Global Need-Assessment for a Postgraduate Program on Non-Surgical Facial Aesthetics

Narendra Kumar, MSc, MBA; and Eqram Rahman, MBBS, MS, MMEd, PhD

Dr Kumar is a PhD candidate, Faculty of Health, Education, Medicine, and Social Care, Anglia Ruskin University, Chelmsford, UK. Dr Rahman is an Associate Professor, Division of Surgical and Interventional Science, University College London, London, UK.

Corresponding Author: Dr Narendra Kumar, Faculty of Health, Education, Medicine, and Social Care, Anglia Ruskin University, Bishop Hall Lane, Chelmsford, Essex CM1 1SQ, UK. E-mail: narendrakumar226@gmail.com; Instagram: @narendrakumar226

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Abstract

Background: Standardizing training and education in non-surgical facial aesthetic procedures during residency training has long been challenging since the majority of the procedures are performed outside the usual teaching hospital settings. Several areas of refinement have been suggested and an increased need for more hands-on training identified in the available literature. Despite the growing demand for non-surgical facial aesthetics (NSFA), it is yet to be fully integrated into standard postgraduate medical or surgical curriculum.

Objectives: The objective of this study was to explore the current state and the need for medical education and training of aesthetic clinicians across specialities in a formal postgraduate curriculum.

Methods: A mixed-method, cross-sectional, online research was conducted amongst physicians involved in training and practising non-surgical facial aesthetics between July 2018 to December 2018. Focus group discussion was conducted to ensure the face and content validity of the survey items.

Results: The total responses collected in the trainer's group was 179 and 496 in the trainee's group. Majority of trainers (95%) and trainees (93.8%) across specialities expressed their opinion for the need of a standard postgraduate course in NSFA. Moreover, over 55% of them felt that 12 months, with a work-based, blended learning approach, would be most suitable for training and education.

Conclusions: The survey results have underlined the need for the specialized training in NSFA to enable clinicians to pursue independent practice with confidence. The authors recommend the inclusion of evidence-based postgraduate programs on NSFA in higher academic institutions as per their educational curriculum.

The rising demand for cosmetic procedures with astronomical growth in non-surgical facial aesthetics (NSFA) is lamentably accompanied by a paucity of structured clinical education programs. This warrants immediate scrutiny of the current state of training and education in cosmetic procedures. The ability to perform non-surgical facial rejuvenation forms one of the core competency requirement for plastic surgery and dermatology residents.[1-4] However, there is a dearth of data on standard training models or strategies to achieve competency in NSFA. Due to this reason, an optimum outcome of the procedures performed by the residents becomes challenging.[3] Whilst, on the one hand, rapid development of new devices and procedures are witnessed, on the other hand, there is a dearth of data surrounding patient-reported outcomes (PRO) and research on comparative effectiveness. This status act as a barrier in the development of best aesthetic practices.[5] There has been a growing demand for adequate exposure to aesthetic procedures during residency training.[6] However, the current training programs, do not have much focus on teaching of non-surgical aesthetic procedures and combined with inadequate hands-on training leads to low confidence in performing these procedures independently. Hence, those entering independent practice have to spend additional time and resources in acquiring and honing their skills in aesthetic procedures.[7]

Several authors have also reverberated their concerns about training in aesthetic procedures during the plastic surgery and dermatology residency program even in the speciality colleges. They have suggested many areas for refinements, including aesthetic surgical and non-surgical facial aesthetic procedures, body countering techniques, as well as procedural dermatology.[8-12] These suggestions have been endorsed by the Accreditation Council for Graduate Medical Education (ACGME) Residency Review Committee for plastic surgery as well leading up to the modification in the content as well as the duration of the study period of plastic surgery curriculum in the United States (US).[13] Following these changes, substantial improvements in terms of increased duration of the training and enhanced confidence of the trainees in minimally-invasive procedures and body contouring were witnessed among the residents in the plastic surgery residency training.[14,15] A review of available literature also showed that "*the plastic surgery training needs to be more vibrant and in tune with the changing times*." There is a need to incorporate the facial aesthetic content in the currently existing reconstructive modules.[6]

Authors have also asserted the need for adequate training and education on non-surgical aesthetic procedures during the dermatology residency program. Earlier surveys have demonstrated that the dermatology residents feel that the training is not appropriate and desire more hands-on learning on the subject.[16,17] ACGME for dermatology residency program

recommends residents to have "significant exposure to procedures either through direct observation or as an assistant". Nevertheless, word significant is enigmatic, which allows varied interpretation by the program directors, which leads to inconsistent training and results in unpredictable patient outcomes.[18] Patients often visit their dermatologist for skincare recommendations and facial aesthetic treatments;[19] therefore, they need to have adequate competence in carrying out the desired procedures. With an increasing demand for aesthetic treatments; it becomes imperative that the dermatology residents are educated about and achieve proficiency in dermatological aesthetic procedures in a standardised way. A curriculum, teaching residents about aesthetic dermatology will help in delivering safe and efficient patient care.[20] Various studies have also emphasised that performing aesthetic procedures in the resident clinic will be a valuable tool and will enhance the competence and confidence of the new graduates entering into independent practice.[21] There is a consensus amongst dermatology residents and faculty members to increase the aesthetic dermatology training.[22]

