



Evaluation of the Knowledge and Practise of Esthetic Dentistry amongst the Practicing Dentists of Private Dental Colleges of Navi Mumbai- A Questionnaire-based Study

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Authors' contributions

This work was carried out in collaboration among all authors. Author MJ and SD designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. And managed the analyses of the study as well as managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Purpose: The inter-disciplinary approach to practise and also should constantly update their knowledge to keep up with the demands that this field presents.

Aim: The aim of this study was to evaluate the knowledge, attitude and practice of Esthetic dentistry amongst the practicing dentists of private dental colleges in Navi Mumbai, through a questionnaire- based study.

Materials and Methods: Self-administered KAP (Knowledge, Attitude, Practise) questionnaires were distributed amongst the practicing dentists of private dental colleges in Navi Mumbai. A total of 100 questionnaires were distributed.

Statistical analysis used: Pearson's chi. Sq. test was applied and the likelihood ratio calculated for each question. Independent T Test was applied for equality of means between the groups, i.e. both gender and graduate and post graduate qualifications.

Results: Most of the dentists were aware of the field and practise of Esthetic dentistry, although

there were some differences found between the general dentists and specialists in adopting and accepting new dental procedures. According to them, Finances played a major role in opting for an esthetic treatment by patients.

Conclusion: With the advances in esthetic dentistry and increased level of patients' expectations and awareness, practicing dentists should be well versed with the same, by attending continuing dental education programs and courses to update their skill and knowledge. Also Finances plays a major role in opting for an esthetic treatment.

Keywords: Esthetic dentistry; practice of esthetic dentistry; private dental colleges.

1. INTRODUCTION

Esthetic dentistry is among the most dynamic field in clinical dentistry. Patients' increased awareness of esthetic outcomes has led to enormous demands on dentists to perform esthetic procedures. It presents a great challenge to the practicing dentist. In an attempt to create an esthetic smile for the patient, many factors have to be considered. At the same time, the patients' motive to seek esthetic treatment has to be examined and considered. For all the above to be achieved, the dentist must be well aware about the practice of esthetic dentistry and the contributions of various specialties to the same. At the same time, the dentists' knowledge regarding procedures, materials and techniques should be constantly updated.

Over the past decade, knowledge about esthetic dentistry has expanded rapidly through basic and clinical research, which has led to the development of new restorative materials and clinical techniques. Several factors have played a role in this rapid evolution. Tooth-coloured resin-based materials have gradually enhanced the quality of esthetic restorations. The first generations of these materials left much to be desired, but present-day materials, when properly used, allow aesthetically pleasing restorations of anterior and posterior teeth. They may also be used to modify the anatomy of teeth, adjust misalignment and close diastemas while preserving healthy tooth structure, with minimal tooth preparation [1].

The knowledge and attitude of practitioners attached to private dental colleges regarding Esthetic dentistry have not been studied and documented profoundly. Abdulaziz M Albaker has studied the esthetic practices of general dentists and Prosthodontists in Riyadh, Saudi Arabia [2], in which he studied 121 general practitioners and 17 Prosthodontists and concluded that more of Prosthodontists used CAD CAM (Computer Assisted Designing &

Computer assisted Manufacturing) and other advanced esthetic treatments as compared to GPs (General Practitioners). Therefore there is a need for constant updating of clinicians' knowledge. Such studies would help to assess the knowledge of dentists and also pave the way to further improvement in the quality of practice. It is recommended that 1) 'Esthetic dentistry' should be included as separate subject in dental curriculums. 2) 'Dental insurance' should come up in a big way to support the esthetic dental treatments so that more patients can opt for the same.

This study aims to assess the knowledge, attitude and practice regarding Esthetic dentistry amongst the practising dentists of Private dental colleges in Navi Mumbai.

2. MATERIALS AND METHODS

A customized questionnaire was designed with a set of 30 questions. The entire questionnaire was self-designed. It was validated by 05 experts. The questions had a domain of knowledge about esthetics (Q 1-15), attitude about the subject (Q 16-19) and lastly the practice of Esthetic dentistry (Q 20-30). The questionnaires were distributed in the private dental colleges in Navi Mumbai.

