships. All analyses were performed with Python version 3.12.2 with alpha set at 0.05 for statistical significance [20].

## Results

# Demographics

A total of 177 fellowship graduates were included for analysis. For all years where match data was available from SF Match, there were more identified fellows than the number of reported matches (Table 1). In every year, there were more applicants participating in the match than fellows identified (Table 1).

Table 1
Fellows per academic year identified in this study compared to listed number of matched fellows via SF Match statistics.

| Fellowship Year | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Fellows Identified** | 10 | 10 | 16 | 16 | 13 | 18 | 22 | 21 | 25 | 26 |
| **Fellows Matched via SF Match*** | NA | NA | NA | NA | NA | 17 | 19 | 20 | 22 | 25 |
| **Fellowship Positions Offered** | NA | NA | NA | NA | NA | 17 | 24 | 24 | 32 | 41 |
| **Applicants Participating in Match** | NA | NA | NA | NA | NA | 28 | 27 | 33 | 30 | 28 |

*Of note, the annual match is for positions beginning the following year. The data here represents how many fellows were matched for the corresponding fellowship year. For example, there were 17 reported matches for fellowship year 2019-20, and these match results were announced in 2018.

71.8% of graduates were male and 64.4% were White, followed by 26.6% Asian, 5.1% Hispanic, and 4.0% Black (Table 2). Most graduates completed Integrated plastic surgery residencies (72.9%), and the top feeder residency programs were University of Texas Southwestern (9) and Duke University (8) (Table 2, Table 3).

Table 2
Fellow demographics per academic year identified in this study.

| **Females** | **2014-15** | **2015-16** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22** | **2022-23** | **2023-24** |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2 (20%)** | **3 (30%)** | **3 (19%)** | **5 (31%)** | **6 (46%)** | **3 (17%)** | **8 (36%)** | **6 (29%)** | **6 (24%)** | **8 (31%)** |
| **URM** | 1 (10%) | 0 (0%) | 0 (0%) | 2 (13%) | 1 (8%) | 3 (17%) | 3 (14%) | 2 (10%) | 1 (4%) | 3 (12%) |
| **Integrated Residency** | 7 (70%) | 6 (60%) | 9 (56%) | 11 (69%) | 9 (69%) | 13 (72%) | 19 (86%) | 17 (81%) | 19 (76%) | 19 (73%) |

URM: Underrepresented in Medicine, referring to race as defined by Association of American Medical Colleges.

Table 3
Aggregate data on training characteristics of fellows identified in this study.

| Training Variable | Count (%) |
|---|---|
| **Residency Location** | |
| South | 55 (31.1%) |
| Midwest | 49 (27.7%) |
| Northeast | 42 (23.7%) |
| West | 21 (11.9%) |
| Canada | 7 (4.0%) |
| International | 3 (1.7%) |
| **Residency Type** | |
| Integrated | 129 (72.9%) |
| Independent | 48 (27.1%) |
| **Residency Ranking** | |
| 1–5 | 46 (20.0%) |
| 6–20 | 31 (17.5%) |
| 21–40 | 30 (16.9%) |
| 41–60 | 26 (14.7%) |
| 61+ | 23 (13.0%) |
| Unranked | 21 (11.9%) |
| **Fellowship Location** | |
| South | 87 (49.2%) |
| Northeast | 41 (23.2%) |
| West | 40 (22.6%) |
| Midwest | 9 (5.1%) |

Additional aggregate data of training variables are shown in Table 3. Most graduates (93.2%) did not complete an additional fellowship; 7 graduates (4.0%) were noted to have completed an additional microsurgery fellowship. Most graduates (82.5%) did not have additional degrees. The four most attended fellowships made up 41.3% of all graduates: Manhattan Eye, Ear and Throat Hospital (MEETH, 20 graduates), Aesthetic Surgery Fellowship of Los Angeles (Aesthetic Fellowship LA, 20), H/K/B Cosmetic Surgery (H/K/B, 18), and Dallas Plastic Surgery Institute (DPSI, 15). The most common fellowship location was in the South (49.2% of graduates) and the least common was the Midwest (5.1%) (Table 3).

## Career Paths

One graduate was excluded for analysis of practice type, as they deferred clinical practice to pursue another fellowship. Most graduates (87.5%) entered private practice immediately after fellowship (Fig. 1). 12.5% of graduates pursued either academic or private affiliated practice immediately after fellowship (Fig. 1).

A similar proportion of graduates currently remain in non-private practice settings (11.9%). Graduates most commonly started practice in the South (40.3%) and West (26.1%) (Fig. 2). Similarly, graduates' current practices are predominantly in the South (38.6%) and in the West (27.8%) (Fig. 2). A few graduates are currently practicing internationally (Fig. 2).

In the three years immediately before 2019–2020 (when the COVID-19 pandemic was announced), no graduates entered academic practice (Fig. 3). Interest in academic practice rose in the three years following 2019–2020, only to decrease again by 2023–2024 (Fig. 3). None of the demographic variables assessed were associated with entering academic practice.