At present, aesthetic procedures are being carried out by clinicians and allied health care professionals of varied specialities; such as dermatology, plastic surgery, general surgery, otolaryngology, ophthalmology, maxillofacial surgery, gynaecology, dentistry, general practice, and nursing. Unfortunately, studies to evaluate the standard of training and education in aesthetic procedures are predominantly conducted only amongst plastic surgery and dermatology residents and program directors. An important reason for this may be due to the existence of NSFA procedural training in the curriculum of both specialities only; however, emphasis on the training is debated by the authors in the literature.[9,11]

The current training and education program has slowly evolved with time and helped to produce many competent physicians.Howbeit, the phenominal growth in the demand due to increased affluancy,and decreased taboo towards aesthetic procedures has changed the dynamics. The demand for the trained and efficient clinicians with expertise in NSFA is on the rise; it becomes critical to keep pace with ever evolving societal need and warrants the program directors to restructure their courses to meet the present as well as future rising training demand for NSFA.

Therefore, the objective of the present study is to evaluate the current state of non-surgical facial aesthetic education and training amongst practising clinicians across different specialities through a need assessment so that an informed recommendation and evidence-based decision to improve the existing education and training programs can be made.

METHODS

In this mixed-method, cross-sectional study, the authors utilized both qualitative and quantitative data to examine the trainers (faculty) and trainees (students) perspectives on non-surgical facial aesthetics across the specialities. A mixed-methods technique becomes valuable when the researchers can study qualitative and quantitative data successively. It facilitates the outcomes from both approaches to provides a wider view on the phenomenon under the study. Although, researcher has to respect the ontological (relating to the branch of metaphysics dealing with the nature of being),and epistemological (relating to the theory of knowledge, especially with regard to its methods, validity, scope, and the distinction between justified belief and opinion) principles of each convention.[23-26] The first author (N.K.) developed two online surveys; subsequently, a focus group discussion (FGD) with two each dermatologists, plastic surgeons, aesthetic physicians, and an educationalist were conducted. The experts in the FGD were selected on the basis of their extensive experience in NSFA, teaching and research. Focus group has an immense importance for designing the survey questions for the face and content validity to avoid any ambiguity and misinterpretation of survey items.

Questionnaires consisted of binary options (Yes/No) with a comment box where respondents could express their opinion as deemed fit. Participants included in the study were physicians who were actively delivering training on non-surgical facial aesthetics at various congresses, societies, as well as courses organized by pharmaceuticals, and devices companies (Trainers) and the participants who attended these training programs (trainees). Anonymous data was collected by emailing an online survey link using www.surveymonkey.net, which was distributed to trainers and trainee clinicians in NSFA using a non-probability sampling method (snowball), between July 2018 to December 2018. Snowball method helps in collecting data from a large study population utilising the peer- network in a chain referral process.[27-29] The Faculty Research Ethics Panel approved the study of the Faculty of Medical Science, Anglia Ruskin University, Chelmsford, United Kingdom.

Statistical Analysis

The data was collected, tabulated, cleaned, and non-responders were eliminated. Baseline data of respondents (trainers and trainees); gender; age in groups; speciality, country of practice; and the number of years of practice was tabulated. Simple percentages were calculated from the collected data using Microsoft Excel “Microsoft Office 365 version”, (Microsoft Corp, Redmond, Washington, US). Reliability analysis was undertaken and expressed as Cronbach’s alpha using IBM SPSS statistics for Mac, version 26 (IBM Corporation, Armonk, NY, USA)

as this is the most widely used statistical tool to measure internal consistency of multiple questionnaire.

RESULTS

In the trainer's group, the 179 respondents had a mean age of 45.9 years (range, 30-59 years; SD, ±6.8 years). There were 72 responses (40%) from males and 100 (56%) from females, while 7 (4%) preferred not to disclose their gender. However, in the trainee's group, the total number of received responses was 496 with a mean age of 39.9 years (range, 30-59 years; SD, ±5.8 years). There were 203 (41%) responses from males and 284 (57%) from females, while 9 (2%) opted not to disclose their gender. The Cronbach's alpha for the trainers' group was (α=.79) and trainees (α=,81). On subgroup analysis, there was no significant difference between specialities. The demographic information of the participants is given in Table 1 and geographical distribution in Figure 1. **[AQ: This paragraph was adjusted in order to comply with ASJ formatting standards. Do you approve of the first paragraph of the Results section?]**

Lack of Adequate Training and Education

Majority of the respondents (trainers=92.7%; n=179); trainees=92.3%; n=496) mentioned that in their country of training or practice, none of the medical schools offers any independent educational program in NSFA. A large percentage (>92%) of the respondents were of the view that the current graduate and postgraduate training framework is not enough to equip clinicians with the safe and efficient practice of NSFA. Furthermore, both the groups (trainers, 69.3%, n=179; trainees, 63.5%n=496) also reported that the training provided by various conferences, congresses and pharmaceutical companies are not adequate for optimal patient outcome and overall development as an aesthetic clinician (Table 2).

Need for Standard and Uniform Training

Both trainers (95%, n=179) and trainees (93.8%, n=496) acknowledged the need for the development of a specialized postgraduate program in NSFA within the formal medical education and training curriculum Table 2. However, they were divided in their opinion about the inclusion of NSFA training as a core or specialisation training program. When asked about the preferred and effective duration of the training period, majority of the trainers and trainees (≈60%) were of the view that 12 months duration of the program will be ideal. They also opted

for incorporating the program as blended (online and face to face teaching) part-time training program. Most of the trainers and trainees (>69%) suggested that the components of the NSFA curriculum should be didactic, with clinical skills orientated, research-focused and should involve work-based learning, like conventional postgraduate training (Figure 2).