Study sample included hundred practicing dentists of either gender, working in the dental institutes, with at least one year of clinical experience, and both BDS and MDS qualifications. The exclusion criteria were – non practicing dentists and an experience less than one year. The willingness to fill the questionnaire was considered as a consent to participate in the study.

The questionnaire was hand delivered to them and was collected after one day. One operator assessed and processed all the questionnaires. Data was analysed and descriptive data presented. Responses were obtained based on gender (male/female) and qualification

(BDS/MDS). The data was processed through windows based software SPSS version 21. Pearson's chi square test was applied and also the likelihood ratio was calculated for each question and its options.

3. RESULTS

Out of the total number of hundred dentists that responded, MDS Prosthodontics were thirty seven, other speciality MDS were forty eight and BDS/ general practitioners were fifteen in number. Gender distribution was almost equal amongst BDS and MDS participants and not statistically significant.

All the dentists (100%) were aware about the field of esthetic dentistry. 85% of dentists knew the difference between esthetic and cosmetic dentistry. 91% of dentists thought that the practice of esthetic dentistry requires a multidisciplinary approach.

When the dentists were asked about their opinion, regarding the role of different specialities in planning and executing esthetic treatments, varied responses were obtained. Out of all the dentists, 78% dentists were of the opinion that branch of Prosthodontics was involved in practice of esthetic dentistry. Similarly, 67% of dentists thought that the branch of Periodontology had a role in esthetic treatment planning. Amongst all dentists, 71% MDS practitioners were of this opinion, as compared to 50% BDS practitioner. This difference is statistically significant. 68% of dentists thought that the branch of Conservative dentistry had a role in esthetic treatment planning. Amongst all dentists, this was opinion of 73% MDS

practitioners as compared to 50% BDS practitioner. This difference is also statistically significant.

54 % dentists thought that Orthodontics as a discipline, had a role in esthetic dentistry, 39 % dentists thought that Oral surgery had a role in esthetic dentistry practice and finally only 11% dentists thought that the branch of Pedodontics had a role in esthetic dentistry practice.

The dentists then required to rate different characteristics of a smile, from a scale of 0 to 5 as per its esthetic value (0=Not important at all and 5=Most important).

Most dentists gave the following scores to the different characteristics of smile.

All the above esthetic characters of a smile were graded by the dentists. The most important characters (grade 4 &5) for an esthetic smile considered by most of the dentists as per their preference are as below:

1. Size and proportion of teeth displayed in the smile(93% dentists)
2. Anterior teeth alignment(87% dentists)
3. Curvature of smile (83% dentists)
4. Smile line(83% dentists)
5. Diastema or spacing in the teeth(80% dentists)
6. Shade of teeth(79% dentists)
7. Number of visible teeth in smile (78% dentists)
8. Gingival display during smile (78% dentists)
9. overlapping of the maxillary anteriors by the lower lip(61% dentists)

Table 1. Scores to the different characteristics of smile

Criteria	Scale with maximum percentage
a.No. of visible teeth in smile	5
b.Curvature of smile	5
c.Gingival display during smile	5
d.Smile line	4
e.Anterior teeth alignment	5
f.overlapping of the maxillary anteriors by the lower lip	4
g.Shade of teeth	4
h.Size and proportion of teeth displayed in the smile	5
i.Diastema or spacing in the teeth	5

Table 2. The responses for awareness of the dentists

Question	Yes	No
Awareness about advances in materials	89%	11%
Awareness about use of laser	91%	9%
Aware about 'gingival zenith' (BDS/MDS)	93%	7%
Aware about CLP	100%	0%
Gingival depigmentation	98%	2%
'Black triangle'	93%	7%
Are you aware about 'Gingival laminates'	74%	26%
Is Ovate pontic an esthetic treatment option (BDS/MDS)	86%	14%
Is Dental jewellery an esthetic option	48%	52%
Is Money an important factor for seeking esthetic treatment	80%	20%
Should Esthetic dentistry be included as a separate entity in UG course	78%	22%

Also, there was no grading of 0 and 1 all for the above esthetic characters of smile, indicating that none of the dentists thought that these characters were least or not important for an esthetic smile.

