



Patient Perception and Preferences in Choosing a Healthcare Provider for Non-Surgical Facial Aesthetic Procedures

Aya Jabbar Hussein¹ and Faraed Dawood Salman^{2*}

¹BSC Pharmacy (Iraq), MSC Cosmetic Science (USA/OH), MBA (USA, LA), PhD Student (Malaya University), Malaysia

²Professor in Dental Assistant Department/Medical Technical Institute/Erbil Polytechnic University/Erbil/Iraq

*Corresponding Author: Faraed Dawood Salman, Professor in Dental Assistant Department/Medical Technical Institute/Erbil Polytechnic University/Erbil/Iraq.

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Abstract

Background: The aims of this study are to investigate knowledge, attitude and educational background of selected Iraqi population regarding NFSFA procedures, also determining factors influencing patients in selecting a healthcare provider and how they perceive qualifications, expertise of their care provider, and how patients can determine decision-making factors of their care provider.

Materials and Methods: A cross-sectional study was conducted (552 online google forms) between September-December 2023 (4 months) among Iraqi population group of various educational background levels with 9 questions with their subdivisions, qualifications of participants, level of familiarity with NSFA, whether they had undergone these procedures before, types of NSFA procedures, profession of healthcare providers who performed the procedures, factors prioritized by participants when choosing healthcare providers, influence of healthcare providers' educational background, and advantages of choosing the type of provider.

Results: Among 528 people enrolled in the study, females comprised (365, 69%), males (163, 31%) with age range 18- >55 years old.

Concerning Qualifications of the Participants: (211, 40%) of participants were pursuing bachelors degree, followed by (188, 36%) were currently enrolled in high school or college.

Concerning Level of Familiarity with NSFA Procedures: (189, 36%) of them had some knowledge (somewhat familiar) followed by (156, 30%) had limited knowledge and would benefit from more information.

Concerning if they have Undergone NSFA Procedures Before: Majority of the sample (338, 64%) had never gone under NSFA procedures with (114, 22%) had undergone these procedures with highly statistical significant difference at $P < 0.001$.

Concerning Type of NSFA Procedure Undergone: Plasma procedures constituted the highest percentage (19%) followed by filler (18%), botox (15%), laser (8.5%), nose-surgery (8.5%) hydra facial, and orthodontic treatment (6.4%) with highly significant difference between them at $P < 0.01$.

Concerning Profession of the Healthcare Providers Who Performed the Surgery: (221, 42%) of the sample didn't answer the question followed by equal percentage approximately for the dermatologist and dentist (23.4%, 23.1%) with highly significant difference between them while (2.7%) of them had got it from both dermatologist, and dentist.

Concerning Factors Prioritized by the Participants When Choosing a Healthcare Provider: Reputation and experience of the provider constituted the highest percentage (324, 58.7%), followed by (208, 38%) for the availability of specialized equipment or technology, personal recommendation (34%), cost of the procedure (27%) with highly significant difference at $P < 0.001$.

Concerning Healthcare Providers Educational Background and Qualifications: (238, 45%) of participants reply was influential and qualifications affect their decision, followed by (181, 34%) moderately influencing their decision.

Concerning Advantages of Choosing a Dermatologist for NSFA Procedures: (336, 61%) of them replied that they're specialized expertise in skin-related treatments, with trust in their medical background and training was (223, 46%), followed by wide range experience of NSFA, then familiarity with skin care products and social media presence with highly significant difference between them at $p < 0.001$ level.

Concerning Advantages of Choosing a Dentist for NSFA Procedures: Experience in facial anatomy and symmetry constituted the highest percentage (290, 52.5%), expertise in procedure of mouth and jaw (267, 48%), medical background and training (201, 29%), expertise in local injections (158, 29%).

Conclusion: The study revealed that young Iraqi females group were with some knowledge and somewhat familiar about NSFA, with most of them had not undergone procedures. Plasma, filler, botox were the common procedures.

Dermatologists and dentists were the most common ones, their response that educational background of the providers was very influential, social media constituted the lowest percentage that might be related to limited knowledge and awareness of the participants.

Keywords: NSFA (Non-Surgical Facial Aesthetic); Perceptions; Healthcare Providers

Introduction

Non-surgical techniques for facial rejuvenation procedures (NSFA) have gained popularity over the past few decades due to the low cost office-based practice. Some methods have gained popularity and proven to have relatively long-term outcomes with minimal adverse effects. Others, however, failed to prove so [1].

The methods available for facial resurfacing are mesotherapy, peeling, dermabrasion, filler, botox, laser, topical agent, thread agent, and in the future using stem cells and anti-oxidants [2].

There has been an exponential increase in global demand for cosmetic procedures [3], the American society for aesthetic plastic surgery reported 228% increase in non-surgical facial aesthetic procedures (NSFA) from 2000-2018, 95% of all cosmetic treatments undertaken were for NSFA treatments [3] and are in much greater demand than plastic surgery, where the top 5 non-invasive aesthetic treatments are 6 folds more common than all cosmetic surgical procedures combined [4].

Non-surgical techniques have many advantages such as minimal pain and risk of infection, no use of anaesthesia and less-time consuming procedure, natural and healthy look [5] cosmetic procedures are "life-enhancing" rather than life-saving and therefore characteristics, motivation and goals of patients seeking cosmetic procedures likely differ from patients in other fields of medicine [6].

