

KAP Survey on Aesthetic Management of Anterior Teeth among Specialists and General Practitioners

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Abstract

Introduction

Dental students and practitioners alike should develop treatment strategies focused on providing patients with functional, physiologic, and aesthetic restorations. Aesthetics can be considered the difference between good dental care and dental excellence. The aim of the present study was to assess the knowledge, attitude and practices (KAP) towards aesthetic management of anterior teeth among specialists and general practitioners.

Materials and Methods

A questionnaire was used to collect data from 170 Dentists, General Practitioners and Specialists. KAP questionnaire consists of Variables related to aesthetic management of anterior teeth. The demographic details were age, gender, category such as General Practitioner, Specialists in the area of Prosthodontics, Endodontics and also year of graduation. The questionnaire was designed on basic knowledge of aesthetic management of anterior teeth that is taught in undergraduate and post graduate curriculum. The questionnaire was self-administered after explaining the study design to all the respondents who consented to participate in the study. Data were analysed by using Statistical Package for Social Sciences (SPSS) and descriptive Statistics including Mean, Standard Deviation and Chi -Square Test.

Results

The questionnaire was circulated among 180 dentists and 170 responded. It gives response rate of 94.44%. Since the p-value is significant there is an association between most of the groups and variables in this study. The Chi-square test results showed that there was significant impact in most of the variables on aesthetic management of anterior teeth.

Conclusion

Dentists having knowledge regarding aesthetic management concept are scarce. Within the limitations of this study, it can be concluded that the knowledge about aesthetic management of anterior teeth among general practitioners and specialists was statistically significant. The quality replica of the natural dentition in order to meet these expectation.

Key words: aesthetics, anterior teeth, composite, continuing dental education, specialists, KAP survey

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I. Introduction

In the modern competitive world, the pleasing appearance is the success factor in both personal and professional lives^{1,2}. An attractive or pleasing smile clearly enhances the acceptance of the individual in the society and the character of the smile influences to a great extent the attractiveness and the personality of the individual.

The aesthetic management of anterior teeth plays important role in day to day practise. Studies have shown that aesthetic considerations are one of the primary reasons to request dental treatment. However, as the increase in the demand of restoring the anterior teeth and as the media in general emphasize the effect of pleasing smile; aesthetics has become a major concern for the patients and dentists^{2,3}. It is dependent upon underlying factor like anatomy of dentogingival complex, periodontal biotype, distance of contact point with bone crystal level, tooth morphology and gingival bioform⁴. Questionnaire surveys have been used to evaluate the dentists preferences regarding different procedures performed in the dental office. The main objective of the study is to assess the effect of the current curriculum on knowledge of anterior aesthetic management among general practitioners and specialists⁵.

II. Materials And Methods

A questionnaire based survey was carried among the 170 dentists, general practitioners and specialists. There were 05 knowledge items, 05attitudes items and 06 practise related items. Sampling technique was convenient sampling. The acceptance of form was considered as the consent to participate in the study. A questionnaire was distributed randomly through online^{4,6}.This survey to determine attitude towards dental appearance and aesthetic management of anterior teeth^{6,7}.

The demographic details were descriptive of practitioners such as age, gender, category of general practitioner, specialists, prosthodontics, endodontics and also year of graduation. The questionnaire was formulated on basic knowledge of anterior aesthetics teeth management that is taught in undergraduate and post graduate curriculum⁸.The questionnaire was self-administered after explaining the study design to all the dentists who have consented to participate in the study. Participation in the study was voluntary and confidentiality of data was maintained.

Data were collected through a self-applied closed questionnaire. Some professional characteristics were investigated in clinical experience time since concluding dental school, collected in years and then categorized in periods of 10 years, 10–20 years, 20–30 years, and more than 30 years post-graduation training, specialization level, master’s degree and then dichotomized in none and specialist, placing together all those dentists that attended formal post-graduation courses. The year of experience is categorized in period of 0-5 years, 6-10 years, 11-12 years and more than 5 years. Finally, information regarding their preferences when preparing anterior composite restorations were also included in the questionnaire, such as: the type of composite used for anterior restoration that is micro filled, nano filled and nano hybrid, IPS E-max, zirconia veneers and type of light unit used (yes/no), use of rubber dam (yes/no), shade guide(yes/no), composite resin is the best choice for anterior restoration (yes/no), natural layering concept(yes/no) the time of polishing (immediate, 24 hours, seven days) . The answers were assessed according to the key known to researchers only and the questionnaire did not include information that enabled the identification of the dentist and it was pre-tested with professionals not enrolled in the study.

