

Smile Insights: How Well Do Dentists Know Anterior Aesthetics?

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Abstract

Aim of the Study: This study aimed to evaluate the influence of the undergraduate dental curriculum on dental graduates' knowledge of anterior dental esthetics and the impact of clinical experience on this knowledge. A cross-sectional survey was conducted among BDS interns, general dentists, and specialists in Gorakhpur district. The results showed that less than half (49.6%) of the dentists had satisfactory knowledge of gingival esthetics, while 91.9% had satisfactory knowledge of anterior dental esthetics. Dentists with more than 10 years of clinical experience had better knowledge of gingival esthetics.

Introduction: The increasing awareness of the general population about their appearance demands more esthetic results from dentists. Esthetics is a crucial aspect of dentistry, influencing all major dental specialties. This study aimed to assess the knowledge of anterior dental esthetics among dental graduates and the impact of clinical experience on this knowledge.

Methodology: A cross-sectional survey was conducted among BDS interns, general dentists, and specialists in Gorakhpur district. A questionnaire with 30 questions was used to assess knowledge of gingival and dental esthetics. The data was analyzed using SPSS version 20.0, and the chi-square test was applied to identify associations between variables.

Results: The study found that:

- 49.6% of dentists had satisfactory knowledge of gingival esthetics, while 91.9% had satisfactory knowledge of anterior dental esthetics.
- Dentists from prosthodontic, restorative, and periodontic specialties showed better knowledge of gingival esthetics (76.1%) compared to other groups.
- Practitioners with more than 10 years of clinical experience had better knowledge of gingival esthetics.

Discussion: The study highlights the need for improvement in the undergraduate dental curriculum and continuing dental education to enhance clinical skills and professional excellence. Experience and knowledge aid in deeper interpretation of problems and better judgement skills.

Conclusion: The undergraduate curriculum should be designed and taught with consideration of the needs and demands of society. Experience and knowledge are essential for better clinical reasoning and esthetic outcomes.

Clinical Implications: The survey was conducted amongst general dentists and specialists in PIDS Gorakhpur, categorized according to qualifications and experience, to emphasize the importance of improvement in undergraduate dental curriculum and encourage continuing dental education in all fields of dentistry. The topic of esthetics was selected as it correlates to all major fields of dentistry.

Keywords: Esthetics; Dental; Continuing Dental Education; Over Bite; Knowledge; Gingiva

Introduction

The general population's heightened awareness of their appearances demands more aesthetic outcomes from dentists [1]. Dentistry is presented as a discipline that encompasses both the art and science of aesthetics, as well as the functionality of the masticatory system and its associated structures. Consequently, aesthetics constitutes a fundamental aspect of surgical, restorative, and corrective procedures. While dental schools are striving to adapt to this evolving paradigm by integrating aesthetics into their curricula, many practicing dentists continue to rely on continuing dental education programs to gain expertise in this area [1].

Anterior dental esthetics can be descriptively categorized into facial, dental, and gingival components. Facial esthetics involves the integration of facial features with dental restorations, ensuring their harmony with the existing skeletal and soft tissue characteristics to either enhance appealing attributes or divert attention from undesirable irregularities. Gingival esthetics pertains to the shape, texture, tooth-to-tooth transition, and color of the gingiva. This aspect is influenced by underlying factors such as the anatomy of the dentogingival complex, periodontal biotype, the distance of the contact point from the bone crestal level, tooth morphology, and gingival biform. Dental esthetics refers to the shape, size, color, position of teeth, and their inter- and intra-arch relationships. It is important to note that there is significant overlap among these components. The relationship between extraoral structures and intraoral components, as well as the interrelations among intraoral components, can impact the outcomes of any dental service. Therefore, possessing appropriate knowledge and applying it correctly is essential for delivering quality dental treatment. The objectives of this study were, firstly, to evaluate the impact of the current curriculum on the knowledge of anterior dental esthetics among dental graduates. Secondly, it aimed to compare the effect of clinical experience on the existing knowledge of anterior dental esthetics.

