



## Knowledge Attitude and Practise of Gingival Retraction Among General Dental Practitioners in India

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### ABSTRACT

Marginal integrity is one of the major factors that contribute to the success of cast restoration. The procedure to expose the subgingival finish line of preparation is termed as gingival displacement or gingival retraction and gingival deflection. Retraction is the temporary displacement of gingival tissue. The development of cordless retraction is becoming popular. It displaces the gingiva by methods of its high viscosity when injected into sulcus. This study is conducted in order to study the knowledge and attitude and extent of cordless method of retraction among dental practitioners in India. To study the extent of knowledge, attitude and level of practise of cordless method of gingival displacement among practitioners. A set of questionnaires were developed in relation to the knowledge, attitude and practise on cordless method of gingival retraction among practitioners in India and was circulated. A total of 103 responses were collected. The data collected was compiled for analysis. The obtained results showed that dental practitioners do not follow gingival displacement and have less knowledge over cordless method of gingival retraction and further still prefer practising of traditional methods. The study concludes that dental practitioners are not aware of other cordless methods of gingival retraction and still prefer cord and various other generally practised methods.



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### INTRODUCTION

Displacement of gingival tissue is very essential in order to obtain very accurate impressions for fixed

prostheses especially when finish lines is (or) at the (or) within the gingival sulcus (Ashok *et al.*, 2014; Reddy *et al.*, 2016; Ajay *et al.*, 2017; Kannan and Venugopalan, 2018; Basha *et al.*, 2018). Gingival retraction or displacement defines the deflection of marginal gingiva away from the tooth in order to create sufficient lateral and vertical space between the preparation of and gingival tissue in order to allow the injection of adequate bulk of impression material into expanded crevice (Ashri *et al.*, 2016). Due to the presence of polyvinyl siloxane which is extremely hydrophobic in nature there should be no moisture in the gingival crevice, it is most difficult to pour a cast (Shenoy, 2012) if there is presence of slight amount of moisture it will be difficult to take impressions. Gingival retraction, hemostasis and sulcular cleansing are frequently combined

and closed related procedures (Anupam *et al.*, 2013; Venugopalan *et al.*, 2014; Ashok and Suvitha, 2016; Jain *et al.*, 2017). Apart from being time consuming, the use of traditional retraction cord may cause discomfort and potential damage to periodontium if used carelessly (Nemetz *et al.*, 1984; Vijayalakshmi and Ganapathy, 2016; Ganapathy *et al.*, 2017). The purpose of this study is to evaluate the knowledge, attitude and practice of cordless method of gingival relation among practitioners.

Previous studies emphasised on particular methods of gingival retraction methods (Chandra *et al.*, 2016; Selvan and Ganapathy, 2016; Jyothi *et al.*, 2017; Duraisamy *et al.*, 2019), Colour use of materials for gingival retraction (Ganapathy *et al.*, 2016; Subasree *et al.*, 2016; Mehta *et al.*, 2019) and among articular area of interest (Gadhavi *et al.*, 2018). While for studies (Acar *et al.*, 2014; Huang *et al.*, 2017; Ariga *et al.*, 2018) have been done to study the efficiency of cordless methods and to the cordless methods of practice and knowledge and attitude among dental practitioners.

The lack of knowledge attitude and practice of cordless method was not considered in the previous study, the current study focuses on studying the extent of knowledge, attitude and the level of practice of cordless method of gingival retraction among practitioners. The present study focuses on the evaluation of extent of knowledge and attitude of practitioners and the level of practising cordless method of gingival retraction.

## MATERIALS AND METHODS

A questionnaire based survey was conducted among 120 general dental practitioners in the city of Chennai, Tamilnadu. A set of 13 questions based on the topic of gingival retraction was formulated and disseminated through the google forms online response collection portal. The first set of questions were based on conventional methods of retraction, the second set of questions focused on the equipment involved in retraction and the cordless systems of retraction. The collective responses of 103 practitioners were collected with google sheets and analysed using SPSS v23 (IBM.inc., USA)

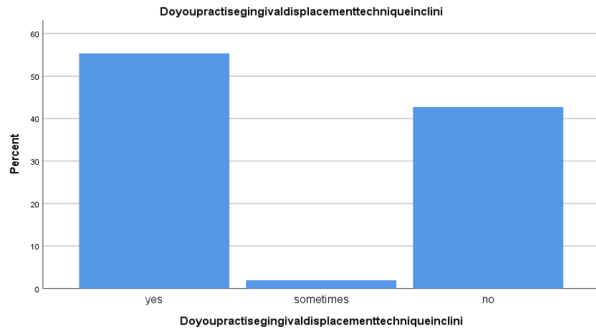
## RESULTS AND DISCUSSION

In Figure 1, X-axis represents the options and Y-axis represents the number of responses for which majority of about 55.3% stated yes, 42.7% stated no and 1.9% stated sometimes. In Figure 2, X-axis represents options given and Y-axis represents the responses for which 21.4% of them stated they prac-

