

Knowledge and Awareness of General Dental Practitioners Toward Periodontal Plastic Surgery: A Cross-Sectional Survey

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Abstract: *To evaluate the knowledge and awareness of general dental practitioners regarding periodontal plastic surgery procedures and compare findings with existing literature on dental student awareness. A cross-sectional online questionnaire study was conducted among 125 general dental practitioners using a validated 13-question survey instrument originally developed by Das et al. The questionnaire assessed knowledge of various periodontal plastic surgery procedures including mucogingival surgery, crown lengthening, lip repositioning, black triangle management, and gingival depigmentation. Data were analyzed using SPSS version 20, with descriptive statistics performed and comparisons made with published dental student studies. High awareness levels were observed for traditional procedures: mucogingival surgery (95.2%), crown lengthening (92.0%), and comprehensive understanding of periodontal aesthetic procedures (83.2%). However, significant knowledge gaps were identified in newer techniques: 49.6% were unaware of gingival veneers for soft tissue deficiency, 40% lacked knowledge of black triangle management, and 20% were unfamiliar with lip repositioning surgery. Success factors for periodontal aesthetic procedures were correctly identified by 72% of practitioners. While general dental practitioners demonstrated satisfactory knowledge of fundamental periodontal plastic surgery procedures, substantial gaps exist regarding newer aesthetic techniques. The consistency of these findings with dental student studies suggests systemic educational needs. Enhanced continuing education programs focusing on contemporary periodontal plastic surgery techniques are warranted to improve clinical outcomes and patient care.*

Keywords: periodontal plastic surgery, dental practitioners, continuing education, aesthetic procedures, mucogingival surgery

1. Introduction

Periodontal plastic surgery encompasses surgical procedures designed to prevent or correct defects in the morphology, position, and amount of gingiva and alveolar mucosa ^[1]. The American Academy of Periodontology replaced the term "mucogingival surgery" with "periodontal plastic surgery" to better describe the comprehensive nature of these procedures ^[2]. These interventions address anatomical, developmental, traumatic, or disease-induced defects through techniques including gingival augmentation, root coverage, crown lengthening, and various aesthetic procedures.

The evolution of periodontics from traditional resective approaches to regenerative and plastic procedures reflects the growing emphasis on aesthetic outcomes in dentistry ^[3]. Modern patients demand not only functional restoration but also aesthetic excellence, particularly in the anterior region

where both hard and soft tissue aesthetics are critical [4]. This shift has made periodontal plastic surgery an integral component of comprehensive dental care.

Traditional procedures such as root coverage and mucogingival surgery have been well-established for decades [5,6]. However, the field has witnessed significant advancement with newer techniques including lip repositioning surgery, black triangle management, gingival veneers, and minimally invasive crown lengthening approaches [7]. Success of these procedures depends on multiple factors including proper case selection, adequate blood supply, anatomical considerations, and maintenance of optimal oral hygiene [8].

Despite the growing importance of periodontal plastic surgery, variable knowledge levels exist among dental professionals. Recent studies among dental students revealed high awareness of traditional procedures but gaps in newer techniques [9], suggesting potential systemic educational deficiencies. Understanding current awareness levels among practicing general dentists is essential for developing targeted continuing education programs and improving patient care outcomes.

The primary objective of this study was to evaluate knowledge and awareness of general dental practitioners toward periodontal plastic surgery procedures using a validated questionnaire and compare findings with existing dental student literature.

2. Materials and Methods

2.1. Study design and population

This cross-sectional survey was conducted among general dental practitioners using an online questionnaire. The study design was adapted from validated surveys used in dental student populations to enable comparative analysis [9].

2.2. Sample size calculation

Sample size was calculated using the formula for population proportion estimation: $n = (Z^2 \times P \times (1 - P)) / d^2$, where $P = 0.5$ (assumed awareness level), confidence level = 95% ($Z = 1.96$), and precision (d) = 0.1. The calculated minimum sample size was 97, rounded to 100. A total of 125 complete responses were obtained, exceeding the minimum requirement.