To be able to conduct an effective and focused consultation process, doctors offering aesthetic procedures need a greater understanding of characteristics, socio-demographic factors, motivations, expectations and treatment readiness of their patients as these may inform treatments to be proposed in short and long-term treatment plans [6].

It is the sole responsibility of the physician to make the safest and most effective tool to meet the justifiable patient requirements. A combination of realistic patient and experienced surgeon only can offer the right treatment formulas [1].

The goal of cosmetic procedure is to enhance an individual's appearance. Altering physical appearance is an age-old process. In

a country such as the USA, beauty is defined by the media through magazines, television, and social media there has been a global rise in the number of individuals undergoing cosmetic procedures to achieve that perfect look [7].

A similar rise in the trend to enhance a person's look has also been observed in developing countries [8]. Among Asian countries, India and China have the highest shares in this field [8], this rise may be attributed to media and social pressure to excel in the work force, look attractive, change physical features that individuals are not happy with and gain confidence, young physically attractive people tend to excel or have more confidence than others [9,10].

The emphasis on individual physical appearance in media coverage, the internet and television had led to increase in cosmetic procedures [10-12], women in general, are more aware and pay more attention to cosmetic (appearance and fashion) [10-12].

In addition to social media, multiple factors contribute to the increase in the popularity of these procedures as do surgeon-related factors such as the surgeon's reputation, board certification or years of experience. Films, magazines, and other media have also contributed to people's desire to undergo cosmetic procedures [13-15].

Among these multiple factors, patient selection should be optimized with high technical skill maintained to achieve significant improvements in patient-reported psychological and social functioning and reduction in appearance-related distress [16].

Botox and dermal fillers have made a large impact within the elective aesthetic field using the botulinum toxin (BT) is helpful in many conditions of dentistry, mostly for aesthetic dental reasons in the maxillofacial region [17].

Smile and facial expression are one of the most important aims of cosmetic dentistry, because of advanced techniques in tooth whitening, veneers, implants or other dental procedures are seriously affected by wrinkles or skin drooping, thus the need for filler and botox has been increased. Mouthlines, thinning a drooping lip or smoothing the skin of nasal labial folds has improved the look of their teeth [18]. Using dermal filler looks like a way from the dentist experience, but in fact, the dentist is the most health care

member that can deal with facial expression, pain and suitable injection more than dermatologist and plastic surgeon [18].

Dental surgeons by their knowledge, the anatomy of the maxillofacial region, physiology, skeletal structures, vascular and nervous system of the face is a potential user of BT [17].

The dentist is familiar with the injections as well as smile and facial expression more than others and when he is trained well, the result will be better [18] as he knows the way to form these injections comfortably, quickly, and relatively painless for the patients [17], the only difference is that the dentists inject introrally into these facial structures at the same time as botox and dermal filler injections are extraoral injections [17].

At the present time, facial cosmetic procedures are delivered to patients by the dermatologist and plastic surgeons who were the first healthcare providers to integrate these therapies, dermatologists face the difficult changes of finding a balance between cosmetic dermatology which is the most prioritized popular procedure and not discarding other procedures that may have an impact on people's well-being [19], also delivered by other physicians including ophthalmologists, internists and medical estheticians [17].

The optimal and safe approach for each patient requires a thorough appreciation of underlying anatomy, application of local anesthesia, and nerve block with due consideration to risks and benefits as part of pharmacology teaching [20], tissue quality, individual comorbidities and patient expectation [21,22].

According to the best of our knowledge and searching in the internet for updated researches, this is the first study concerning patient perception and preferences in choosing healthcare providers for NSFA procedures and other related factors among the Iraqi population in its kind.

This compelled us to reconsider which healthcare providers offer the optimum care for the general population and other related factors.

Aims of the study

- To investigate knowledge, attitude, and educational background of selected Iraqi population groups regarding non-surgical facial aesthetic procedures.

- Evaluating the key factors that influence patients when selecting a healthcare provider for non-surgical facial aesthetic procedures.
- Analyzing how patients perceive the qualifications, expertise, and credentials of healthcare providers offering non-surgical facial esthetic procedures.
- Patients’ determinant decision—making factors that influence which healthcare providers are mostly suitable for non-surgical facial aesthetic procedures.
- Identify gaps in patient knowledge and understanding regarding the safety, risks, and benefits associated with non-surgical facial aesthetic procedures, impacting their choice of healthcare providers.

Materials and Methods

Study design, setting, and participants

The study design employed a cross sectional online survey (google forms) design approach to conduct the procedures (September-December 2023) (4 months). The participants of selected Iraqi population group with various background and educational level were recruited for the study. An online cross-sectional questionnaire with a total of 9 questions divided 4 separated sections were circulated to the participants according to their different age groups, educational level via e-mail and social platform.

These 4 sections include: demographic information (age, gender, educational level), previous experience, choosing a healthcare provider (dermatologists vs dentists), decision factors for dermatologist vs dentists, specific experiences or outcomes the participants achieved with either healthcare providers that have influenced their preferences or perceptions.

Sample size determination

552 google forms were collected from Iraqi society having variable backgrounds, 24 incomplete forms were excluded remaining 528, participants were asked to complete the questionnaire after the distribution via e-mail and social media applications, one answer to each close-ended was adopted by the participants, their perception and preferences for non-surgical facial aesthetic procedures were analyzed hence after.

Inclusion criteria

Any participant who was knowledgeable and owned an email account to fill in the questionnaire.