All dentists working in colleges were approached in their respective college. Dentists were requested to complete the questionnaire as per their convenience and were reminded once before the dead lines⁷.After collection the data was analysed on SPSS version 24.The Chi-square test results showed that there was significant impact in most of the variables on aesthetic management of anterior teeth⁹.

III. Results

The demographic details distributed among dentists and their response to the survey questions are summarized in tables 1 and 2. One hundred seventy dentists participated in this study, 24.12% of them were male and 75.88% were female. Age ranges from 20 to 50 years with a mean age of 33 years (Table 1). The Chi-square test results showed that there was significant impact in most of the variables on aesthetic management of anterior teeth (Table3).

Table - 1 Descriptive statistics showing distribution of respondents with their demographic variables

Demographic Variables	Categories	No. of Respondents	Percentage (%)
Gender	Male	41	24.12
	Female	129	75.88
	Total	170	100.00
Age (Years)	20 - 30 years	158	92.94
	31 - 40 years	9	5.29
	41 - 50 years	3	1.76
	Total	170	100.00
Field of Practice	PG Student	70	41.18
	General Dentist	88	51.76
	Conservative and Restorative Dentist	7	4.12
	Prosthodontist	5	2.94
	Total	170	100.00
Years of Experience	0 - 5 years	141	82.94
	6 - 10 years	4	2.35
	11 - 15 years	8	4.71
	above 15 years	17	10.00
	Total	170	100.00

33.53% of the dentists preferred with microfilled (Table 2) and 42.35% preferred with usage of rubber dam(p>0.05).81.18% of the dentist preferred composite resin for anterior teeth(p<0.05).88.24% preferred with

the shade selection.60% of the dentist preferred direct composite in the case of diastema closure($p<0.05$) (Table3).

The usage of composites as an indirect restorative material is comparatively less when compared to direct composite.56.47% of the dentist doesn't know the knowledge about natural layering concept($p<0.05$).60% of the dentist preferred for direct composite technique for anterior teeth restoration compared with the indirect composite technique($p<0.05$).

Table: 2 Descriptive statistics showing distribution of respondents with their practising variables

Items	Categories	Frequency	Percentage (%)
Preferred composite for anterior aesthetic restoration?	Microhybrid	23	13.53
	Micro filled	57	33.53
	Nanofilled	52	30.59
	I don't know	38	22.35
Usage of Rubber Dam during the procedure	Yes	72	42.35
	No	64	37.65
	May be	34	20.00
Can you select the shade guide before placing the anterior restorations?	Yes	150	88.24
	No	7	4.12
	May be	13	7.65
Composite Resin is the best choice of anterior restoration	Yes	138	81.18
	No	14	8.24
	May be	18	10.59
Which technique is preferred by you for the anterior diastema closure?	Direct Composite veneer technique	102	60.00
	Indirect Composite veneer technique	36	21.18
	Other technique	32	18.82
In which clinical situation you preferred for direct veneers?	Ellis class - 1	67	39.41
	Ellis class - 2	64	37.65
	Ellis class - 3	39	22.94
Do you know about natural layering concept?	Yes	74	43.53
	No	96	56.47
When did you come to know about the natural layering concept?	More than 10-15 yrs back	2	1.18
	5 - 10 yrs back	9	5.29
	Less than 5 yrs	54	31.76
	Now only	105	61.76
IPS E-max or zirconia veneers –Best choice?	E-max	51	30.00
	Zirconia	81	47.65
	Don't Know	38	22.35
Can you use LED light for curing composite restoration?	Yes	102	60.00
	No	57	33.53
	May be	11	6.47
What will be your finishing and Polishing Time period	Immediate	126	74.12
	24 hrs	37	21.76
	7 days	7	4.12
Total		170	100.00

47.65% of the dentist preferred zirconia veneer ($p<0.05$) comparatively less preference then the E-max.60% of the dentist preferred LED for curing the composite restoration ($p>0.05$) (Table 4).74.12% dentist preferred for immediate polishing time period ($p<0.05$) (Table 5).

