

Dentist Knowledge and Attitude towards Dermal Fillers Use: Cross-Sectional Study

AREEJ SULAIMAN ABU KHALID¹, AMBREEN SHABBIR², MOHAMMAD ALZAHIRANI¹

¹Department of Dental & Oral Health, Prince Sultan College of Health Sciences, Dhahran- Saudi Arabia.

²Department of Pathology, CMH Institute of Medical Sciences, Multan-Pakistan

Correspondence to Dr. Areej Sulaiman Abu Khalid, Email: jomaan@psmchs.edu.sa, areej@psmchs.edu.sa

ABSTRACT

Background: The dental practice is an ancient historical practice providing excellent dental and oro-facial care using the mixture of science and art.

Aim: To determine the level of knowledge and attitude among dentists towards dermal fillers (DF) use in the dental practice.

Study design: Cross-sectional study.

Methodology: A total number of 199 dentists responded to the questionnaire, out of which 62 were from Saudi Arabia and 137 were from Pakistan. Data was analyzed by SPSS version 25. Comparison of knowledge and attitude among Saudi and Pakistani dentists was made using Chi-square test with significant P-value of ≤ 0.05 .

Results: Out of 199, 31.1% (56.5% Saudi and 19.7% Pakistani) dentists had adequate knowledge of DFs, while 12.5% (32.2% Saudis and 3.6% Pakistani) were practicing it in clinics. All dentists have good knowledge regarding use of DFs in head and neck region and its indications. Only 50.7% (59.7% Saudi and 46.7% Pakistani) dentists had knowledge regarding the side effect of DFs.

Conclusion: There is a lack of knowledge among dentists working in Saudi Arabia and Pakistan regarding DF. Saudi dentists have better knowledge and practice of DFs. The overall quality of knowledge is low in these dentists.

Keywords: Attitude, Dermal fillers, Dentists and Knowledge.

INTRODUCTION

The dental practice is an ancient historical practice providing excellent dental and oro-facial care using the mixture of science and art¹. Newly emerging materials like dermal fillers (DF) has attained the attention of dental specialists. Its use has reduced pain, restored functions and achieved a perfect smile^{1,2}. Dermal filler is considered rapid non-surgical cosmetic treatment option³.

The Dermal Filler (DF) is an injectable material that is used to diminish facial lines and enhance shallow contours. DFs helps to fill the facial lines and creases thereby giving a younger appearance^{4,5}. In the past, only neurologists and dermatologists were responsible for the administration of Botox, but nowadays, dentists can administrate Botox because of their knowledge of head and neck anatomy and physiology⁶.

In 2014 Costa, Louis E reported that dentists can make the best use of DF by injecting it for aesthetic purposes⁷. Regardless of the reported benefits, its use has not been accepted extensively by dentists in Saudi Arabia and Pakistan. Since they are considered to be the best service providers for DF, the present study was aimed to determine the level of knowledge and attitude among dentists towards dermal fillers (DF) use in the dental practice in hospitals via a questionnaire.

METHODOLOGY

This cross-sectional study involved dentists who were working in the Eastern Province Military Hospitals of Saudi Arabia, and the different Hospitals of Lahore, Pakistan. The subjects included were general practitioner dentists, specialist dentists, consultant dentists, residents and final year dental students. Written consent following approval

by the Hospital's Ethical Committee was taken. A total number of 199 dentists responded to the questionnaire, out of which 62 were from Saudi Arabia and 137 were from Pakistan. Data was entered and analyzed using SPSS v25 software. Frequency and percentages were calculated for all study variables. Comparison of knowledge and attitude among Saudi and Pakistani dentists was made using Chi-square test with P-value of ≤ 0.05 was taken as significant.

RESULTS

General characteristics of the participants in the current study were summarized in table-1. Among 199 enrolled dentists, varying levels of knowledge regarding DF use, indications and attitude were summarized in table-2. Varying levels of knowledge regarding side effects of DF and reasons for not using it at clinics were summarized in table-3.

Table-1: Gender, Age And Working Experience Of Enrolled Subjects

Gender	Frequency%
Male	86 (43.2%)
Female	113 (56.8%)
Age Groups	
18 – 25	85 (42.71%)
26 – 35	86 (43.21%)
36 – 55	28 (14.04%)
Working Place	
Saudi Arabia	62 (31.2%)
Pakistan	137 (68.8%)
Working Experience	
<1 year.	45 (22.6)
1-2 years.	15 (7.5)
3-5 years.	21 (10.5)
6-10 years.	34 (17.0)
>10 years	84 (42.2)

Table 2: Knowledge of enrolled dentists regarding dermal fillers (DF)