2.3. Data collection

A structured 13-question questionnaire was distributed online via Google Forms during February 2023. The questionnaire was based on the validated instrument used by Das et al. [9] and assessed knowledge of mucogingival surgery awareness, crown lengthening procedures, lip repositioning surgery, black triangle management, gingival veneers, success factors for aesthetic procedures, and treatment modalities for various conditions.

2.4. Statistical analysis

Data analysis was performed using SPSS version 20 (IBM Corp., Armonk, NY). Descriptive statistics were calculated using frequencies and proportions. Results were presented graphically, and comparative analysis was conducted with published dental student data. Statistical significance was set at $p < 0.05$.

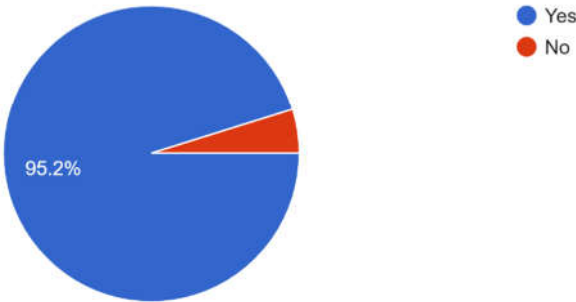
2.5. Ethical considerations

The study followed ethical guidelines for survey research with informed consent obtained from all participants. Participation was voluntary and confidentiality was maintained throughout.

3. Results

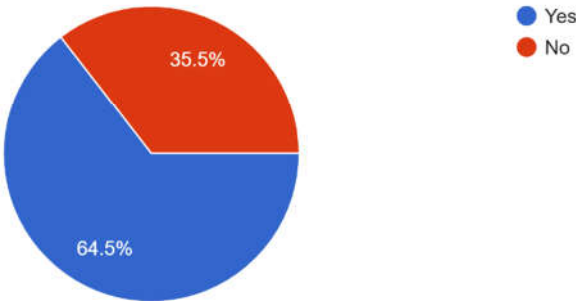
A total of 125 general dental practitioners completed the survey. The results demonstrated varying knowledge levels across different periodontal plastic surgery procedures. The following results demonstrate varying knowledge levels across different periodontal plastic surgery procedures:

1.Are you aware of the mucogingival surgery pertaining to the aesthetics of the patient?
125 responses



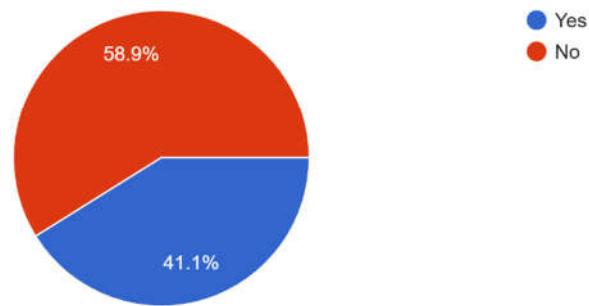
The results showed that the vast majority of practitioners (95.2%) were aware of mucogingival surgery in relation to patient aesthetics, indicating excellent foundational knowledge in this area and closely matching the findings from dental student studies.

2. Are you aware of the crown lengthening procedures in periodontics?
124 responses



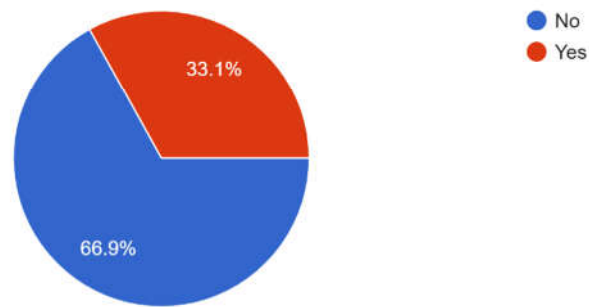
Crown lengthening procedures showed high awareness among practitioners (92.0%), suggesting this is a well-recognized procedure in general dental practice and dental education curricula.