The majority of graduates (98, 55.7%) joined a group practice immediately after fellowship; the second most popular position was a solo practice (47, 26.7%) (Fig. 4). When looking at current practice setting, we found that the number of graduates with a solo practice increased (62, 35.2%) and the number of graduates in group practices decreased (88, 50.0%) (Fig. 4). In total, 24 graduates (13.6%) changed practice settings, of which seven changed practice settings more than once. Most commonly, graduates transitioned from Group practice to Solo practice (Table 4, Fig. 4). Average years to first change was between 2 to 3.6 years. The total attrition from academic to private practice was 20% (Fig. 4).

Table 4
Time to change for graduates who changed practice positions.

| Initial Position | Current Position | Count | Average Years to Change |
|---|---|---|---|
| Assistant Professor | Group Practice | 1 | 2 |
| Assistant Professor | Solo Practice | 3 | 2.3 |
| Community Hospital | Solo Practice | 2 | 2.5 |
| Group Practice | Other | 1 | 3.6 |
| Group Practice | Solo Practice | 10 | 2.9 |

*Graduates who changed practices more than once were excluded from this count.

## Academic Productivity

The median initial h-index for graduates who entered academic practice after fellowship was 9, compared to 6 for non-academic surgeons ($p = 0.03$). The initial g-index was 15 compared to 10 ($p = 0.02$), and the initial number of publications was 21 compared to 11 ($p < 0.01$) for initial academic practice and non-academic practice, respectively. When looking at current bibliometric indices, those in academic practice had a median h-index of 10 compared to 6 for non-academic practice ($p = 0.02$) and a median g-index of 16 compared to 10 for

non-academic practice ($p = 0.01$). The median h-index and g-index did not increase for those not in academic practice. Those in academic practice currently have a median of 29 publications compared to 11.5 for those not in academic practice ($p < 0.01$). Figure 5 shows the distribution between all three practice settings.

Regression analysis found no variables significantly predicted an initial academic practice setting.The four most common fellowship programs had varying levels of graduate academic productivity (Fig. 6). DPSI graduates had a significantly higher initial h-index (12) and initial number of publications (33) compared to graduates from outside of the four most common fellowships and H/K/B ($p < 0.001$ for both); no significant difference was found between any other fellowship pairs.

## Discussion

Given the growing interest in aesthetic surgery fellowships after residency, it is pertinent to understand career outcomes of residents who pursue fellowship. We found the overwhelming majority of graduates entered private practice after fellowship (Fig. 1). Historically, most aesthetic plastic surgery has been done in outpatient private practice centers. However, there were still 12.5% of graduates in academic or private affiliated practice. These results may suggest some interest for those completing aesthetic fellowship to work in academic settings and reciprocal interest for academic institutions to recruit fellowship-trained aesthetic plastic surgeons [21]. It is important to note that this study was only able to assess which surgeons are actively employed or affiliated with academic institutions, not informal teaching roles. It is likely that many fellowship trained aesthetic plastic surgeons in the community are valuable mentors to medical students or residents.

It was unsurprising to see most graduates entered group practice initially (Fig. 4), particularly given the upfront cost required to open or buy a practice and an immature patient pool. Notably, all graduates who began solo practice remained in solo practice. This may suggest that an aesthetic fellowship justified the extra year of training for these graduates as they have been successful in a solo practice model. The most common switch was from group practice to solo practice, which occurred at 2.9 years on average (Table 4). This short period suggests rapid practice matruation and highlights the anecdotal added value of an aesthetic fellowship for mentorship on business and marketing, which are uniquely important in aesthetic plastic surgery [22]. The attrition from academic practice was low, although it is important to note that some graduates are still early in their careers. It is likely that personal factors such as institution fit or perceived increased earning potential drives attrition for newly graduated aesthetic surgeons [21, 23]. Overall, it is reassuring for academic institutions who want to hire graduates that most do stay in academics with two graduates even achieving senior faculty positions.

Academic productivity was measured by bibliometric indices in this study. Overall, we see that most graduates had over 10 publications immediately after training (Fig. 5). Siniakowicz et al. recently reported that graduating plastic surgery residents in 2020 had a median number of six publications [24]. An increased number of publications may indicate that those who pursue fellowship were productive during residency. Median h-index, g-index, and number of publications did not significantly increase over time for those in private practice, confirming there is less emphasis on research for private practice surgeons despite having done fellowship. Both private affiliated and academic aesthetic surgeons are likely actively involved in aesthetic surgery research as seen in Fig. 5. This is encouraging that many surgeons who are not full-time faculty are still involved in academic endeavors. The increased median number of publications from end of training until

current day reflect the increased quantity of aesthetic surgery research. Likewise, the increased median h-index and g-index show both the increased quantity and quality of publications with increased number of citations. These trends align with the recent initiatives to advance research in aesthetic surgery [11, 21]. Notably, graduates from DPSI had increased academic productivity (Fig. 6). This may be due to individual fellows at DPSI having an inclination for research, research being a larger focus of the fellowship experience, or research being a more important application criterion. Residents interested in particular fellowships should consider differences in academic productivity and how that may affect their future career path.