Type of Questions	All Participants (n=199)	Saudi (n=62)	Pakistani (n=137)	P-value
Knowledge Regarding Dermal Fillers (DFs)				
I only heard about it.	112 (56.3)	7 (3.2)	105 (76.6)	<0.0001*
I heard and read about it.	62 (31.1)	35 (56.5)	27 (19.7)	
I have adequate information about it and I am practicing it in the clinic.	25 (12.5)	20 (32.3)	5 (3.6)	
Which of the following do you think is /are dermal fillers (DFs)?				
Fat transfer materials.	53 (26.6)	17 (27.4)	36 (26.3)	NS
Human-based collagen.	59 (29.6)	12 (19.4)	47 (34.3)	<0.0001*
Bovine-based collagen.	61 (30.6)	8 (12.9)	53 (38.7)	
PMMA microspheres in bovine based collagen.	112 (56.2)	6 (9.7)	106 (77.4)	
HA-based fillers.	31 (15.5)	8 (12.9)	23 (16.8)	NS
Knowledge Regarding Use of DFs in Head and Neck Region	146 (73.4)	40 (64.5)	106 (77.4)	0.05
Knowledge Regarding Side Effects of DF	101 (50.7)	37 (59.7)	64 (46.7)	0.14
Knowledge Regarding Indications of DFs				
Filling of wrinkles	129 (64.8)	35 (56.5)	94 (68.6)	NS
Filling of nasolabial line.	110 (55.2)	31 (50.0)	79 (57.7)	
Lip augmentation.	112 (56.2)	34 (54.8)	78 (56.9)	
Facial contouring	102 (51.2)	35 (56.5)	67 (48.9)	
High lip line.	51 (25.6)	25 (40.3)	26 (19.0)	0.001*
Positive Attitude Towards DF	106 (53.3%)	26 (41.9%)	80 (58.4%)	0.09
No	40 (20.1)	15 (24.2)	25 (18.2)	
Not Sure	53 (26.6)	21 (33.9)	32 (23.3)	

*Statistically Significant

Table-3: Knowledge Regarding Side Effects of Dermal Fillers (DFs).

	All Participants (n=199)	Saudi (n=62)	Pakistani (n=137)	P-value
Possible Indication/s for the use of Dermal Fillers (DF) in Clinic				
Achieving better dental /oral esthetics for your patients	118 (59.3)	25 (40.3)	93 (67.9)	<0.001*
Knowledge Regarding Possible Side Effects				
Allergic reaction	108 (54.3)	35 (56.5)	73 (53.3)	NS
Infection at injection site	77 (38.7)	28 (45.2)	49 (35.8)	NS
Asymmetry	64 (32.2)	29 (46.8)	35 (25.5)	0.002
Bruising	70 (35.2)	27 (43.5)	43 (31.4)	NS
Reasons for not using Dermal Fillers (DFs) in Clinic				
Lack of knowledge and experience	93 (46.7)	11 (17.7)	82 (59.9)	<0.001
Lack of materials at workplace	36 (18.1)	5 (8.1)	31 (22.6)	0.01
Possible side effects	25 (12.25)	2 (3.2)	23 (16.8)	0.007
Gender Probability of Prescribing Dermal Fillers (DF) in Clinic				
Male	12 (6.0)	2 (3.2)	10 (7.3)	0.17
Female	149 (74.9)	44 (71.0)	105 (76.6)	
Both Male and Female	38 (19.1)	16 (25.8)	22 (16.1)	
Consideration of testing Dermal Fillers (DFs) in Clinic				
On yourself	15 (7.5)	4 (6.5)	11 (8.0)	0.004*
On your Patient	48 (24.1)	9 (14.5)	39 (28.5)	
On yourself and on your patient	28 (14.1)	10 (16.1)	18 (13.1)	
No Way	43 (21.6)	8 (12.9)	35 (25.5)	
No Answer	65 (32.6)	31 (50)	34 (24.8)	

*Statistically Significant

DISCUSSION

To the best of our knowledge, no previous multi-country studies have been conducted to assess the knowledge and attitude of dentists towards the use of Dermal Fillers. The purpose of this study is to determine the level of knowledge of dentists about DF and their attitude towards this treatment. Cosmetic dentistry is considered a continuously developing field in dental practice. Facial structures such as perioral muscles and lips are of high esthetic importance and play a major role in enhancing the overall facial appearance. The accelerating advancements in modern cosmetic treatments in the past few years have widened

the horizons for obtaining better cosmetic options conveniently and without having to resort to surgical solutions.