Methodology

Approval was taken from institutional review board committee prior to the initiation of the study. It was a cross sectional observational study. Sampling technique was convenient sampling. A questionnaire was hand distributed amongst the house surgeons, general dentists and specialists (Prosthodontics, Maxillofacial Surgery, Operative Dentistry, Periodontics, Orthodontics) of PIDS Gorakhpur district during June 2025. The forms were distributed amongst 320 subjects. The acceptance of form was considered as the consent to participate in the study. A data of total two hundred and eighty four ($n = 284$) of subjects were collected from the target population. The demographic details were descriptive of practitioners' age, gender, category (house surgeon, general practitioner, specialist) and year of graduation. The questionnaire was formulated on basic knowledge of anterior dental esthetics taught in undergraduate dental curriculum. It included questions about shape, shade, size of teeth, golden proportion, dentogenic concept (age, sex, personality), facial and esthetics midline, facial symmetry, incisors display, overjet, overbite, smile line, role of anterior guidance and effects on phonetics. The knowledge about gingival esthetics was assessed through questions about gingival esthetic line, periodontal biotype, biological width, effect of subgingival crown margins and distance of osseous crest with contact points of teeth 4. The maximum marks were 30. Those respondents who got 60% marks were considered to have satisfactory knowledge about anterior dental esthetics. The answers were assessed according to the key known to researchers only.

After collection the data was analyzed on SPSS version 20.0. Chi square test was utilized to assess the association amongst various variables. p value was considered statistically significant, if ≤ 0.05 .

Results

A data of total two hundred and eighty four ($n = 284$) of study subjects was collected from the target population. The respondents scoring 60% marks were considered to have satisfactory knowledge about anterior dental esthetics. Table 1 shows that only 141 (49.6%) out of 284 dentists had satisfactory knowledge about gingival esthetics. However, 261 (91.9%) had satisfactory knowledge about only dental aesthetics.

Knowledge of Gingival esthetics			Knowledge of dental esthetics	
	N	%	N	%
Unsatisfactory knowledge < 60%	143	50.4%	23	8.1
Satisfactory knowledge 60% and above	141	49.6%	261	91.9
Total	284	100%	284	100%

Table 1: Percentages of satisfactory and unsatisfactory knowledge about gingival and dental esthetics.

Table 2 shows comparison of knowledge of anterior dental esthetics and gingival esthetics amongst various specialties. p value was considered statistically significant, if ≤ 0.05 . Satisfactory knowledge about only gingival aesthetics was higher in prosth/restorative/ perio specialty as compared to others. Chi square test showed that there was statistically significant association between specialty and knowledge about gingival esthetics. However, there was no statistically significant difference in satisfactory knowledge of only anterior dental esthetics amongst various dental categories.

Dentist's categories	Dental esthetics knowledge				P value	Gingival esthetics knowledge				P value	Total
	<6%		≥60%			<6%		≥60%			
	n	%	n	%		n	%	n	%		
House surgeons	14	8.1%	158	91%		94	54.7%	78	45%		172 100%
OMFS	1	8.3%	11	91%		4	33.3%	8	66.7%		12 100%
Prosth/Rest	1	2.2%	45	97%	0.36	11	23.9%	35	76%	<0.001	46 100%
Orthodontist	1	8.3%	11	91.7%		4	33.3%	8	66.7%		12 100%
General dental practitioner	6	14.3%	36	85.7%		30	71.4%	12	28.6%		42 100%
Total	23	8.1%	261	91.9%		143	50.4%	*41	49.6%		284 100%

Table 2: Level of knowledge of anterior dental esthetics and gingival esthetics amongst various categories of dentist.

OMFS = Oral and Maxillofacial Surgeons; Prosth/rest = Prosthodontist/Restorative Dentist.

Table 3 shows the comparison of level of knowledge of gingival esthetics amongst practitioners with diverse clinical experience. Dentists with > 10 years of clinical experience had satisfactory knowledge about gingival esthetics. Chi square test showed that there was statistically significant association between clinical experience and knowledge about gingival esthetics.