A large proportion (76%; n=496) of trainee physicians expressed their desire for further training in several areas to be crucial for an excellent clinical outcome. The top five choices in these areas were non-surgical facial anatomy, facial assessment, treatment planning, medical emergencies related to NSFA and physician-patient communication skills (Figure 3). Trainers' teaching experience is given at Figure 4. Moreover, the majority of the trainers (90%) stated their willingness for a formal qualification in clinical education (Table 3).

DISCUSSION

A need assessment is the critical step in design and development of any evidence-based medical educational curriculum by determining the divergence between present and desirable clinical practice and selecting areas that need to be addressed.[30,31] To the authors' best knowledge; this is the first survey to assess the current status of training and education in non-surgical facial aesthetic procedures amongst practising clinicians across various specialities to construct a detailed overview and identify any gaps. Most of the respondents expressed that there is a deficiency in providing training or high-quality exposure in non-surgical facial aesthetics during their medical school training. Similar gaps in training were highlighted in a study conducted among German plastic surgery residents.[32] Discontent on the quantity and quality of the training in aesthetic dermatology was also reported among Canadian dermatology residents.[22] The positive effect of providing such training was seen as an invaluable tool for assessing, modifying and strengthening the current procedural curriculum.[33]

Although acknowledged as valuable by both the trainers and trainee survey respondents, the available aesthetic courses provided by the pharmaceuticals, devices, medical communication companies and professional societies, were felt to be inadequate to prepare them as confident practitioners in the field. An argument can easily be made here that 'overall development' is multi-dimensional, incompatible with measurements and complex, especially with procedural skills. The majority of such courses are conducted in heterogeneous, large group settings, often didactic, with none or limited interactions, hence fail to affect the learning outcome of the participants.[34,35]

The present study revealed that the practising physicians felt lack of enough, and structured training in facial-cosmetic, non-surgical procedures, and emerging developing body

contouring techniques. These results are also similar to another survey conducted among the senior plastic surgery residents and program directors, where it emerged that the cosmetic surgery should be integrated into their practices in graduation with a provision for further aesthetic training.[36] However, it doesn't mean to imply that all providers lack skill or proficiency to care for patients.

In another study, residents received variable training in cosmetic procedures (such as botulinum toxin injection, lasers, soft tissue augmentation, chemical peels, and sclerotherapy) with the challenge of the program to find a balance between insufficiency and overemphasis.[17] A more recent survey was conducted to assess the confidence of residents in performing variable cosmetic procedures. Analysis of the applied modalities and resident exposure showed that there are still challenges and gaps to be met in the facial cosmetic procedures.[37] The current study has also observed similar gaps and clearly indicated that there is a need for standardised teaching modalities in NSFA, which should be adopted universally by all training programs.

Another 2017 survey reported that 94% of participating residents had a dedicated cosmetic surgery rotation along with a resident cosmetic clinic. However, only 21% of senior residents felt the need for aesthetic surgery fellowships as against a simple rotation to practice cosmetic surgery. This low demand reflected in the weak confidence of the senior residents with facial aesthetics and body contouring procedures.[9] Survey results have also shown that residents believe that hands-on-training is the most effective method for developing proficiency in cosmetic procedures.[20,22]

A study conducted in India reported that the survey results from the teachers and residents did not match, wherein 72.4% of the teachers in the survey believed that the current system is useful in providing surgeons with enough skills level for surgical and non-surgical procedures, however, only 9.1% of the residents believed so. However, both the groups agreed that the exposure is lacking in aesthetics and microvascular surgery.[7] At present, the non-surgical facial aesthetic is not a part of the standard postgraduate medical curriculum; physicians are primarily learning through varied "show and tell" courses offered during the scientific meetings. It is challenging for learners to develop psychomotor skills just by observing a live demonstration by a colleague. For patient safety and good clinical outcome, it is vital to design a postgraduate non-surgical facial aesthetic curriculum.[38,39] Not only that, clinical knowledge and procedural skills relating to non-surgical aesthetic interventions needs to be taught in an academic evidence-based approach. Such a program will also develop academic and research skills to enable them to critically appraise existing literature, thereby adopt best practice to become the 'change agent'.

The need for the structured clinical training and education was expressed by the responders across the geography irrespective of their country of origin. The pathway for clinical training is quite intensive. It makes it very hard for the trainees to commit for a postgraduate program unless they see specific applicability of the learnt competencies. Moreover, intervention logic, the context of the program, educational approaches such as flexibility of the attendance (face to face and distance learning approach) and duration of the program are the main deciding factor for the trainee in order to take up the commitment.[40] Surprisingly, the present study is a true reflection of this thinking, wherein both trainer and the trainee physicians resonated each other's opinions on the duration of the program (preferably 12 months; 52%), preferred mode of delivery (combination of face to face and distant learning; 53%), focus of the curriculum (didactic, clinical and research; 60%), and work-based learning similar to conventional postgraduate training (81%). These findings are suggestive of a work-based, contextual learning strategy with a blended approach to motivate practising clinicians to take up the postgraduate training.