Saudi dentists exhibited a significantly higher level of knowledge about DFs. DFs have many uses in cosmetic procedures in dentistry. Respondents were also asked about their knowledge about DFs, 32.2% Saudi dentists reported having adequate information about it and practicing it in the clinic while only 3.6% Pakistani dentists were using DFs. The significant difference was also evident in their knowledge about the material [(56.5%) Saudi vs (19.7%) Pakistani dentists]⁸ Dermal Fillers are made from animal products^{9,10}. In present study, 29.6% of the

respondents think the DFs is Human based collagen, 26.6% they think it's fat transfer materials, 30.6% they think it is Bovine based collagen, 15.5% HA based fillers and, 15.0% Synthetic Poly L lactic acid and Calcium Hydroxyapatite. HA and collagen types are the most safe and well known. The highest response of respondents on the wrong answer supports the limited knowledge of dentists about DFs or their lack of attendance of related workshops and conferences, limited practice of these materials and probably very little self-reading on the matter¹¹.

Most uses of DFs inside dental clinics include injections for plumping the lip and as fillers to increase the volume of the cheeks. It is also used to release the wrinkles by filling these areas, and filling the depression under the eye area¹². More than half the respondents think DFs can be used as a treatment option in the head and neck region (73.4%), supplementing the results obtained by Costa who found dentists to be the best provider for DFs injections¹³, and also indicating a good level of knowledge on that point. The results showed good knowledge of dentists about the uses of DFs in general. Our results also match the good knowledge about the most possible indication for the use of DFs previously reported by AL-Hamdan et al¹¹. However, a significantly lower percentage of Pakistani dentists were aware of its use in the management of high lip lines.

As some DFs have a risk of causing skin allergy, a double skin testing is needed before injecting. The complications of DFs include swelling, lumpiness, infection, bruising, redness and inflammation. In some cases, skin color changes for a long time after an injection by DFs¹². Half of the respondents of this current study (50.7%), think DFs have side effects, implicating that our participants have an acceptable level of knowledge about the existence of side effects of DFs, but also indicating that further effort should be put to raise the awareness of the remaining respondents.

Since males have greater mass of muscles than females, they need higher doses of DF as reported by Al-Hamdan et al¹¹. Only 18.6% of our respondents thought males need higher doses of DF than females. Thus, a high percentage of dentists from both countries had adequate knowledge about DF, that being higher among Saudi dentists.

CONCLUSION

We conclude that there is a lack of knowledge among dentists working in Saudi Arabia and Pakistan regarding DF. Saudi dentists have better knowledge and practice of

DFs. The overall quality of knowledge is low either due to less motivation, interest or unavailability of DF at working place.

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Limitations: In our study, the limited level of knowledge was from general dentists which are younger and more recent in dentistry. The reported level of knowledge indicates that dentists are not improving their knowledge and skills by attending workshops.

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REFERENCES

1. Freund B, Finkelstein I, Ko G. Review of the Applications of Botulinum Toxin and Tissue Fillers in Dental Practice. 2014.
2. Govindaraju P, Sadand S, Gopal SV, kumar Ramaiah S, Mathew M, Parashuram SC, et al. Botulinum toxin-An Innovative Treatment Approach in Dental Practice. *J Young Pharm*. 2016;8(1):2.
3. Berbos ZJ, Lipham WJ. Update on botulinum toxin and dermal fillers. *Curr Opin Ophthalmol*. 2010;21(5):387-395.
4. Whitcup SM. The History of Botulinum Toxins in Medicine: A Thousand Year Journey. 2019.
5. Relja M, Poole A, Schoenen J, Pascual J, Lei X, Thompson C. A multicentre, double-blind, randomized, placebo-controlled, parallel group study of multiple treatments of botulinum toxin type A (BoNTA) for the prophylaxis of episodic migraine headaches. *Cephalalgia*. 2007;27(6):492-503.
6. França K, Kumar A, Fioranelli M, Lotti T, Tirant M, Roccia MG. The history of Botulinum toxin: from poison to beauty. *Wien Med Wochenschr*. 2017;167(1):46-48.
7. Costa LE. The dentist, botox, and injectable fillers. *Journal of Esthetic and Restorative Dentistry*. 2014;26(1):1-4.
8. Flynn TC. Advances in the use of botulinum neurotoxins in facial esthetics. *J Cosmet Dermatol*. 2012;11(1):42-50.
9. Funt D, Pavicic T. Dermal fillers in aesthetics: an overview of adverse events and treatment approaches. *Clin Cosmet Investig Dermatol*. 2013;6:295.
10. Narins RS, Mariwalla K. History of fillers. *Dermal Fillers*. 4: Karger Publishers; 2018. p. 1-9.
11. Al Hamdan EM, Algheryafi AM, Al-Ghareeb FJ, Ashri NY. Knowledge and attitude of dentists towards the use of botulinum toxin and dermal fillers in dentistry, Riyadh, Saudi Arabia. *J Cosmet Laser Ther*. 2013;15(1):46-54.
12. Kablik J, Monheit GD, Yu L, Chang G, Gershkovich J. Comparative physical properties of hyaluronic acid dermal fillers. *Dermatol Surg*. 2009;35:302-312.
13. Jankovic J. Botulinum toxin: State of the art. *Mov Disord*. 2017;32(8):1131-1138.