- Age: <18 - >55 years old.
- All gender: females no. were 365
- Males no. were 163
- Total no. was 528

Exclusion criteria

- Any potential participant who can’t fill in the questionnaire and doesn’t own e-mail account.
- Incomplete google forms were excluded [24], so the total google forms number was 528.

Statistical analysis

The responses from the google forms were transferred to Microsoft excel sheet. Descriptive and inferential statistics were applied using SPSS version 20. Chi-square test was employed to find the association among responses for the question. Significance level was set at $p < 0.05$.

Results

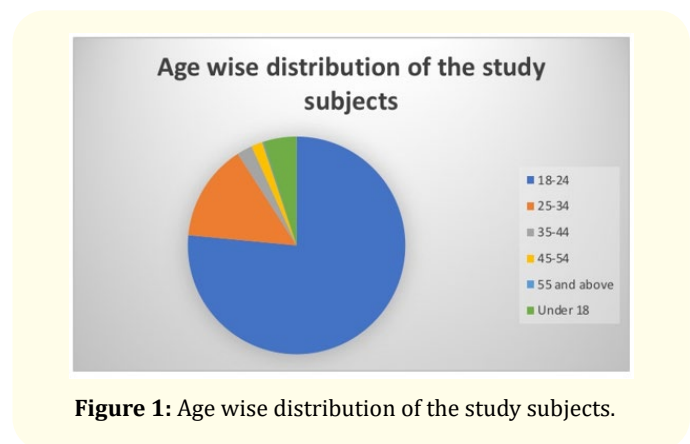


Figure 1: Age wise distribution of the study subjects.

Most of the respondents aged between 18-24 years old (76.5%) followed by 25-34 years old (14.4%), (4.9%) of the subjects were below 18 years of age, (2.3%) of the subjects belonged to 45-54 years old, with (1.8%) belonged to 35-44 years old, only one subject (0.2%) was above 55 years as shown in **figure 1**.

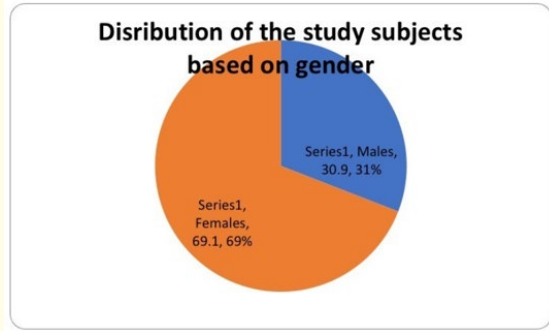


Figure 2: Gender wise distribution of the study subjects.

Total sample size was 528. Majority of the respondents were females (365, 69.1%). Male respondents accounted to 30.9% (163).

Table 1: Qualification wise distribution of the study subjects.

Qualification	Frequency	Percentage
C) Bachelor’s Degree	211	40%
F) Currently Enrolled in School (e.g., high school or college)	188	35.6%
A) High School Graduate	68	12.9%
G) Other (like diploma degree)	47	8.9%
D) Master’s Degree	13	2.5%
E) Doctoral Degree	1	0.2%
Total	528	100%

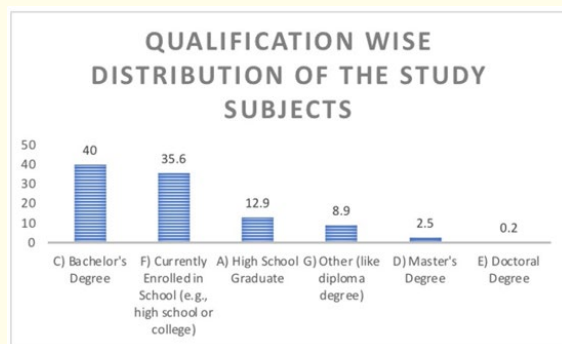


Figure 3: Qualification wise distribution of the study subjects.

Table 1 revealed that (40%) of the respondents were pursuing bachelor’s degree followed by (35.6%) subjects who were currently enrolled in school (high school or college), (12.9%) of them were high school graduates while (8.9%) was for others (like diploma degree), few of them (2.5%) were doing their masters degree and (0.2%) were doing doctoral degrees as shown in figure 3.

Table 2: Level of familiarity with non-surgical facial aesthetic procedures.

Familiarity with non-surgical facial aesthetic procedures	Frequency	Percentage
Somewhat familiar: I have some knowledge about non-surgical facial aesthetic procedures but may not be well-versed in all aspects.	189	35.8%
Not very familiar: I have limited knowledge about non-surgical facial aesthetic procedures and would benefit from more information.	156	29.5%
Very familiar: I have a comprehensive understanding of various non-surgical facial aesthetic procedures and their potential outcomes.	96	18.2%
Not familiar at all: I have little to no knowledge about non-surgical facial aesthetic procedures.	87	16.5%
Total	528	100%

Chi square statistic 54.13
p Value <0.001**

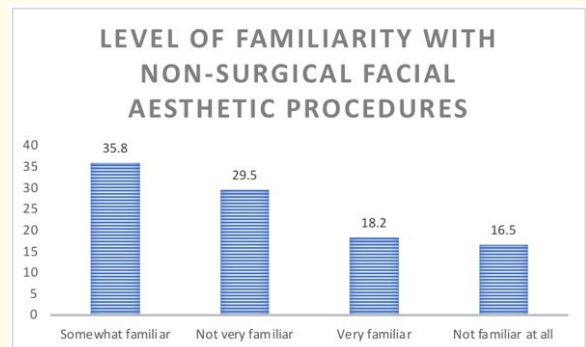


Figure 4: Level of familiarity with non-surgical facial aesthetic procedures.