The percentage of female graduates remained stable at roughly 20–30%, except for the year 2018-19, which saw 46% of fellows being female (Table 2). Improving gender parity in plastic surgery training has been an area of targeted focus for national plastic surgery societies, particularly as only 19% of board-certified plastic surgeons in the US are female [25–28] [29]. Over the past ten years, the proportion of female Integrated plastic surgery residents has steadily increased from less than 30% in 2014 to 47% of incoming plastic surgery residents in 2024 [30–32]. Although there are an increasing number of female residents, our study still observed a gender discrepancy in the residents who pursued aesthetic fellowship. It is unclear whether the cause of decreased female representation is due to lack of interest or other barriers in the application process. It is important to mitigate this gap through increased mentorship amongst aesthetic plastic surgeons or increased exposure to aesthetic surgery during residency, particularly as the aesthetic surgery population is predominantly female and may prefer a female plastic surgeon [33, 34]. The proportion of fellows who were identified as racially underrepresented in medicine (URM) fluctuated from 0–17%, although notably the number of URM fellows was small overall (Table 2). For the academic year 2020-21, Elmorsi et al. reported only 5.8% of plastic surgery residents in the US were URM [35]. It is likely that the paucity of URM aesthetic fellows reflects widespread barriers throughout pre-medical and medical training rather than barriers to aesthetic training after residency [36, 37].

Most aesthetic fellowship graduates completed Integrated plastic surgery residency, and this proportion remained stable throughout the study period (Table 2) despite the number of Independent residents shrinking over the years. There were 76 Independent positions in 2014 and 57 Independent positions in 2022, a 25% decrease [38] [39]. A survey study published by Mukit et al. in 2023 showed that only 49% of Independent residents reported they planned to pursue fellowship, compared to 70% of Integrated residents [40]. Mullen et al. found that most Independent graduates in 2023 entered private practice immediately, with only 36% pursuing fellowship [41]. However, we did not see a correlating decrease in the proportion of aesthetic fellowship graduates completing Independent residency [42]. This is reassuring for residents that residency type does not affect one's chances of matching. Instead, there are likely patterns in which applicants are more drawn to aesthetic fellowship. The distribution of residency rankings for fellowship graduates was relatively balanced (Table 3). This suggests increased interest in aesthetic fellowship across programs of all sizes, academic focus, and history. Interestingly, only 11.9% of fellows completed residency in the West (Table 3), which is surprising given the large volume of aesthetic surgery patients in states like California [43, 44]. One possible explanation is that there are many private practice options for patients, so residents in the West get relatively less exposure to aesthetic plastic surgery in residency. Conversely, residents in high-volume regions may also have more exposure to aesthetic surgery patients and may not feel the need to do fellowship. More research is needed to elucidate this trend, which has implications for younger trainees interested in aesthetic practice.

# Limitations

Our study has several limitations. First, data was collected from publicly available information, which may limit the accuracy of included data and analysis of variables like changes in employment. In attempts to address this, we sent a survey to fellowship directors and asked them to disseminate amongst graduates from their fellowships. The survey asked whether and when practice change occurred, motivations for entering academic or private practice, and research productivity via presentations and publications. Unfortunately, response rate was poor after multiple rounds of survey dissemination, so we did not include this data in this study. We also attempted to directly survey graduates who completed Aesthetic Society Endorsed fellowships, but did not have the adequate funding to do so through the Aesthetic Society. Some inaccuracy is inevitable in online data and we were unable to quantify this as we could not verify the “true” total number of aesthetic fellowship graduates throughout the study period; this information was unavailable from both SF Match and the Aesthetic Society. Regardless, aesthetic surgeons should strive to accurately list their training and previous employment to provide patients a complete picture of their technical experience. This is crucial as unqualified providers increasingly offer aesthetic procedures [45, 46]. Our study did not assess the mentorship and teaching responsibilities of private practice surgeons. In this study, we defined “involved in teaching” as affiliation with an academic institution. However, we recognize there may be surgeons who teach and mentor outside of formalized academic roles, and we could not incorporate these nuances into our study. Race and gender in this study was subjectively classified by the authors based on graduate name and photos published online, which is subject to bias. While the overall aggregate sample size of the study was large, the sample size of graduates per year was relatively small. Future research may include longer term follow up of how aesthetic fellowship training influenced surgeons’ career paths.

## Conclusion

There are an increasing number of residents graduating aesthetic fellowship. Graduates who entered academic practice and private affiliated practice were highly academically productive, indicating this may be important for trainees who want to be in these practice settings. In addition, attrition from academic practice was low, indicating there is some level of interest in academic practice amongst fellowship graduates. Most graduates enter group private practice, which reiterates the increasing difficulty of starting a solo practice immediately after training. Future qualitative studies assessing residents’ interest in aesthetic fellowships or certain practice settings may be beneficial to further understand the nuances of aesthetic surgery career paths post-fellowship.