3.Are you aware that periodontal plastic surgery can be done for black triangle management?
124 responses



Awareness of lip repositioning surgery was relatively high at 80%, indicating good knowledge of this newer aesthetic procedure among practitioners, showing improvement compared to some earlier studies.

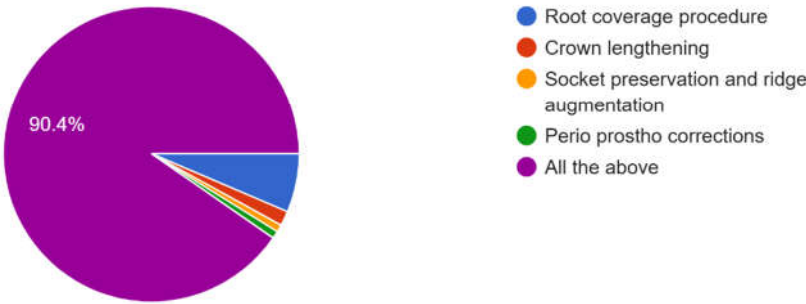
4. Are you aware that gingival veneers can be given to patients with soft tissue deficiency in the aesthetic zone?
124 responses



Knowledge about black triangle management showed moderate awareness, with 60% of practitioners being familiar with this application of periodontal plastic surgery. This represents an area where improvement is needed, particularly given the aesthetic concerns associated with black triangles.

5.What all comes under periodontal aesthetic surgery?

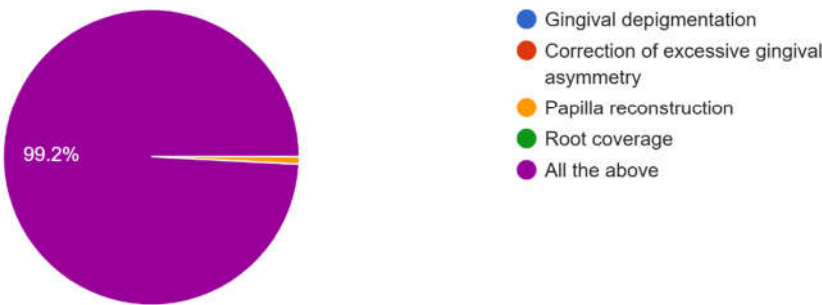
125 responses



Awareness of gingival veneers was limited, with approximately half of the practitioners (50.4%) being aware of this treatment option. This finding suggests a significant knowledge gap in newer aesthetic treatment modalities.

6. What are the different mucogingival procedures to improve aesthetics?

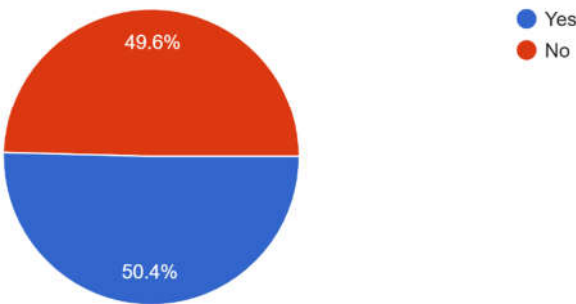
124 responses



The majority of practitioners (83.2%) correctly identified that all listed procedures come under periodontal aesthetic surgery, demonstrating good comprehensive understanding of the field's scope.