Table 2 revealed that majority of respondents (35.8%) had some knowledge about non-surgical facial aesthetic procedures but may not be well-versed in all aspects (somewhat familiar), followed by (29.5%) of them had limited knowledge and would benefit from more information (not very familiar), while (18.2%) of them were very familiar and had a comprehensive understanding of various non-surgical facial aesthetic procedures and their potential outcomes as (16.5%) of respondents were not familiar at all with little to no knowledge about the procedures with highly statistical significance difference at $p < 0.001$ level using chi square test as shown in **figure 4**.

Table 3: Have you ever undergone any non-surgical facial aesthetic procedure before?

Have you ever undergone any non-surgical facial aesthetic procedure	Frequency	Percentage
No	338	64%
Yes	114	21.6%
Maybe/Thinking about it	76	14.4%
Total	528	100%
Chi square statistic 227.77 p Value <0.001**		

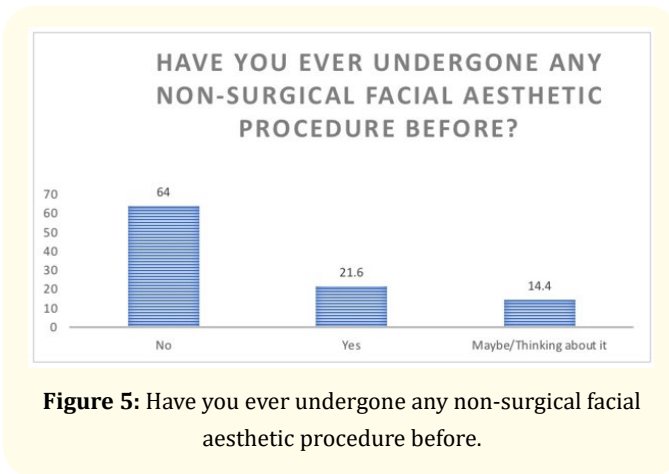


Figure 5: Have you ever undergone any non-surgical facial aesthetic procedure before.

Table 3 showed that most of the respondents (64%) had never done any non-surgical facial aesthetic procedures while (21.6%) of them had done non-surgical facial aesthetic procedures with (14.4%) of them maybe thinking about it with highly statistical significance at $p < 0.001$ level using chi-square test as shown in **figure 5**.

Table 3.1: Type of non-surgical facial aesthetic procedure undergone.

Procedure	Frequency	Percentage
Plasma	18	19.14%
Filler	17	18.08%
No	17	18.08%
Botox	14	14.9%
Laser	8	8.5%
Nose surgery	8	8.5%
Hydrofacial	6	6.4%
Orthodontic treatment	6	6.4%
Total	94	100%
Chi square statistic 16.48 p Value 0.01*		

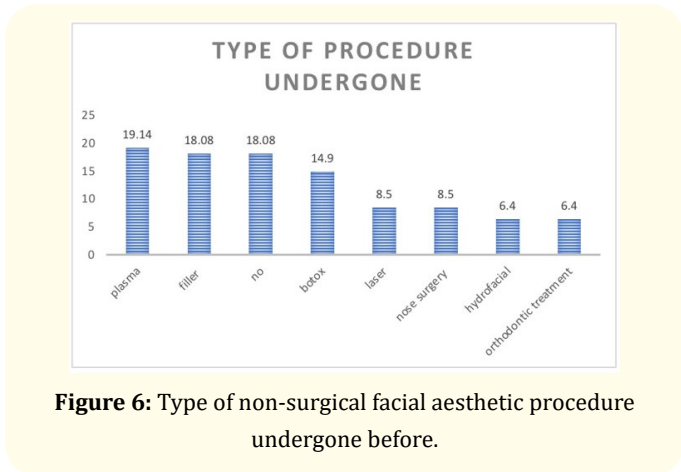


Figure 6: Type of non-surgical facial aesthetic procedure undergone before.

Table 3.1 revealed that plasma procedure constituted the highest % (19.14%), followed by filler (18.08%), then Botox (14.9%). A similar % was achieved for laser and nose-surgery (8.5%) and the lowest % was for hydrofacial and orthodontic treatment (6.4%) with highly statistical significance difference between all the variables at $p < 0.01$ level using Chi square test. (18.8%) of the respondents' answers were (No) as shown in **figure 6**.

Table 3.2: Profession of the healthcare provider(s) who performed the surgery.

Professional	Frequency	Percentage
No answer	221	41.9%
Dermatologists	124	23.4%
Dentists	122	23.1%
Others	47	8.9%
Both Dentists and Dermatologists	14	2.7%
Total	528	100%
Chi square statistic 100.225 p Value <0.001**		

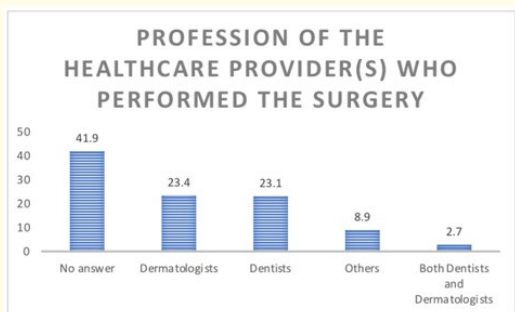


Figure 7: Profession of healthcare provider(s) who performed the procedures.