## Declarations

The authors did not receive funding for this study. The authors declare no conflicts of interest. For this type of study, no consent or IRB approval was required as all data was publicly available. This article does not contain any studies with human or animal subjects. There is no clinical trial number corresponding to this manuscript.

# Author Contribution

The project was conceived by EL, DS, and AP. Data collection was performed by EL, JL, TP, AK. Statistical analyses were conceptualized by EL, DS, and AP, and performed by EL. The initial manuscript was drafted by EL

and JL. The final manuscript was written with the input and approval of all authors.

# Data Availability

Data can be shared upon request with the corresponding author.

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## Figures

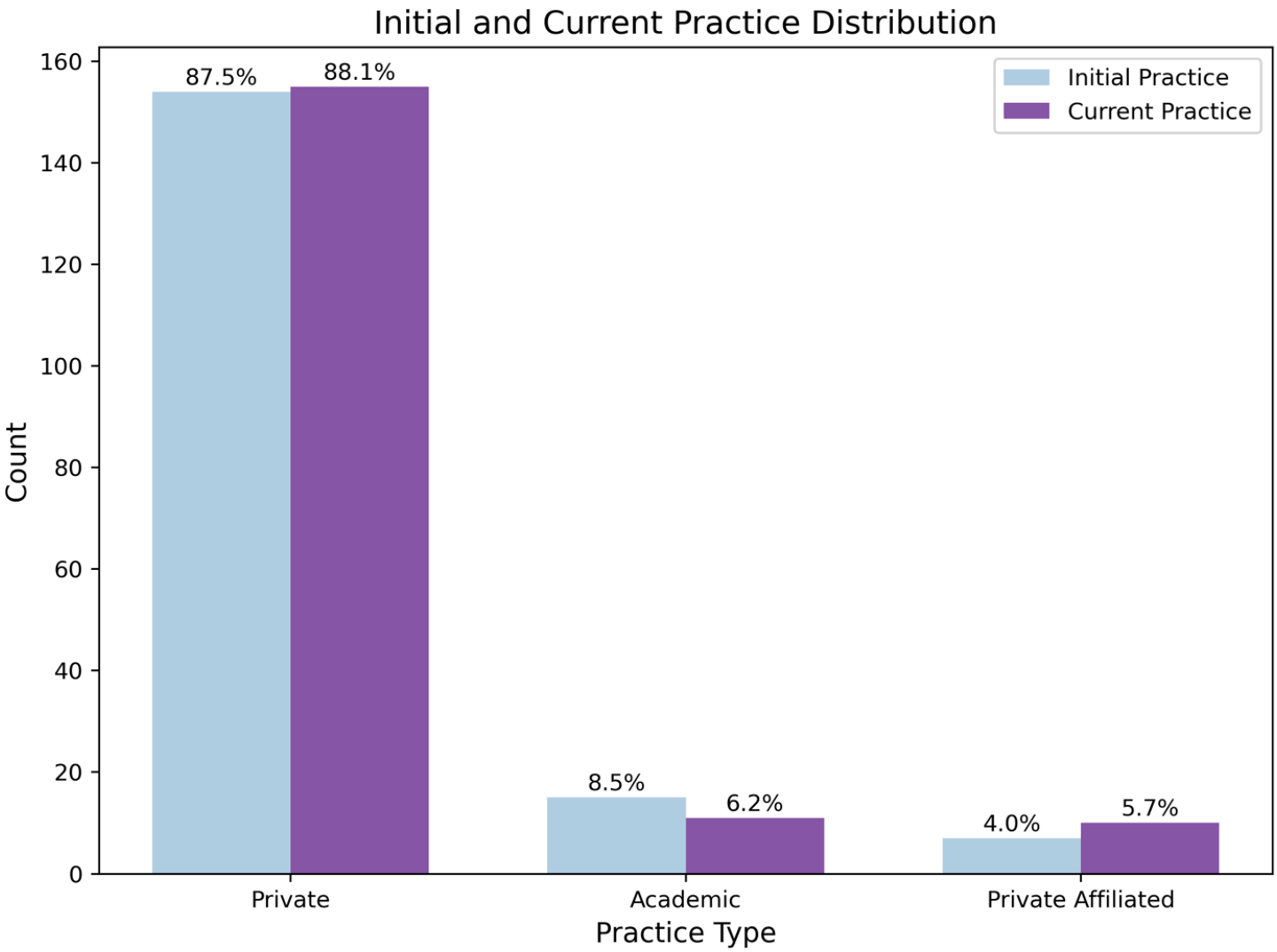



**Figure 1**

A comparison of aesthetic fellowship graduates' initial and current practice settings categorized as academic practice, private-affiliated practice, or private practice