Table 3 Chi-square test showing the practising methods with field of practice

Items	Category	Field of Practice					Chi-square Vale	p-value
		PG Student	General Dentist	Conservative and Restorative Dentist	Prosthodontist	Total		
Preferred composite for anterior aesthetic restoration?	Microhybrid	11	11	1	0	23	17.933	0.036
		(6.50)	(6.50)	(0.60)	(0.00)	(13.50)		
	Micro filled	20	33	1	3	57		
		(11.80)	(19.40)	(0.60)	(1.80)	(33.50)		
	Nanohybrid	29	17	4	2	52		
(17.10)	(10.00)	(2.40)	(1.20)	(30.60)				
I don't know	10	27	1	0	38			
	(5.90)	(15.90)	(0.60)	(0.00)	(22.40)			
Usage of Rubber Dam during the procedure?	Yes	29	38	1	4	72	9.520	0.146
		(17.10)	(22.40)	(0.60)	(2.40)	(42.40)		
	No	23	37	3	1	64		
(13.50)	(21.80)	(1.80)	(0.60)	(37.60)				
May be	18	13	3	0	34			
(10.60)	(7.60)	(1.80)	(0.00)	(20.00)				
Can you select the shade guide before placing the anterior Restorative material?	Yes	63	78	5	4	150	17.943	0.006
		(37.10)	(45.90)	(2.90)	(2.40)	(88.20)		
	No	0	4	2	1	7		
(0.00)	(2.40)	(1.20)	(0.60)	(4.10)				
May be	7	6	0	0	13			
(4.10)	(3.50)	(0.00)	(0.00)	(7.60)				
Composite Resin best choice for anterior restoration	Yes	52	82	1	3	138	39.210	0.000
		(30.60)	(48.20)	(0.60)	(1.80)	(81.20)		
	No	8	2	2	2	14		
(4.70)	(1.20)	(1.20)	(1.20)	(8.20)				
May be	10	4	4	0	18			
(5.90)	(2.40)	(2.40)	(0.00)	(10.60)				
Which technique is preferred by you for Diastema Closure?	Direct Composite	34	62	6	0	102	20.083	0.003
		(20.00)	(36.50)	(3.50)	(0.00)	(60.00)		
	Indirect Composite	22	12	0	2	36		
		(12.90)	(7.10)	(0.00)	(1.20)	(21.20)		
Other	14	14	1	3	32			
(8.20)	(8.20)	(0.60)	(1.80)	(18.80)				

Table 4 Chi-square test showing the awareness with field of practice

Questions	Category	Field of Practice					Chi-square Vale	p-value
		PG Student	General Dentist	Conservative and Restorative Dentist	Prosthodontist	Total		
In which clinical situation you preferred for Direct Veneers?	Ellis class - 1	37	22	4	4	67	28.289	0.00
		(21.80)	(12.90)	(2.40)	(2.40)	(39.40)		
	Ellis class - 2	28	33	2	1	64		
		(16.50)	(19.40)	(1.20)	(0.60)	(37.60)		
Ellis class - 3	5	33	1	0	39			
(2.90)	(19.40)	(0.60)	(0.00)	(22.90)				
Do you know about natural Layering concept?	Yes	34	33	4	3	74	3.105	0.376
		(20.00)	(19.40)	(2.40)	(1.80)	(43.50)		
No	36	55	3	2	96			
(21.20)	(32.40)	(1.80)	(1.20)	(56.50)				
When did you come to know Natural Layering?	More than 10-15 yrs back	0	1	0	1	2	46.796	0.00
	(0.00)	(0.60)	(0.00)	(0.60)	(1.20)			
	5 - 10 yrs back	3	3	1	2	9		
	(1.80)	(1.80)	(0.60)	(1.20)	(5.30)			
	Less than 5 yrs	33	17	2	2	54		
(19.40)	(10.00)	(1.20)	(1.20)	(31.80)				
Now only	34	67	4	0	105			
(20.00)	(39.40)	(2.40)	(0.00)	(61.80)				
IPS E-max or zirconia veneers best choice	E-max	31	13	4	3	51	24.761	0.00
		(18.20)	(7.60)	(2.40)	(1.80)	(30.00)		
	Zirconia	22	55	2	2	81		
(12.90)	(32.40)	(1.20)	(1.20)	(47.60)				
Don't Know	17	20	1	0	38			
(10.00)	(11.80)	(0.60)	(0.00)	(22.40)				