Table 3.2 revealed The highest % of the sample did not answer the question (41.9%), followed by (23.4%) for the dermatologist and for dentist it was (23.1%), 8.9% of them got it done from some other professionals while 2.7% of them had got it done from both dentists and dermatologists with highly statistical significance difference between them at $p < 0.001$ level using Chi-square test as shown in **figure 7**.

Question 5.3 has been eliminated as the responses to the question were not valid. 59 people responded out of which 5 of them got the procedure in a beauty centre. One had got it from a health care assistant and one from midwifery. The responses by the other respondents were irrelevant.

Table 4: Factors prioritized by the subjects when choosing a healthcare provider.

Factors	Frequency	Percentage
Reputation and experience of the provider	324	58.7%
Availability of specialized equipment or technology	208	37.7%
Personal recommendations or referrals	186	33.7%
Cost or pricing of the procedure	151	27.4%
Convenience of location	120	21.7%
Social media presence	91	16.5%
Other (please specify):	16	2.9%
Chi square statistic 363.870 p Value <0.001**		

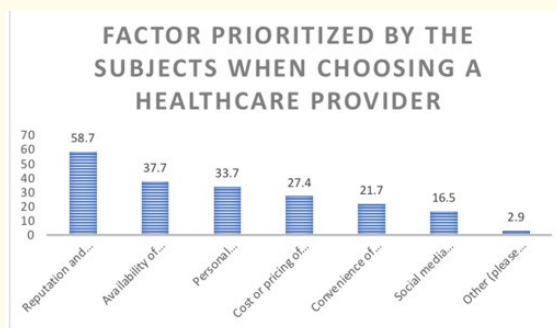


Figure 8: Factors prioritized by the subjects when choosing a healthcare provider.

Among factors prioritized by the participants when choosing a healthcare provider, the highest percentage was for reputation and experience of the provider (58.7%) followed by Availability of specialized equipment (37.7%), personal recommendations or referrals (33.7%), cost (27.4%), convenience of location (21.7%), social media presence (16.5%). The difference in the proportions between them was highly statistically significant as shown in figure 8. Option “other (please specify)” had 10-15 responses. When the subjects were asked to specify the other option, the responses given were not relevant, hence they were excluded. As this question gave the respondents choice of selecting all options that they felt relevant, the total number of responses was more than 528 and the percentage above 100 as shown in Table 4 and Figure 8.

Table 5: Influence of healthcare provider’s educational background and qualifications on respondents decision to choose them for a non-surgical facial aesthetic procedure.

Influence of healthcare provider’s educational background and qualifications on respondents decision to choose them for a non-surgical facial	Frequency	Percentage
Very influential: The provider’s education and qualifications significantly affect my decision, and I prioritize them highly.	238	45.1%
Moderately influential: I consider their education and qualifications as a primary factor, however; other factors also play a role in my decision.	181	34.3%

Slightly influential: I consider their education and qualifications, but they are not a primary factor in my decision.	71	13.4%
Not influential at all: The provider's education and qualifications do not impact my decision much; I prioritize other factors.	38	7.2%
Total	528	100%
Chi square statistic 198.43 p Value <0.001**		

Experience with a wide range of non-surgical facial aesthetic procedures	246	44.6%
Familiarity with skincare products and cosmetics	201	36.4%
Social media presence	45	8.2%
Other (please specify)	11	2%
Chi square test statistic 439.06 p value <0.001**		

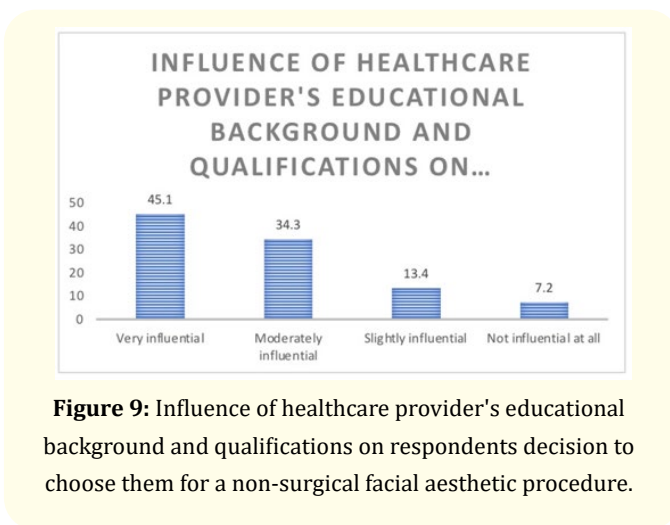


Figure 9: Influence of healthcare provider's educational background and qualifications on respondents decision to choose them for a non-surgical facial aesthetic procedure.

Table 5 showed that the highest % (45.1%) was very influential, followed by moderately influential (34.3%) then slightly influential (13.4%), with the least % was for Not influential at all (7.2%) with highly statistical significant difference at $p < 0.001$ as shown in **figure 9**.

Table 6: Advantages of choosing a dermatologist for non-surgical facial aesthetic procedures.