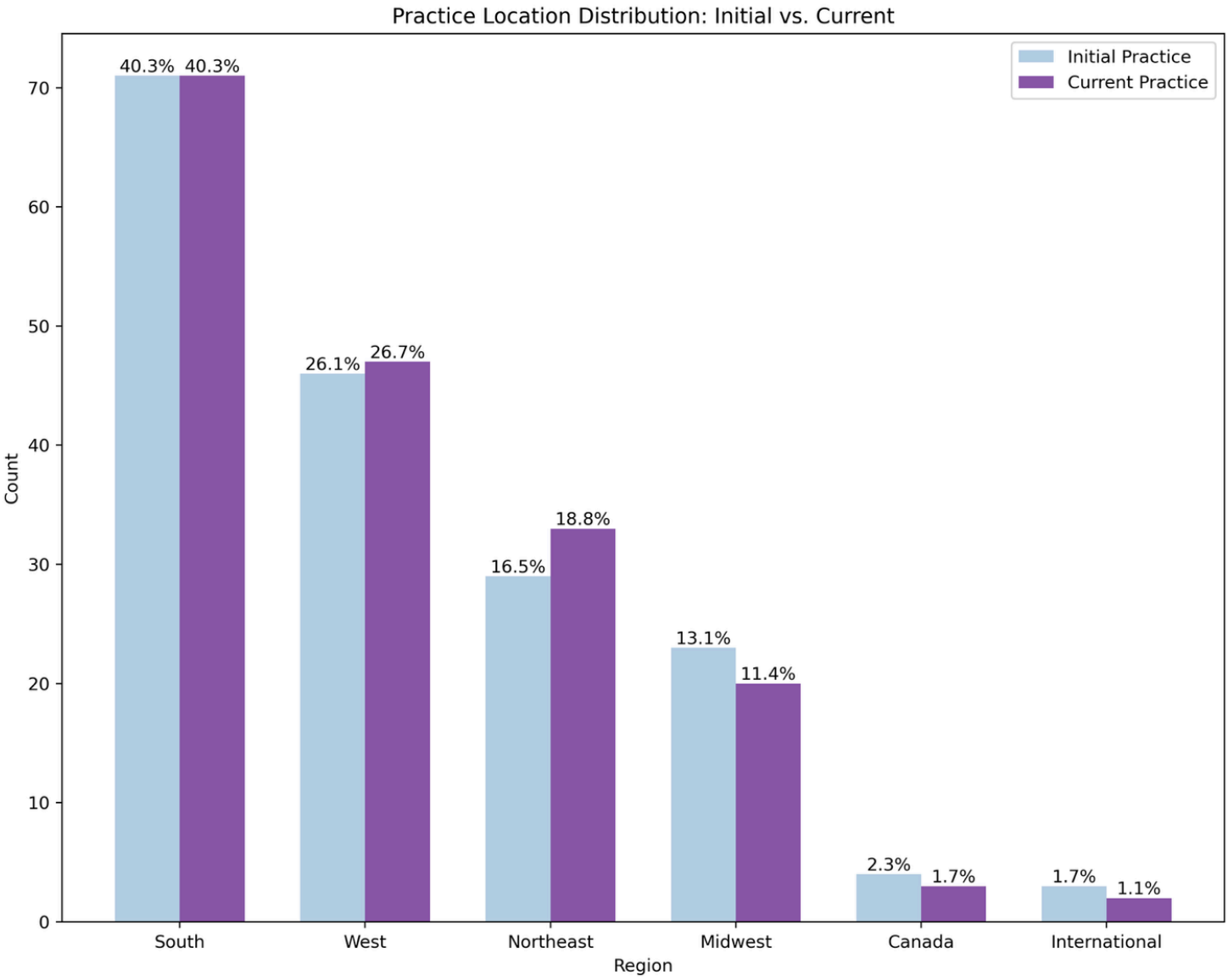



**Figure 2**

A paired bar plot comparing initial and current practice location of aesthetic fellowship graduates