In the current study, most trainers have expressed the desire to undertake additional training in clinical education to improve their teaching skill. There is an immense need for the clinicians who undertake the role of a trainer to understand the principles of teaching, learning, research and scholarship. Specialities, such as in mainstream medicine, surgery and anesthesiology, the clinical trainers undergo specially designed 'Training of Trainer's' program on conceptual design, pedagogical principles and assessment to enhance the trainee learning experience. As per the Gold Guide (Department of Health, UK 2018), which identifies that the clinicians involved in the postgraduate training program must have competencies to deal with educational issues.[41,42]

Limitations

The present study poses several limitations. Firstly, the structure of the focus group was not an accurate representation of contributors in aesthetic practice in the current context. Although the focus group consisted of dermatologists, plastic surgeons, and, aesthetic physicians, it missed out two significant contributors, dentistry and nursing professionals. The study did not report whether the experts have had further training in educational principles, and the andragogy; method and practice of teaching adult learners. Secondly, the questions based on the survey were all closed ones; however, the experts had scope for pulling out additional commentaries. Thirdly, the study further lacks in ascertaining whether there was a need to have a trainee focus group discussion which could then contribute to developing the questionnaire

by the experts. Finally, the present survery utilized the snowball technique which is a non-probability sampling method and failed to generate response from some geographic areas (eg, Russia, USA, etc.). Nevertheless, there was representation from all the subcontinents and refection of the current status was evident as reflected on the other studies.

Recommendations

1. Urgent cognisance from the policymakers and the higher academic institutions to design and offer a structured bespoke postgraduate program in NSFA with full academic rigour to prepare the aspiring clinicians to perform aesthetic procedures safely.
2. By subject-specific pedagogy to design the curriculum with special attention to the content mapping. The content should be consensus generated, evidence-based and should also acknowledge learner diversity.
3. Careful consideration should be given while designing such program to tailor it to converge within the clinical training. Such a program design would require work-based, blended learning opportunities and supervised hands-on clinical and procedural skills training.
4. Enquiry-based learning and research should be integrated to contextualize the training.
5. Provision for more 'train the trainer programs' with particular attention to developing teaching skills to promote evidence-based practice in training and education.

CONCLUSIONS

This study has underlined the need for bridging the gap in rapidly growing non-surgical facial aesthetic practices and education. There is a need for the development of an evidence-based, comprehensive, standardised and uniform NSFA education for the residents to promote optimal clinical outcome and safety. The authors recommend the inclusion of a specialized, higher academic institution-based program on NSFA to enable clinicians to deliver and encourage safe, efficient and high-quality care as an independent practitioner.

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Figure Legend

Figure 1. (A) Geographical distribution of the responders (Trainers). (B) Geographical distribution of the responders (Trainees).

Figure 2. (A) Hierarchy of non-surgical facial aesthetics education in the medical school curriculum. (B) Duration of the training programmes (trainers and trainees). (C) The focus of the study curriculum. (D) Preferred mode of programme delivery. (E) Need for work-based learning in non-surgical facial aesthetics.

Figure 3. Subject wise prioritisation for the need for training on non-surgical facial aesthetics.

Figure 4. Experience as a trainer and educator in NSFA.

Table 1. Demographics of the Study Participants **[AQ: This table was adjusted to comply with *ASJ* formatting standards. Do you approve of Table 1?]**

Characteristics	Descriptors	Trainers' % (n=179)	Trainees' % (n=496)
Gender	Male	40.22%	40.72%
Gender	Female	56.42%	57.2%
Gender	Do not want to disclose	3.4%	2%
Age (years)	30-39	17.8%	50.2%
Age (years)	40-49	50.2%	44.15%
Age (years)	50-59	31.8%	5.64%
Core specialty	Dermatologists	33.5%	35.9
Core specialty	Plastic surgeons	19%	13.1
Core specialty	Facial plastic surgeons	5.6%	5.6%
Core specialty	Total	58.1%	54.6%
Non-core specialty	Aesthetic physicians	42.45%	45.4%
Experience in NSFA	<5 years	0	23.3%
Experience in NSFA	<10 years	21.2%	45.1%
Experience in NSFA	>10 years	54.7%	27.8%
Experience in NSFA	>20 years	24%	4.2%

Table 2. Responses Showing the Dearth and Need of Standard Training Programs for NSFA

Sl. no.	Questions	Trainer (n=179)		Trainee (n=496)	
		Yes	No	Yes	No
1.	Does current graduate and or post-graduate training offered by medical schools in your country sufficiently equip trainees for the safe practice of non-surgical facial aesthetics?	7.8%	92.2%	7.5%	92.5%
2.	Does any medical school offer an independent post-graduate program in non-surgical facial aesthetics in your country?	7.3%	92.7%	7.7%	92.3%
3.	Are courses offered by various conferences, congresses or pharmaceutical companies in non-surgical facial aesthetics sufficient for the safe and effective patient outcome?	16.8%	83.2%	17.3%	82.7%
4.	Was the training provided by pharmaceutical companies, conferences, and congresses sufficient enough (more than being the user/injector of the products) for your overall development as a physician?	25.1%	69.3%	36.5%	63.5%
5.	Is there a need to create a specialized postgraduate program in non-surgical facial aesthetics in the medical curriculum?	95%	5%	93.8%	6.2%

Table 3. Response Showing the Need for a Teaching Qualification for the Trainers (N=179)