The responses for awareness of the dentists of factors/materials/procedures are presented in the following table, as percentages for each question.

The reason for seeking esthetic treatment by the patients, as chosen by dentists were- because of Personal choice by 80% of the dentists, followed by other reasons viz social factor and fashion statement. The reasons for not seeking esthetic treatment, as pointed out by dentists were mainly- financial reasons, as thought by 85% dentists, followed by other reasons like lack of awareness, family limitations and lastly availability of services, like Specialized and trained dentist.

The next set of questions aimed at assessing the knowledge of the dentists regarding the practise of Esthetic dentistry. Questions about various case scenarios were formulated and dentists were told to choose the best treatment option for the same.

For treatment of discoloured teeth, 45% dentists selected a combination of root canal treatment and bleaching, 45 % dentists selected Laminates as treatment, whereas only 10% dentists opted for full crowns as the treatment.

For the treatment of diastema, 60% dentists selected treatment by Orthodontics, 30% dentists selected Prosthodontics as a treatment option and the least number of dentists ie 10% selected

Endodontics and Conservative intervention for the treatment.

For the treatment for crowding and/or proclined teeth, almost 90% dentists selected Orthodontics as the treatment option, and only 8% chose Prosthodontics and Other options (endodontic/oral surgery) was chosen by a mere 2% of dentists.

For the treatment for fractured anterior teeth, Direct Composite restoration was a treatment of choice by 35% dentists, 35% dentists chose full coverage crowns as the treatment and about 30% dentists selected Root canal treatment as their treatment option for this situation. The preference of restoration in esthetic zone was selected as All ceramic by 90% of dentists and Porcelain fused to metal by only 10% dentists.

The preferred finish line for anterior restorations was chosen as Subgingival by 60% dentists and Equigingival by 40% dentists. Gingival disharmony/gummy smile should be treated by Periodontic intervention according to 90% dentists, followed by Orthodontics (8%) and Prosthodontics (2%). Preferred treatment for Depigmentation was Lasers by 70% dentists, scalpel-blade method by 20%, and bur and electrosurgery got 5% each. Black triangle should be treated Prosthodontically according to 55% dentists and by Periodontic intervention by 45% of dentists.

4. DISCUSSION

Due to the practical difficulties to involve a large population of general practitioners into the survey, dentists from private institutions had been chosen for representing the population and

better standardization in this study. Hence lesser number of participants in the survey did not affect validity of data [3].

As per the results, all the practicing dentists were aware of the discipline of Esthetic dentistry. This can be attributed to their knowledge being constantly updated through various courses and continuing dental education programs. There were some differences in knowledge between the general practitioners and specialists. The result of the study indicates that almost all dentists thought that the practice of Esthetic dentistry requires a multidisciplinary approach, for the best outcome.

Self- perception of the patients about their smile and their goal to seek treatment ought to be known before planning an esthetic treatment. All the objective variables of an esthetic smile (size, shape, proportion of teeth, curvature of lips, buccal corridor, gingival contour, etc.) should be studied by the dentist for diagnosis and treatment planning. Dentists should have adequate knowledge about esthetic procedures and the inter-disciplinary approach when planning an esthetic treatment. This is possible only through constant update of knowledge regarding Esthetic dentistry.

As per the study, most of the dentists were of the opinion that the specialities of Prosthodontics and Periodontology has the maximum role in Esthetic treatments, followed by Orthodontics and Oral surgery. This preference was more amongst the specialist dentists as compared to general practitioners. This result is statistically significant and may be attributed to difference in knowledge about the procedures of esthetic dentistry amongst the two groups.

The results show the importance given to different characteristics of smile, size and proportion of teeth displayed in the smile (93%), Anterior teeth alignment (87%) and Curvature of smile (83%) were given the most importance among the various characters of an esthetic smile. Other characters like Smile line (83%), diastema or spacing in the teeth (80%), Shade of teeth (79%), number of teeth visible in smile (78%), Gingival display during smile (78%) and overlapping of the maxillary anteriors by the lower lip (61%) were also given average to high importance, but *none of the characters were considered as least important* (there was no grading of 0 and 1 at all). This implicates that the dentists in the study have knowledge about the

various characters of an esthetic smile, which should be considered while planning esthetic treatments in their patients.