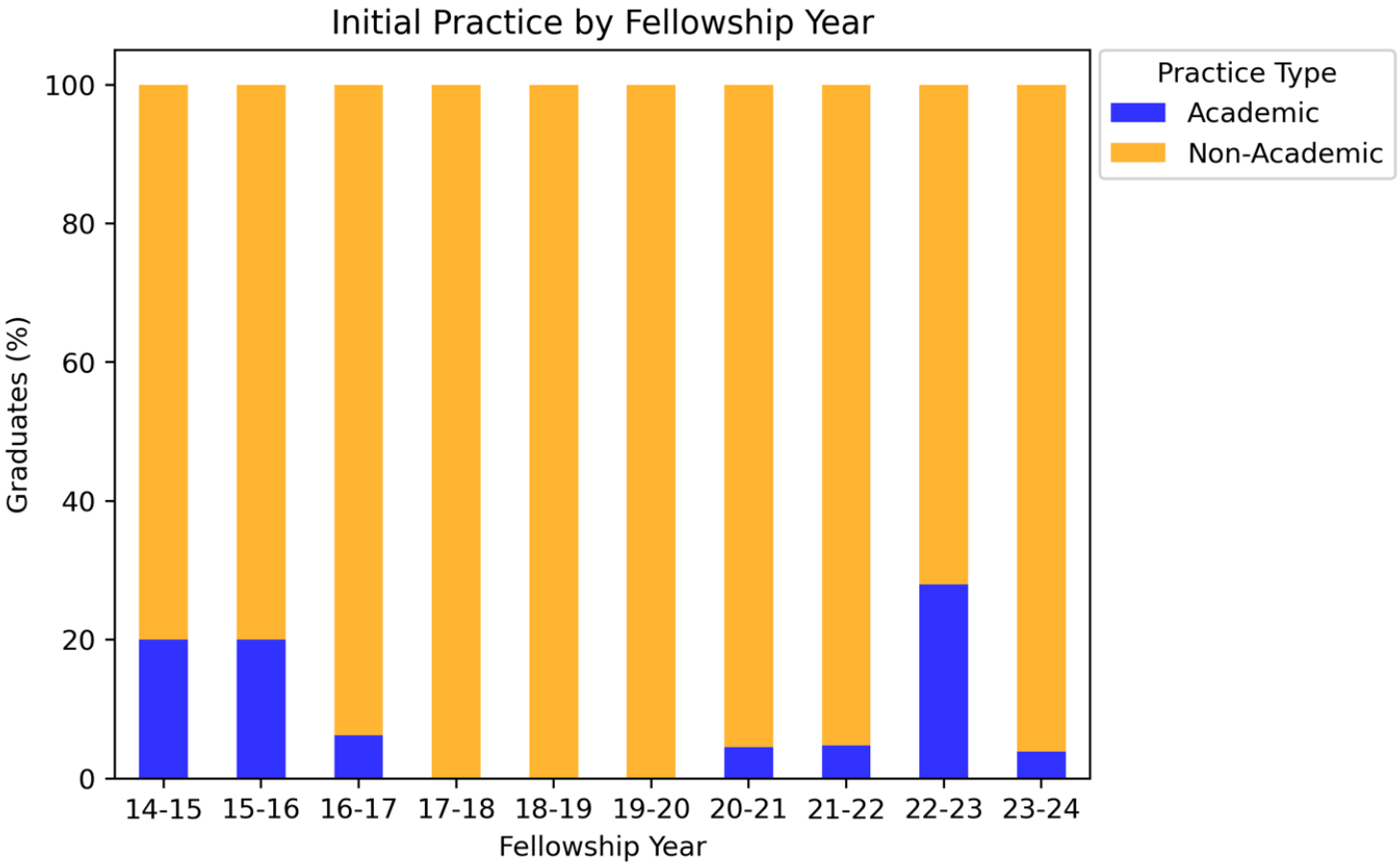



**Figure 3**

A stacked bar plot depicting the percentage of aesthetic fellowship graduates who entered academic practice or non-academic practice by fellowship graduation year. Year is written as the last two digits of the year (i.e. 14-15 for 2014-2015)