Sl. no.	Questions	Yes	No
1.	Do you have a formal teaching qualification (eg, certificate/diploma/master's in medical or clinical education)?	6.4%	93.3%
2.	Will you be interested in gaining a formal teaching qualification in clinical/medical education?	90%	10%

Figure 1A

Figure 1B

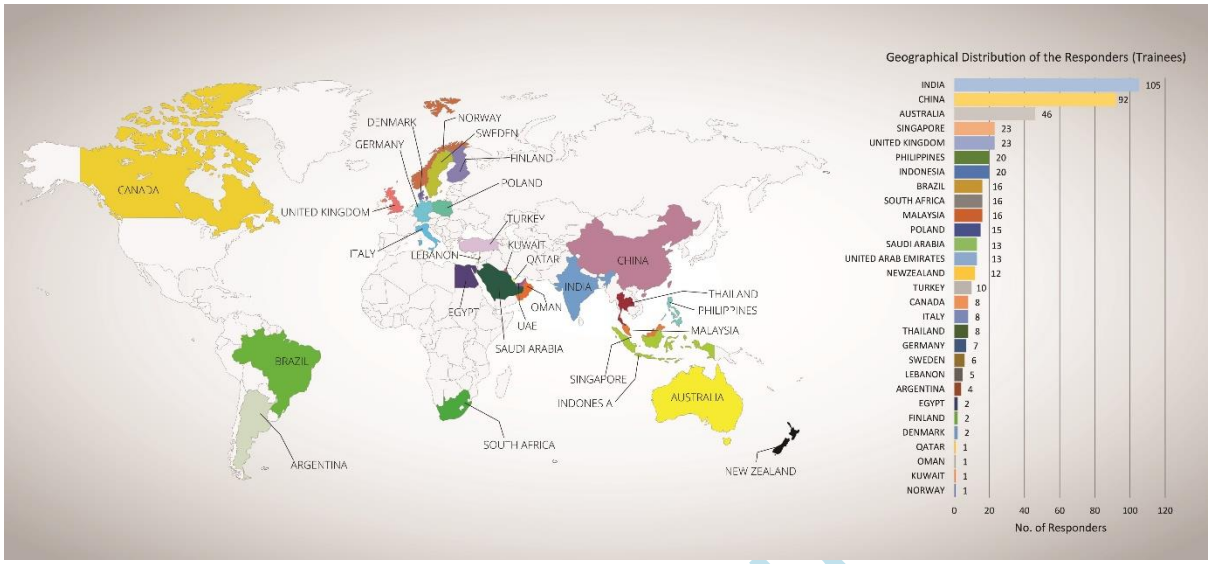