Answers to the awareness questions (Q6-14) shows that approximately 90% and more dentists were aware of various advances in materials and techniques used for practising esthetic dentistry viz use of laser, crown lengthening procedures, gingival depigmentation procedure and treatment of black triangle. General practitioners were less aware of the term 'gingival zenith' as compared to specialists and this difference was statistically significant. Also lesser number of dentists (74%) were aware about gingival laminates. 86% of dentists were aware of ovate pontic as an esthetic treatment option for anterior missing teeth. But general practitioners were less aware about this treatment option than specialists. This result was statistically significant. Only 48% of dentist thought that dental jewellery was an esthetic option.

Amongst the questions related to attitude towards the subject, 80% of dentists were of the opinion that money is an important factor as far as esthetic dentistry is concerned. Furthermore, the reason for not seeking esthetic treatment was thought to be financial reasons or cost factor by 85% of dentist, followed by personal choice of the patient.

The above two finding regarding financial aspect in esthetic treatment may be an indication about the insufficient insurance coverage for dental treatment under the insurance schemes by companies. If financial aid is provided by insurance companies or by government bodies, definitely a greater number of people may opt for such costlier treatment options.

78% dentists were of the opinion that esthetic dentistry should be included as separate entity in the undergraduate curriculum. The practice of esthetic dentistry is a very integral part of dentistry. Inclusion of this field in Dental curriculum will definitely open new horizons for budding dentists. At the same time, dentists - both general practitioner and specialists should be abreast with the latest techniques and materials in the field, which can be done by organizing and attending continuing dental education programs.

The last set of questions tested the knowledge of practitioners about practice of esthetic dentistry. The most preferred treatment option for

discoloured teeth was root canal treatment and bleaching, only 10% dentist opted for full crown treatment, which indicates the changing trends towards conservative approach of treatment. The preferred treatment by most of dentist for diastema, crowding and proclined teeth was orthodontics; for diastema, 30% of dentist preferred a prosthodontic intervention. This suggests that maximum dentists were aware of the treatment and referral options.

There was an equal vote to direct composite and full coverage crowns for the treatment of fractured anterior teeth. This reiterates the fact that the choice of treatment is case dependent and should be chosen wisely. The restoration of choice for esthetic zone was all ceramic restorations by 90% dentists, indicating that practitioners were aware of advances in the materials used for esthetic dentistry. Also none of dentists preferred a supragingival margin for esthetic zone, indicating their preference for finish line for esthetic restorations. Again the choice of material and location of finish line cannot be generalized and is case dependent.

The treatment for gingival disharmony was by periodontal intervention according to 90% dentists. Also maximum number of dentist (70%) preferred laser for treatment of depigmentation compared to other options, which shows their awareness about latest advances and lesser invasive treatment options. For treatment of black triangles, dentists opted for both prosthodontic and periodontic treatment modalities equally. Treatment options in such cases should be decided according to case, patient preference and other factors; also an interdisciplinary approach should also be preferred in such cases.

5. CONCLUSION

In the present study there were some differences found between the general practitioners and specialist in adopting and accepting the newer esthetic procedures [4].

The study can be carried out on a larger population of dentists for more reliable results. With the advances in esthetic dentistry and increased level of patient's expectations and awareness, the practicing dentist should be well versed with the same, which they can do by

attending continuing dental education programs and courses to update their skill and knowledge.

It is recommended that:

- 1) 'Esthetic dentistry' should be included as separate subject in dental curriculum [1].
- 2) 'Dental insurance' should come up in a big way to support the esthetic dental treatments so that more patients can opt for the same.

DISCLAIMER

The study was planned purely for purpose of scientific research and academics in an attempt as stated and to recommend suggestions to improve the practice of Esthetic dentistry.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

The study was presented in the SRC (Scientific Review committee) of the institute and post their approval, was presented to the IEC (Institutional Ethical committee). Post-clearance from the same, the study was undertaken.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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