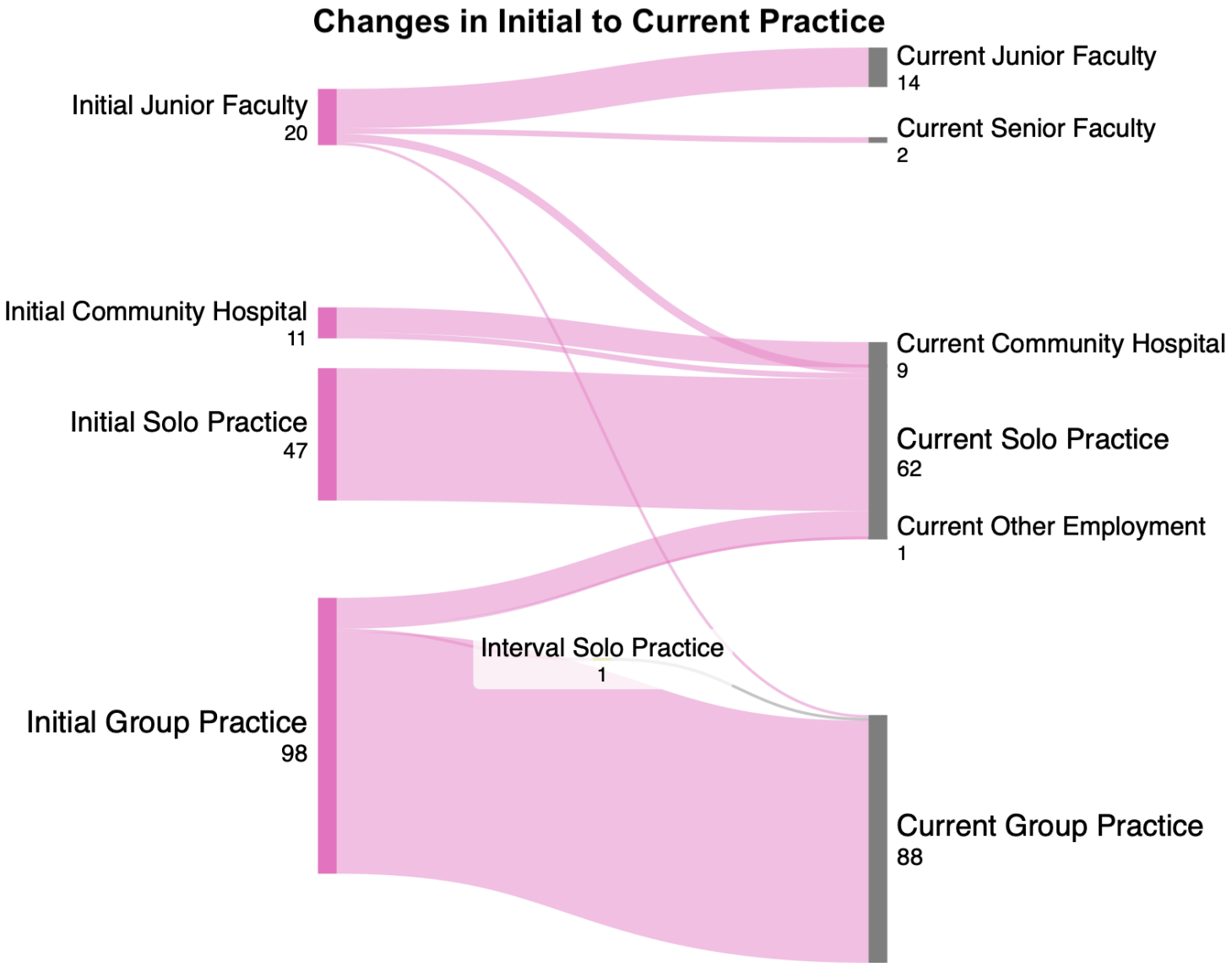
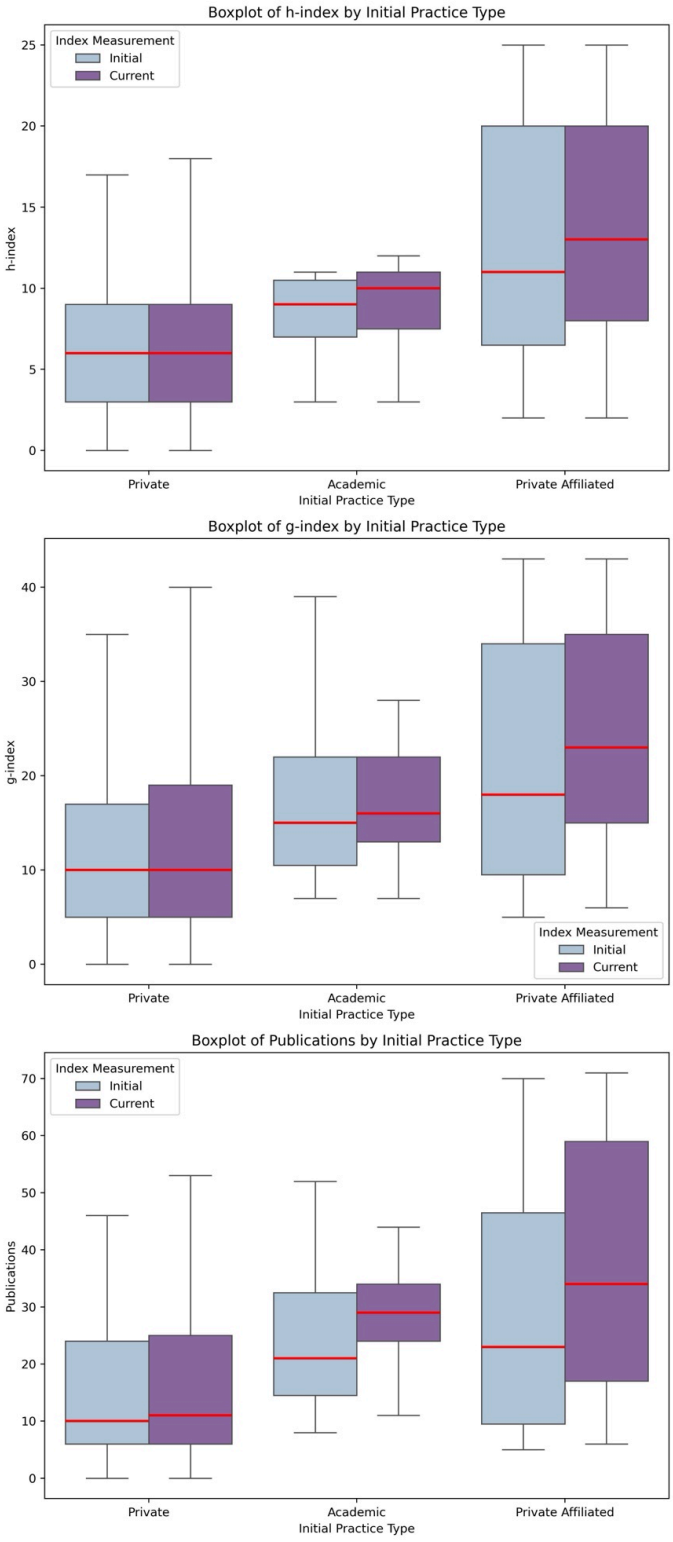