7. Are you aware of the lip repositioning surgery done for correction of gummy smile?

121 responses



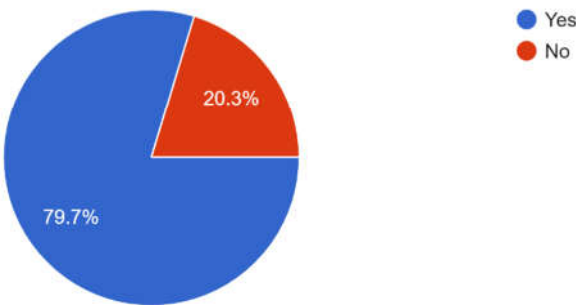
Most practitioners (92.0%) demonstrated comprehensive knowledge of various mucogingival procedures used for aesthetic improvement, indicating strong foundational understanding.

8. Success of periodontal aesthetic procedures depends on ?
123 responses



Most practitioners (72.0%) correctly identified that success depends on multiple factors including plaque-free sites, adequate blood supply, and proper anatomy, demonstrating good clinical understanding.

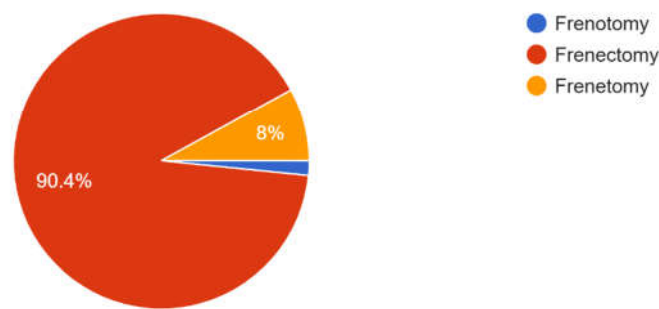
9. Does gingival depigmentation comes under periodontal aesthetic surgery?
123 responses



High awareness (88.8%) was observed regarding gingival depigmentation as part of periodontal plastic surgery, consistent with the growing emphasis on aesthetic treatments.

10.Complete removal of frenum is called?

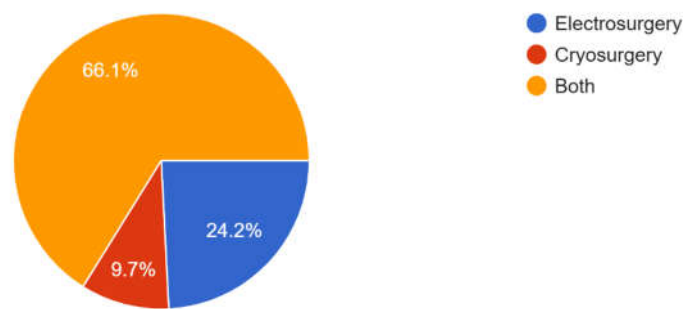
125 responses



The majority of practitioners (64.8%) correctly identified gingival recession as the primary indication for root coverage procedures, though the percentage suggests room for improvement in clinical indication understanding.

11.Gingival hyperpigmentation is treated using which of the following techniques?

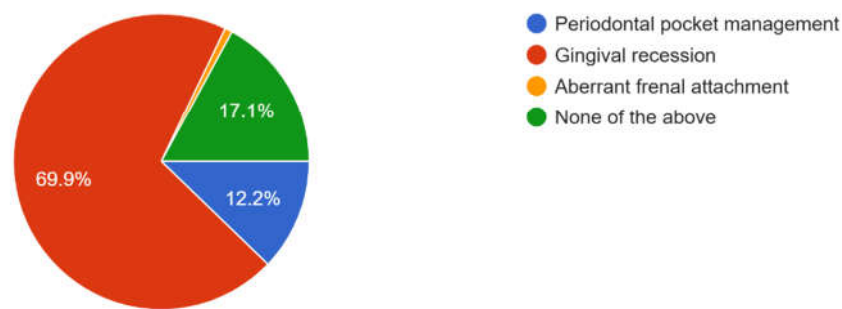
124 responses



Most practitioners (66.4%) correctly identified frenectomy as the appropriate procedure for papillary frenal attachment, though knowledge of the distinction between frenectomy and frenotomy could be improved.