Advantages of choosing a dermatologist for non-surgical facial aesthetic procedures	Frequency	Percentage
Specialized expertise in skin-related treatments	336	60.9%
Trust in their medical background and training	223	46.4%

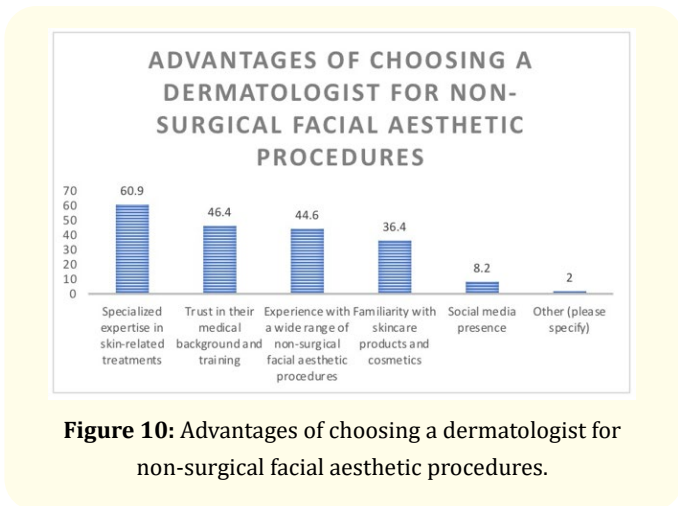


Figure 10: Advantages of choosing a dermatologist for non-surgical facial aesthetic procedures.

Table 6 expressed the advantages of choosing a dermatologist for NSFA procedures for the following reasons in descending order:

- Specialized expertise in skin-related treatments
- Trust in their medical background and training
- Experience with a wide range of NSFA procedures
- Familiarity with skin care products and cosmetics
- Social media presence, with highly significant difference between them as shown in **figure 10**.

Option "other (please specify)" had 11 responses. When the subjects were asked to specify the other option, the responses given were not relevant, hence they were excluded. As this question gave the respondents choice of selecting all options that they felt relevant, the total number of responses was more than 528 and the percentage above 100.

Table 7: Advantages of choosing a dentist for non-surgical facial aesthetic procedures.

Advantages of choosing a dentist for non-surgical facial aesthetic procedures	Frequency	Percentage
Experience in facial anatomy and symmetry	290	52.5%
Expertise in procedures involving the mouth and jaw	267	48.4%
Comfort with injections and numbing agents	158	28.6%
Trust in their medical background and training	201	28.6%
Social media presence	51	9.2%
Other (please specify)	18	3.3%
Chi square test statistic 377.51 p value <0.001**		

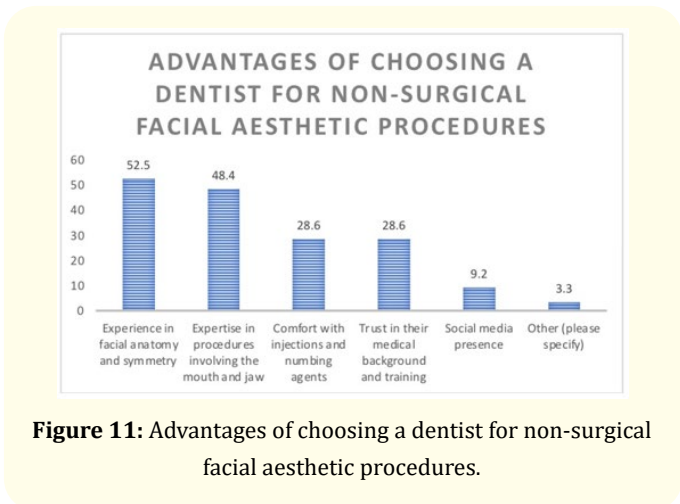


Figure 11: Advantages of choosing a dentist for non-surgical facial aesthetic procedures.

Table 7 expressed the advantages of choosing a dentist for NSFA procedures for the following reasons in descending order:

- Experience in facial anatomy and symmetry
- Expertise in procedures involving the mouth and the jaw.
- Comfort with injections and numbing agent.
- Trust in their medical background and training.
- Social media presence, with highly significant difference between them as shown in **figure 11**.

Option “other (please specify)” had 18 responses. When the subjects were asked to specify the other option, the responses given were not relevant, hence they were excluded. As this question gave the respondents choice of selecting all options that they felt relevant, the total number of responses was more than 528 and the percentage above 100.

Discussion

The World Health Organization defines health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, the practice of Aesthetic medicine improves the health of patients by improving the mental and social dimensions that are central to this definition [23].

The increase in urban society in the use of cosmetic practices to rejuvenate oneself or obtain a more appealing appearance has influenced the practices of cosmetic dermatologists, general medical practitioners, plastic surgeons and dental practitioners among others. The pharmaceutical industry has evolved to meet customers’ desire to be more physically attractive irrespectively of age and gender [24].

According to the result obtained in Figure 1, Age wise distribution of the study subjects, most of the respondents were 18-24 Years old (76.5%) with (14.4%) of 25-34 Years old and (4.9%) below 18 Years old, totally comprising (96%) of the total sample were adults, this figure was in accordance with Saudi Arabian study where the mean age of participants was 27.4+ 8.3 Years [25] and in contrast with Caucasians and Chinese study where the majority of the sample were older than 40 Years old (total sample was 624 participants) [26].