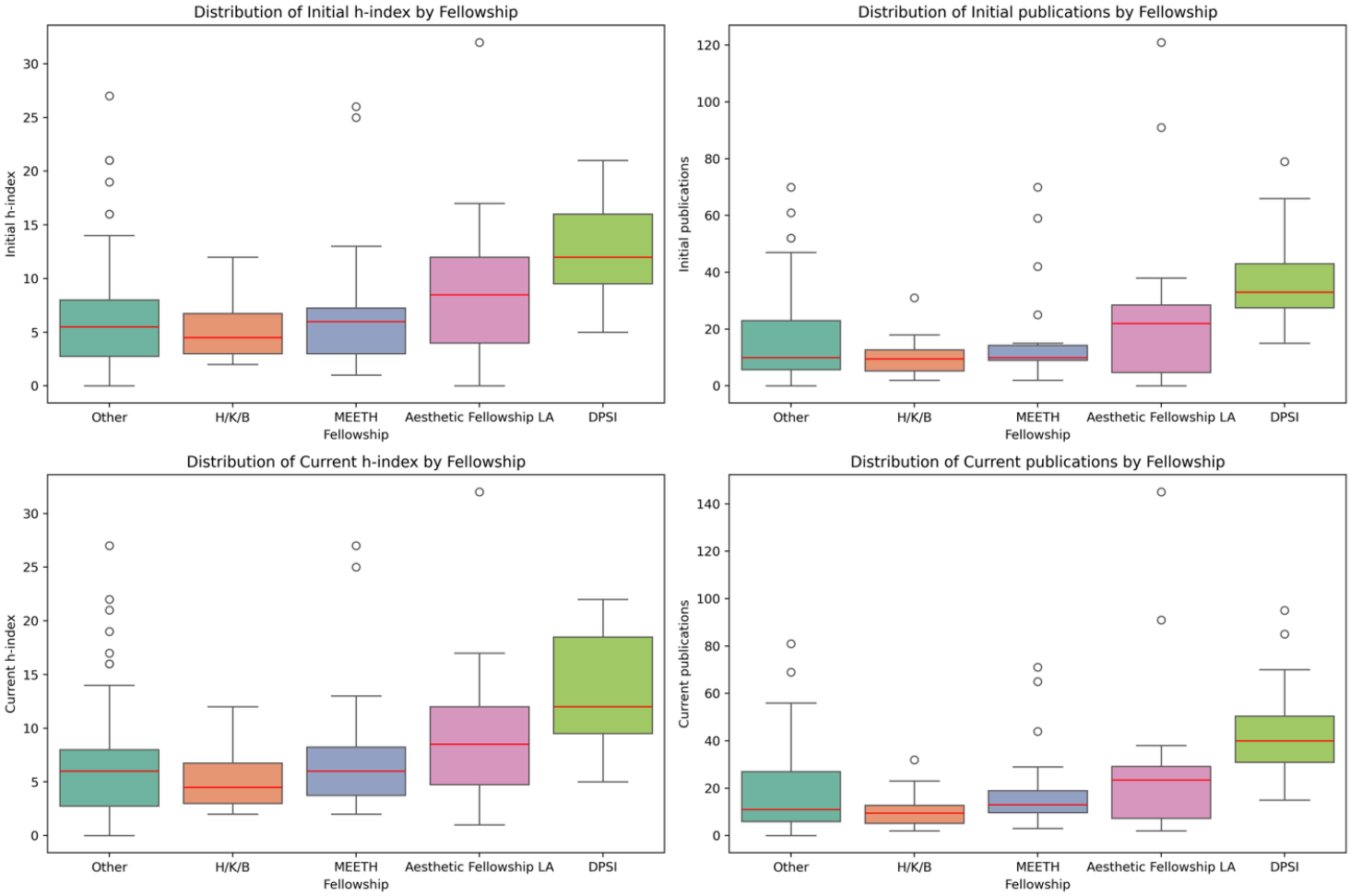

**Figure 4**

A chart depicting changes between aesthetic fellowship graduates' initial practice settings immediately after fellowship (left) and their current practice settings (right)




## Figure 5

Initial and current bibliometric indices of aesthetic fellowship graduates grouped by initial practice type




## Figure 6

Distribution of graduate initial and current bibliometric indices by fellowship program. Pairwise comparisons of bibliometric indices between fellowship programs revealed significantly higher bibliometric indices for DPSI graduates compared to “other” and H/K/B graduates ($p < 0.001$)