Figure 2A

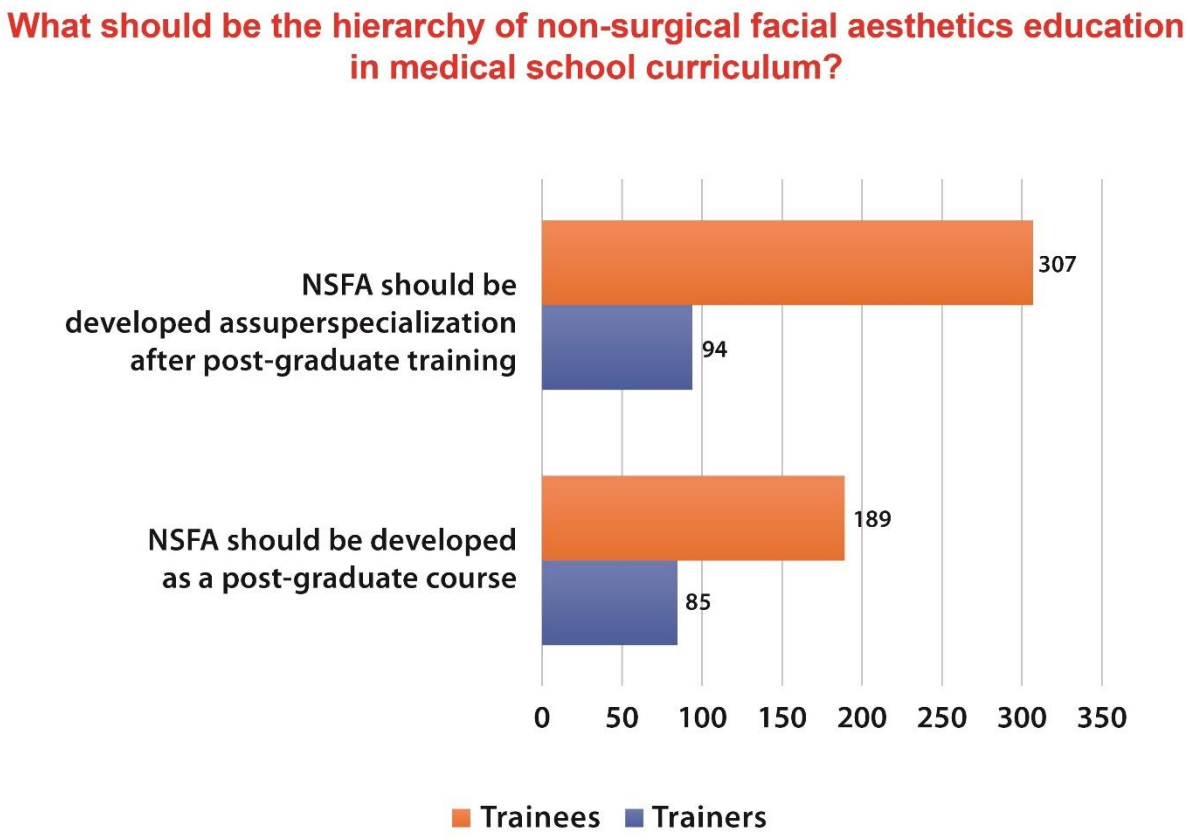

Figure 2B

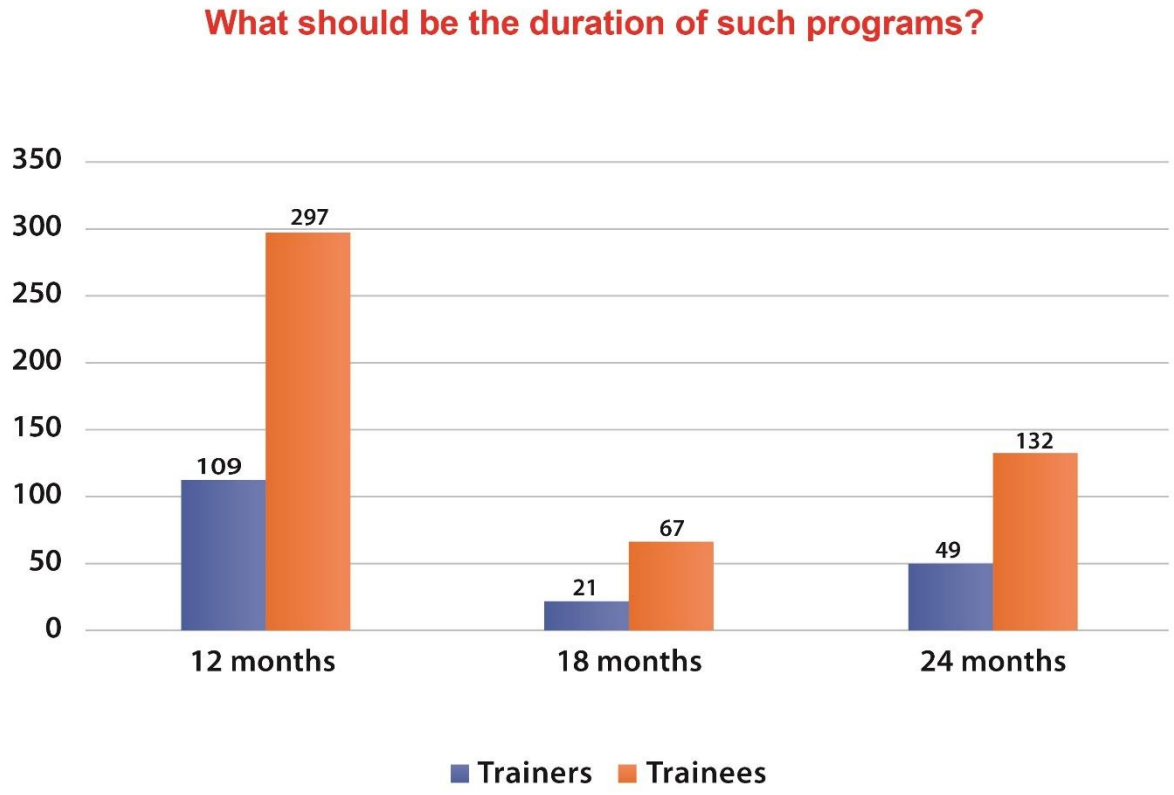

Figure 2C

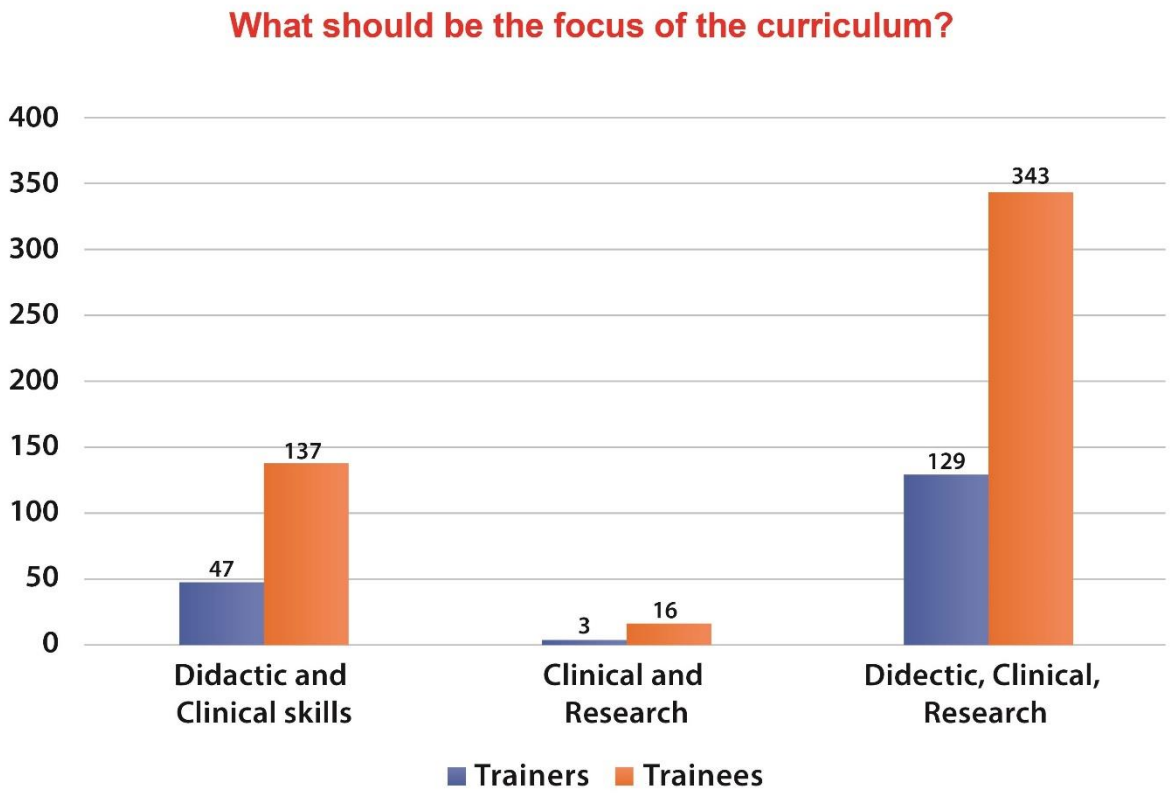