	<60%		≥60%		Total		P-value
	n	%	n	%	n	%	
≤ 1 year	62	60.8%	40	39.2%	102	100%	0.008
1-5 years	50	44.6%	62	55.4%	112	100%	
5-10 years	24	54.5%	20	45.5%	44	100%	
>10years	7	26.9%	19	73.1%	26	100%	
Total	143	50.4%	141	49.6%	284	100%	

Table 3: Comparison of experience of dentists and knowledge about gingival esthetics.

Table 4 shows the comparison of level of knowledge of anterior dental esthetics amongst practitioners with diverse clinical experience. It shows no significant difference when compared to dentists having less than and equal to or more than 5 years of experience.

	<60%	≥60%	Total	P-value
	n %	n %	n %	0.736
≤5 years	188.4%	19691.6%	214 100%	
>5 years	57.1%	6592.9%	70 100%	
Total	238.1%	261 91.9%	284 100%	

Table 4: Comparison of experience of dentists and knowledge about anterior dental esthetics.

Discussion

The research was carried out to evaluate the understanding of anterior dental and gingival aesthetics among general practitioners and specialists in PIDS Gorakhpur district in June 2025. The data indicated that there is no notable difference in knowledge of anterior dental aesthetics among house surgeons, general dental practitioners, and all specialists. This finding can be compared to a Spanish study, which revealed that the difference in aesthetic perception among dental students across various years did not show significant improvement throughout their academic years [5].

There exists a statistically significant disparity in gingival esthetic knowledge among house surgeons, general dental practitioners, and specialists. Notably, within the specialist group, prosthodontists, restorative dentists, and periodontists achieved higher scores compared to orthodontists and oral and maxillofacial surgeons. This observation may indicate a more profound consideration of gingival esthetics and the application of knowledge during the planning of restorative treatments. These findings align with another study [6] that examined esthetic perceptions among laypersons, general dentists, and orthodontists. Their research [6] revealed that orthodontists had higher percentages of anterior dental and gingival esthetic perception. They employed pictorial representations of esthetic outcomes rather than a questionnaire as their assessment tool. This outcome may suggest that targeted education significantly enhances clinical assessment and the application of knowledge. Consequently, dental education appears to exert a notable influence on the perception of facial esthetics compared to that of laypersons [7,8]. The incorporation of esthetics as a dedicated component of the curriculum, along with its ongoing reinforcement through continuing dental education, may lead to more aesthetically pleasing results in dental treatments.

The current study revealed that the variation in experience did not significantly affect the understanding of anterior dental esthetics. However, knowledge regarding gingival esthetics demonstrated a statistically significant difference among practitioners with over 10 years of clinical experience. It was interpreted that a clinician’s prior experience in addressing clinical issues, combined with their knowledge, beliefs, and values, directs their interpretive actions, which in turn helps identify and prioritize problems. This finding aligns with another study that assessed the differences in clinical reasoning between experienced and inexperienced clinicians. In that research, students at various levels were tasked with developing treatment plans for several vignettes, which were subsequently compared. The results indicated that the diagnostic interpretation of clinical data entails a more intricate thought process influenced by both knowledge and experience. Experienced clinicians are more likely to anticipate complex issues and diagnose them at an earlier stage. Conversely, inexperienced individuals struggle to integrate all clinical findings and arrange them into a cohesive treatment plan. The questionnaire utilized in the present study consisted of closed-ended questions; however, the cognitive skills of clinicians were influenced by the continuous application of the same knowledge in practice. Ericsson has introduced the concept of ‘deliberate practice’ to enhance clinical reasoning. This concept emphasizes the importance of ongoing exposure to problems, along with repetition, reflection, and feedback on those clinical situations for improved interpretation.

Conclusion

Given the constraints of this study, it can be concluded that the undergraduate curriculum should be developed and delivered with careful attention to the needs and demands of society. Engaging with knowledge may facilitate a more profound understanding of future challenges and enhance judgment skills.

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