Concerning Gender: Figure 2 expressed that (69%) of the study sample were females, this was in accordance with Saudi Arabian study [25] where (60%) of the participants were female and with Jordanian Study [24] where (80%) of the participants were females, as women in general are more aware and pay more attention to cosmetic appearance and conform to specific beauty standards [27], but it was in contrast with [26] where age and gender did not show differential effects between Caucasian and Chinese participants.

Concerning Educational level: Table 1, figure 3, revealed the highest educational qualification for the most of the respondents (40%) was for Bachelor’s degree with (36%) enrolled in high school or college, totally comprising (76%), this was in accordance

with Jordanian study [24], where the participants minimum qualification was 12th grade and also with Saudi Arabian study [25] where more than half of the participants were undergraduate, expressing more awareness toward cosmetic procedures that could be attributed to their educational background and education will be determined to the field.

Table 2, Figure 4 expressed the highest % of participants (35.8%) had some knowledge (somewhat familiar) with NSFA (29.5%) had limited knowledge (Not very familiar), while (18.2%) were very familiar with comprehensive understanding and potential outcomes and the lowest % was (16.5%) was Not familiar at all with little or No knowledge i.e. (65%) of participants had some or limited knowledge, this result was in contrast with [26] where majority of Caucasian and Chinese participants had greater familiarity, this expressed they were 3 times more likely to proceed with treatment plan, our result was in accordance with [28] where (76-80%) of the sample had limited knowledge of the pharmacology of commonly used aesthetic agents and active ingredients used for NSFA. The knowledge of the culture in ideal beauty standards and understanding the aesthetic expectations of the populations plays a crucial role in providing the most desirable results (both objectively and subjectively in cosmetic field [29].

Table 3, Figure 5: as mentioned in the beginning of the research, according to our best of knowledge, this is the first research reported on this issue concerning Iraqi people as there are no reports to compare this result with those reports of knowledge, reasons of undergoing procedures or income barrier factors. Table 3, figure 5 also expressed the majority of the sample (64%) had never gone for NSFA procedures with a quarter of the sample approximately had gone (21.6%), while (14%) may be thinking, this expresses limited knowledge they had about NSFA as mentioned in Table 2 (65%) of them has limited knowledge.

Our (64%) had never gone for NSFA procedure was higher than the Indian study where (49%) of participants absolutely declined both surgical and non-surgical procedures which reflects the apprehension of the population to NSFA and provides an area of scope for surgeons in educating their patients [29].

(21.6%) of our participants had undergone these procedures, this % is much lower than Jordanian study [24] where (65%) of the

participants had undergone NSFA procedures as majority of them had good knowledge concerning this aspect, our result was higher than Saudi Arabian study [25] where only (6%) had undergone cosmetic procedures, while (15%) chose (Maybe) when asked if they would consider cosmetic procedure in the future, this might be explained by the fact that Makkah city is conservative, this percentage was in accordance with our result study (14.4%) of may be thinking.

Among types of NSFA procedures, our findings sequence was plasma, filler, botox, laser, nose surgery, hydra-facial, and orthodontic treatment respectively as shown in Table 3.1, Figure 6. According to the American Society for Aesthetic Plastic Surgery's demographic data showed that Botox injection was the top non-surgical procedure in 2020 [30], our result was in contrast with another Saudi Arabian study that found the most popular procedure among 1678 participants was hair removal (26.2%) followed Botox (19%) [31] while our figure's botox was (15%), also it was in contrast with a Saudi study that found the most reported cosmetic procedure was dermal filler (43%) followed by Rhinoplasty (42%) [25], also in contrast with Jordanian study where (80.6%) of participants opting for BoNT procedures and dermal fillings [24], these result outcome differences could be attributed to country social preferences for the types of NSFA procedure the population prefer.

Table 3.2 figure 7 expressed the profession of health care providers who performed the procedure, Majority of the participants (42%) didn't answer this question, this might be related to limited or No knowledge at all, ignorance or unawareness, this % was comparable with Indian study [29] where (49%) of participants declined both surgical and non-surgical procedures which exhibits the apprehension of the population to ASF and provides an area of scope for the healthcare providers in educating their patients.

The choice between dermatologists and dentists percentages' was approximately similar (23.4%, 23.1%) respectively although there was highly significant difference between them with the lowest percentage 2.7% for both dentists and dermatologists, patients often visit their Dermatologist for skin care recommendations and facial Aesthetic treatment [32], focusing on popular topics that can be away to convey important messages about topics that concern users and use it to convey additional skin health advice in a compelling way [33].

Dentists and general practitioners have taken in-intensity training to offer many techniques including sinus lift, implant placement and different complicated surgical strategies, after they properly trained, there's an area to dentists to provide facial cosmetic therapy, maxillofacial surgery includes the mandatory knowledge background and extensive training for performing facial cosmetics including invasive and non-invasive procedures.

Botox had now been increasingly applied in dentistry moreover because of its therapeutic uses in the treatment of certain oral and maxillofacial conditions, dentists regularly perform processes plenty extra invasive than Botox injections. They're skilled with injections that many pain control techniques require localized injections, most dentists inject in the same regions where Botox and dermal fillers are injected for cosmetic procedure, another reason that dentists are the best professionals to deliver these injections is that they know the way to form them comfortable, quick, and relatively painless for the patients, they're realistic, conservative, confident and well-qualified about injection administration and about any complications that may arise during injection into parts of head and neck, they're much more knowledgeable than most other health care providers in muscles of mastication and facial expression which routinely receive the treatment, they already know the facial anatomy, physiology, skeletal structures, vascular and nervous system of the face [17].