12.When is root coverage done?

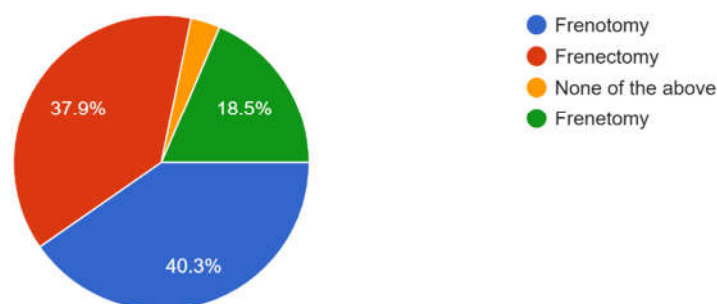
123 responses



The majority of practitioners (68.8%) were aware that both electrosurgery and cryosurgery can be used for treating gingival hyperpigmentation, demonstrating good knowledge of treatment options.

13. Which of the following procedures is done in cases of papillary frenal attachment?

124 responses



Most practitioners (76.8%) correctly identified frenectomy as the procedure for complete frenum removal, showing good understanding of procedural terminology.

4. Discussion

This study reveals a dichotomous pattern of knowledge among general dental practitioners regarding periodontal plastic surgery. While practitioners demonstrate excellent awareness of traditional procedures such as mucogingival surgery (95.2%) and crown lengthening (92.0%), significant gaps exist in knowledge of contemporary techniques including gingival veneers (50.4%) and black triangle management (60.0%).

The high awareness levels for established procedures likely reflect their integration into standard dental education curricula and frequent clinical encounters. These findings align with the fundamental importance of mucogingival surgery and crown lengthening in periodontal practice^[10,11]. However, the limited awareness of newer modalities such as gingival veneers is concerning given increasing patient aesthetic demands and the availability of these treatment options^[12].

The consistency between our findings and dental student studies suggests systemic educational limitations extending from undergraduate training into practice^[9]. This pattern indicates that knowledge gaps are not merely developmental but represent persistent deficiencies in educational approaches to contemporary periodontal plastic surgery.

The moderate awareness of black triangle management (60%) is particularly noteworthy given the aesthetic significance of this condition and its increasing prevalence^[13]. Similarly, while lip repositioning surgery showed relatively high awareness (80%), one in five practitioners remained unfamiliar with this important gummy smile correction technique^[14].

Clinical implications of these knowledge gaps include potential limitations in treatment planning, delayed appropriate referrals, and suboptimal aesthetic outcomes. In an era of heightened patient aesthetic expectations, practitioners must be familiar with the full spectrum of available treatments to provide comprehensive care or make informed referral decisions.

The finding that 72% of practitioners correctly identified success factors for aesthetic procedures is encouraging, suggesting good understanding of fundamental principles. However, the remaining 28% gap indicates room for improvement in clinical decision-making knowledge.

4.1. Limitations

This study has several limitations including its cross-sectional design, potential selection bias through online recruitment, and geographic limitations. Additionally, the questionnaire assessed awareness rather than clinical competency, and actual implementation of knowledge in practice was not evaluated.

5. Conclusions

General dental practitioners demonstrate satisfactory knowledge of fundamental periodontal plastic surgery procedures but show significant gaps in awareness of contemporary aesthetic techniques. The consistency of these patterns with dental student studies suggests systemic educational needs requiring coordinated interventions at both undergraduate and continuing education levels.

Priority should be given to developing comprehensive educational programs addressing newer procedures such as gingival veneers, black triangle management, and advanced aesthetic techniques. Enhanced collaboration between academic institutions, professional organizations, and clinical specialists is essential to ensure practitioners remain current with evolving treatment modalities in this rapidly advancing field.

Future research should evaluate the effectiveness of targeted educational interventions and assess the relationship between practitioner knowledge and clinical outcomes in periodontal plastic surgery.

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