Table 5 Chi-square test showing the awareness with field of practice

Questions	Category	Field of Practice					Chi-square Vale	p-value
		PG Student	General Dentist	Conservative and Restorative Dentist	Prosthodontist	Total		
Can you use LED light for curing composite restoration	Yes	48 (28.20)	46 (27.10)	5 (2.90)	3 (1.80)	102 (60.00)	7.619	0.267
	No	16 (9.40)	37 (21.80)	2 (1.20)	2 (1.20)	57 (33.50)		
	May be	6 (3.50)	5 (2.90)	0 (0.00)	0 (0.00)	11 (6.50)		
What will be your finishing and polishing time period?	Immediate	40 (23.50)	75 (44.10)	6 (3.50)	5 (2.90)	126 (74.10)	24.510	0.00
	24 hrs	28 (16.50)	8 (4.70)	1 (0.60)	0 (0.00)	37 (21.80)		
	7 days	2 (1.20)	5 (2.90)	0 (0.00)	0 (0.00)	7 (4.10)		

Statistically significant p(p<0.05) Not Significant p(p>0.05)

The results were tabulated and analysed using the statistical package for social sciences (SPSS) version 19. The chi-square test was used to assess the significant effect of each demographic variable and satisfaction with dental aesthetic and to compare the general practitioners and specialists responses to the survey questions^{2,3}. The level of significance was set as 0.05.

IV. Discussion

The study was conducted to assess the knowledge about anterior aesthetics management among general practitioners and specialist in Tamil Nadu State. Data showed that there is significant difference in most of the variables. Present studies showed the difference in experience markedly influence the knowledge about aesthetic management for anterior teeth. This is accordance with another study¹⁰ done to evaluate difference in clinical reasoning amongst the experience and inexperienced clinicians.

In this study, the majority of the dentist preferred to use of microfilled for anterior composite restorations, followed by Nanofilled and microhybrid composite^{11,12}. Microfilled composite were developed to produce a smoother surface, similar to enamel, increasing the aesthetic appearance¹³. Nanohybrid composites are a new class of material and some studies have demonstrated that they could present advantages in relation to microhybrid composites^{14,15}. Because they are relatively new materials, less known by dentists and with higher prices, they were probably less selected in our study. 56.47% of participant doesn't have the knowledge about natural layering concept, that is not mention in the previous study^{6,8}. In relation to rubber dam application, 42.35% of the dentists usually performed anterior composite restoration with rubber dam. Similar low rate of dentists have indicated the use of rubber dam for clinical procedures in other countries¹⁶.

Rubber dam provide a drier field, preventing moisture contamination that impairs adhesive procedures¹⁷. However, its placement increases the complexity of the restorative technique, the patient's chair time, and the price of restorations¹⁸. It is noteworthy that some studies have disclosed similar results when composite restorations were performed with or without rubber dam application¹⁹. In additions, clinical reports have discussed that restoration longevity could be influenced by rubber dam isolation¹⁷. The natural layering concept is a simple and effective approach to the creation of highly aesthetic direct restoration^{13,14}. Since the concept has become a reference in the field of composite restoration. It is based on identification of true dentine and enamel optical characteristics.

In this study 60% of the dentist preferred for LED light. The monitoring is less required in LED units, since it able to keep the irradiance stable for long time, for QTH units these monitoring should be mandatory and weekly performed^{15,20}. 81% of the dentist preferred for zirconia for anterior restoration, it is the dioxide form of the metallic element Zirconia and is a similar property to a natural diamond, possessing both beauty and strength¹¹. After an exact sub frame is forged, feldspathic porcelain is built upon it until the perfect crown form is attained. Zirconia crowns are biocompatible made of material that works well with the bodily tissue; they are very strong resistance to corrosion, and have optical characteristics similar to the natural tooth, thus facilitating perfect aesthetic results and a completely natural look. In the previous study they didn't explain about material of choice¹².

In this study polishing time for composite immediately after the restoration and past study not explain about polishing time for composite¹² polishing of composite restoration may impact in the maintenance of a smooth surface, less susceptible to staining, wear, bacterial adhesion and potentially reducing the risk of secondary caries occurrence⁶. Several materials or sequence of materials are indicated for polishing procedures, producing different results, depending on the composite chosen^{7,8}.

V. Conclusion

Within the limitations of this study, it can be concluded that undergraduate must be designed and taught with close considerations of the need and demand of the society. Experience with knowledge may aid in deeper interpretation of the forthcoming problems and better judgement skills. Also, it was the possible to observe that the time of clinical practice and the attendance to continuing education courses influences the decisions of clinicians in relation to the restorative procedures. Therefore, aesthetic requirements will continue to rise progressively. Dentists should simultaneously be both artists and sculptors, reproducing natural dentition to achieve the best that modern adhesive dentistry has to offer.

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