Our study revealed that NSFA procedures performed by others constituted (9%) such as clinicians and allied healthcare professionals of varied specialties such as plastic or general surgery, otolaryngology, ophthalmology, gynecology, general practice and nursing, an important reason for this may be due to the existence of NSFA procedural training in the curriculum of Dermatology and program directors only so it's necessary to involve practicing clinicians across different specialties to improve the existing education & training programs can be made [34].

Among factors prioritized by the participants when choosing a healthcare provider, they were in sequence, reputation and experience of the provider, Availability of specialized equipment, personal recommendations or referrals, cost, convenience of location and social media presence, this result was in contrast with [25] Saudi Arabia study where body image satisfaction, the opinion of peers and surgeon-related factors such as the surgeons

reputation, board certification or years of experience were among several factors contribute to the increase in the popularity of these procedures, also in contrast with [35] where every practitioner of Aesthetic procedures has encountered malpractice-related legal issues to some extent, which are expensive, time consuming and harmful to physicians' reputations, our result of reputation and experience of the provider constituted the highest percentage (58.7), which agreed with a prior study where physicians' reputation was identified as one of the most important guiding factors for clinic selection [36].

Our study revealed that social media presence accounted the least % among factors prioritizing choosing a health care provider, this result was in contrast with (24, 37-40) where social media influences young adult toward cosmetic procedures, our result is in accordance with a Saudi study [25] explaining the fact that Makkah society is not easily affected by social media as its conservative, religious culture and tradition, as for our study result could be attributed to the limited knowledge and awareness of the population, therefore its essential for health care providers share evidence-based information on NSFA procedures on social media to educate population and fight misinformation [19,41,42]. Social media allows healthcare providers to do social work of great significance disseminating an evidence-based scientific culture and influencing the habits of the most vulnerable people.

Table 5 presented the educational background of the healthcare providers in descending order, very influential, moderately, slightly and not influential at all, this comes true with an increasing demand for Aesthetic treatment, it becomes imperative that care providers are educated about NSFA and achieve proficiency in these aspects in a standard way, specialized training in NSFA enable clinicians to pursue independent practice with confidence, 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 to meet the present as well as the future arising training demand for NSFA [34].

The inclusion of evidence-based postgraduate programs on NSFA in higher academic institutions as per their educational curriculum will help in delivering safe and efficient patient care [44] and should drive work place learning taught by specialists in the field and incorporation of a work place competency-based accreditation may create more competent practitioners [45].

Walker, *et al.* 2017, suggested that NSFA teaching should be incorporated within the dental undergraduate education and failure to embrace the speciality into practice and education will be detrimental to the field [46].

Right education and training need to be supplied by educational establishments, not business corporations introduce courses, for the primary time, inside the college students' curriculum is an initiative factor in the proper path that we hope to create upon [47].

Table 6, Figure 10 are showing the advantages of choosing dermatologists for NSFA procedures as they are specialized in skin related treatment, trust in their medical background and training, experience with a wide range of NSFA procedures, familiarity with skin care and products, this result was in accordance with [32] where patients often visit their dermatologist for skin care recommendations and facial aesthetic treatment, focusing on popular topics to convey additional skin health advice in a compelling way [33], and an important reason is that dermatologists have an existence of NSFA procedural training in the curriculum of their speciality [48,49].

Table 7 figure 11 expressing the advantages of choosing dentist for NSFA procedures as they are experienced in facial anatomy, expertise in mouth and jaw procedures, comfortable with injections and numbing agent, trust in their medical background and training, this result was in accordance with [17] as they have extensive training in facial anatomy, intra-oral injections, Botox and filler application in maxillofacial condition, they are the best professionals and well qualified about injections and about any complications that may arise, they are knowledgeable about muscles of mastication, physiology, skeletal structures and nervous system of the face [17].

Conclusion

- The majority of our Iraqi sample were young females adult with Bachelors degree and enrolling high school with some knowledge but may not be well versed in all aspects of NSFA procedures (somewhat familiar), with the lowest percentage were very familiar (comprehensive understanding and potential outcomes).

- Majority of them didn't undergo aesthetic procedures while the lowest percentage constitutes of ones who have undergone plasma, filler, and botox were the common NSFA procedures.
- Dermatologists and dentists were the most common healthcare providers chosen by the sample, although the majority of the participants didn't answer this question, their response was that the educational background of healthcare providers was the most chosen factor.
- Social media constituted the lowest percentage of prioritizing factors when choosing a health care provider, this might be related to the limited knowledge and awareness of the participants toward facial aesthetic procedures.

Recommendations

1. As there is a need for further research in this area to identify the specific regions of limited knowledge, social media presence, identifying specific reasons may help us addressing them more effectively and find solutions for them in recent years.
2. Awareness of various cosmetic procedures should be widened, mainly among the digital generation.
3. Digital marketing and social media providing a reliable platform for the consumer spectrum of cosmetic industry and disseminating healthcare providers culture and influencing the habits of the most vulnerable people.
4. Government should introduce National licensing schemes to set minimal national standards for the safe training in NSFA and mandatory qualifications for all practitioners.
5. It is necessary to involve practicing clinicians across different specialties to improve the existing education and training programs can be made.
6. Inclusions of evidence-based postgraduate programs on NSFA in high academic institutions in their educational curriculum and with dental undergraduate education that will help in delivery safe and efficient patient care.

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