Figure 2D

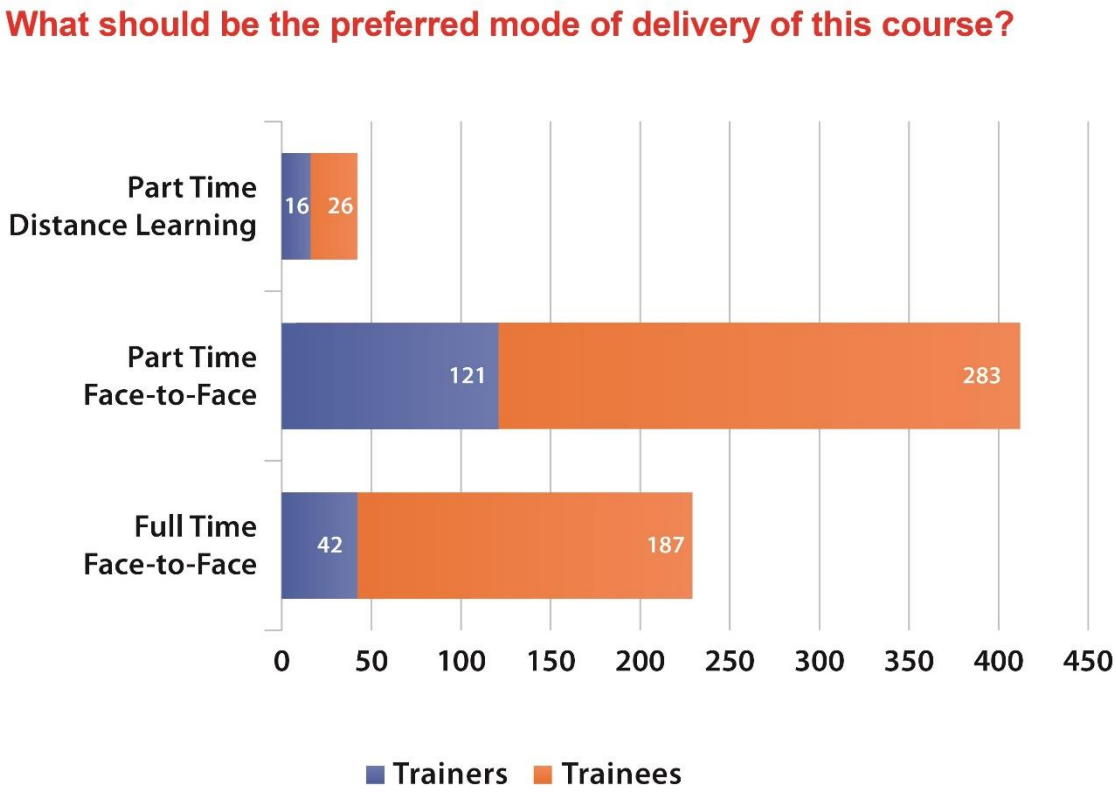

Figure 2E

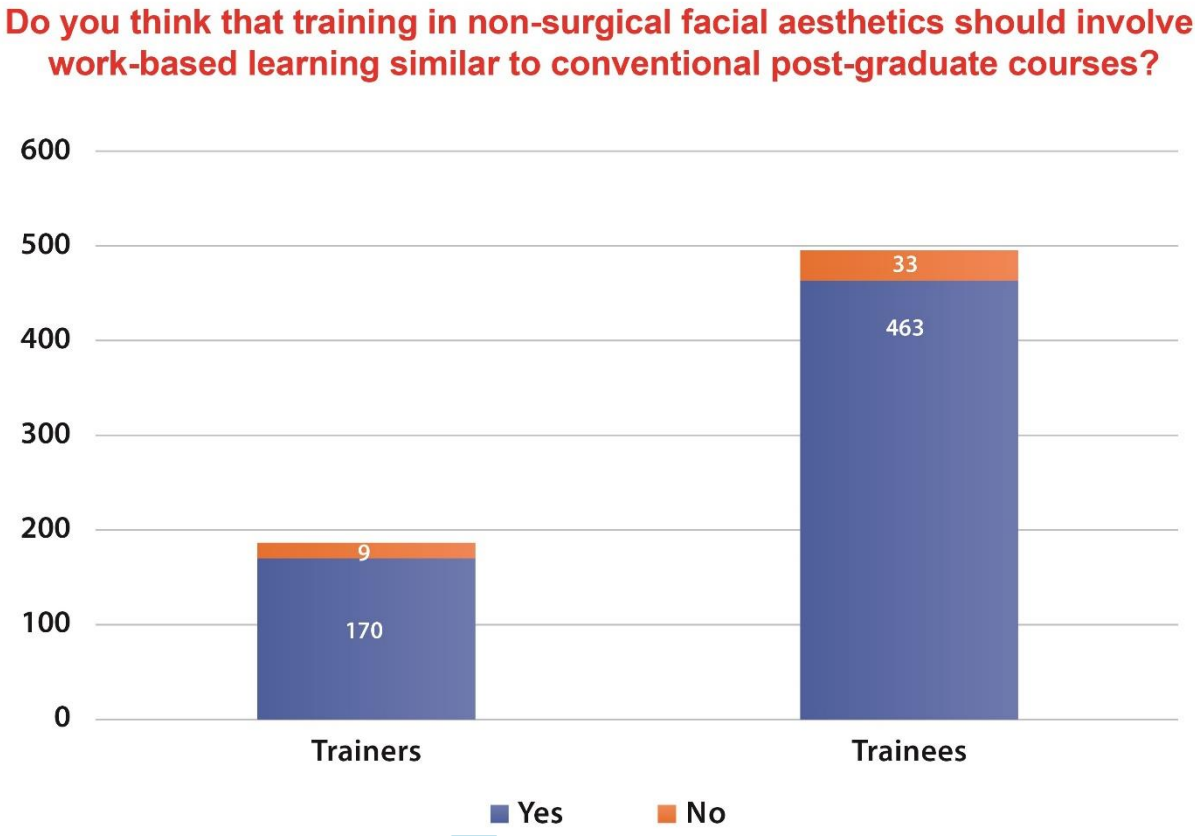

Figure 3

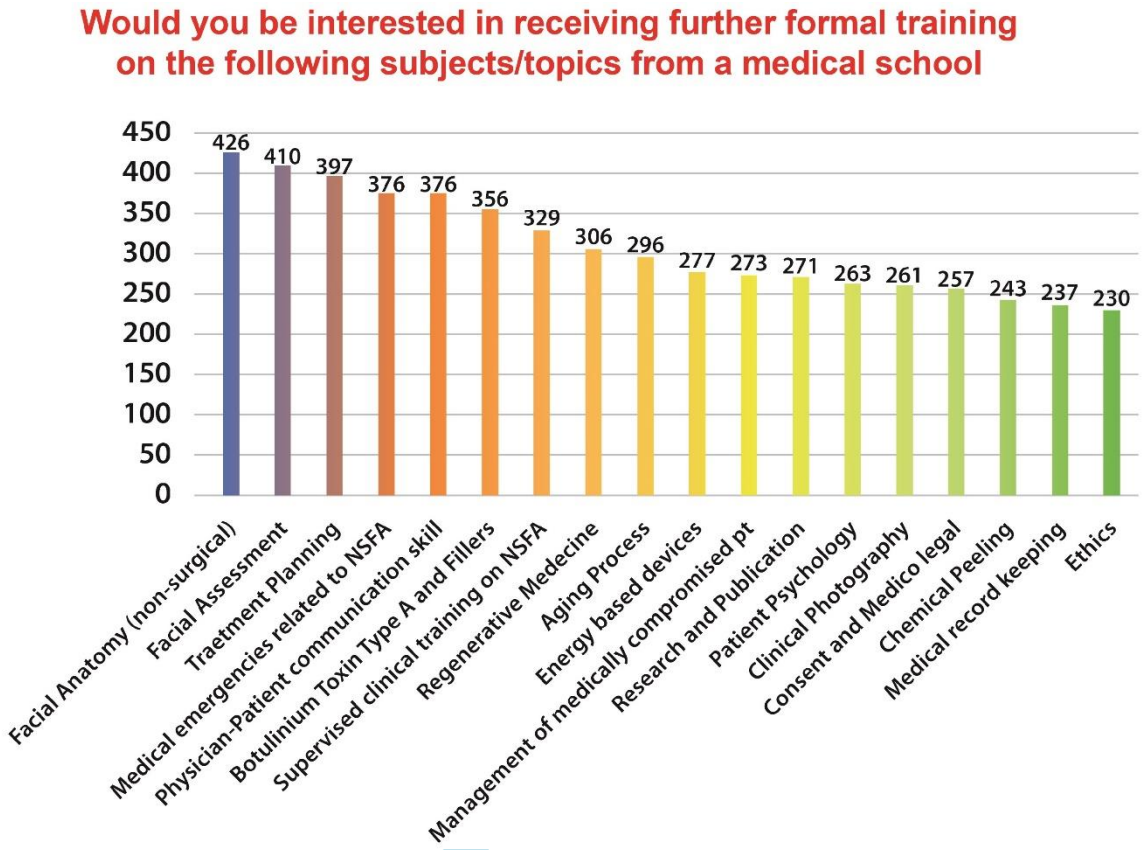

Figure 4