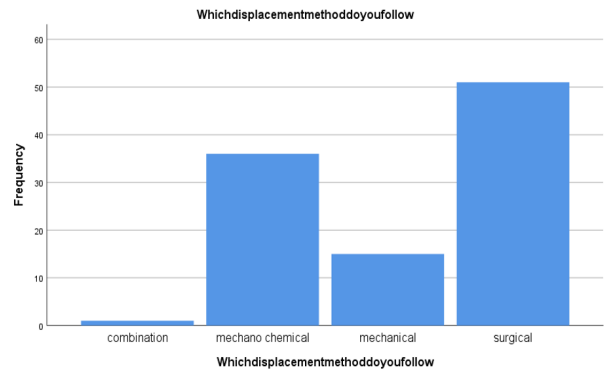
tise gingival displacement method for good sub gingival finish line, 8.7% stated for impression with good margin and majority of about 69.9% stated for better visibility of finish line. In Figure 3, X-axis represents the options and Y-axis represents the number of responses for which 3.95 think its time consuming, 7.8% do not practise as they think due to cost factor, 38.9% think its not beneficial and requires skills while majority of about 49.5% stated that requires skill. In Figure 4, X-axis represents the options given and Y-axis represents the responses for which 1% followed combination method, 35% followed mechanochemical method, 14.6% followed mechanical method and majority of about 49.5% stated of following surgical method. In Figure 5, X-axis represents the options and Y-axis represents the responses collected for which 35% responded of using ultra pak and majority of about 65% stated gingi pak. In Figure 6, X-axis represents options and Y-axis represents the number of responses collected for which 18.4% preferred nasal and eye drops, 19.4% preferred of using aluminium chloride while majority of respondents 62.1% preferred using epinephrine.

In Figure 7, X-axis represents the options and Y-axis represents the number of responses for which majority of about 50.5% stated no that they are not aware and 49.5% stated yes. In Figure 8, X-axis represents the options and Y-axis represents the number of responses for which 60.2% stated that they do not practise cordless method while 39.2% stated of practicing cordless method. In Figure 9, Chi-square test was performed to evaluate if practitioners associated the usage of gingival retraction with treatment success. Pearson Chi-square value - 5.438;  $p = 0.020$ . The responses provided by the practitioners had a positive correlation ( $p < 0.05$ ) for negative responses indicating that practitioners do not associate cord placement with successful treatment outcomes. In Figure 10, Chi-square test was performed to evaluate if practitioners associated the usage of cordless gingival retraction with treatment success. Pearson Chi-square value - 0.979;  $p = 0.322$ . The responses provided by the practitioners had no association ( $p > 0.05$ ) indicating that practitioners do not associate cordless methods of retraction with successful treatment outcomes. In Figure 11, Chi-square test was performed to evaluate the awareness of practitioners on the effectiveness of cordless methods of gingival retraction. Pearson Chi-square value - 1.661;  $p = 0.198$ . The responses provided by the practitioners had no association ( $p > 0.05$ ) indicating that practitioners do not associate cordless methods as an effective means of gingival retraction.

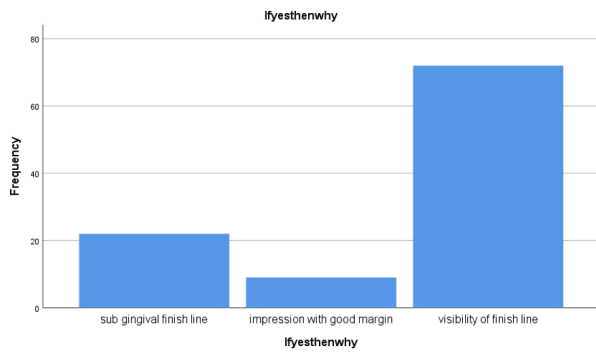
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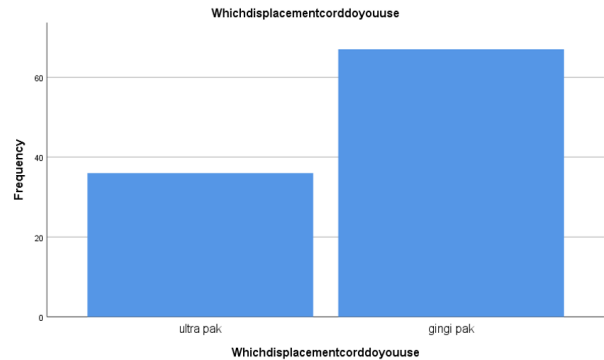
**Figure 1:** Bar graph depicting the responses collected to the question of do they practise gingival displacement for impression making



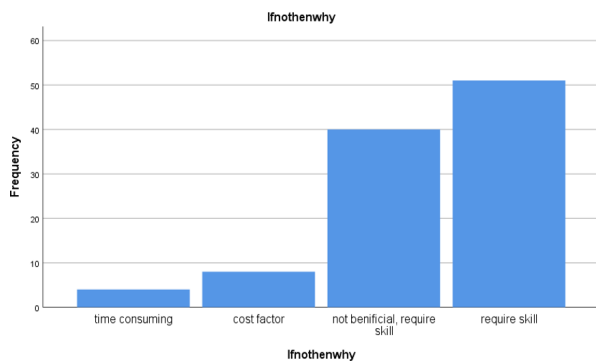
**Figure 4:** Bar graph depicting the responses for question on the type of gingival displacement method practitioners follow



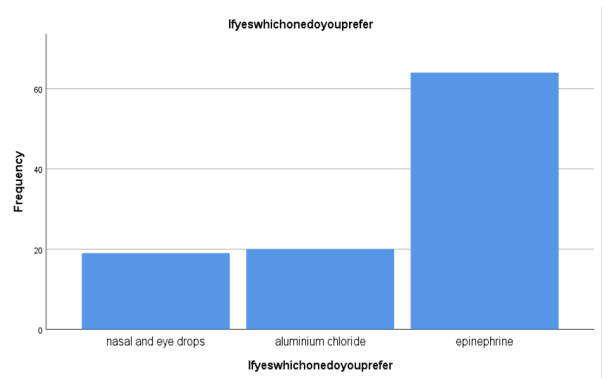
**Figure 2:** Bar graph depicting the responses collected for the question for the reasons for practising gingival displacement method



**Figure 5:** Bar graph showing responses collected for the question on what type of displacement cord do the practitioners

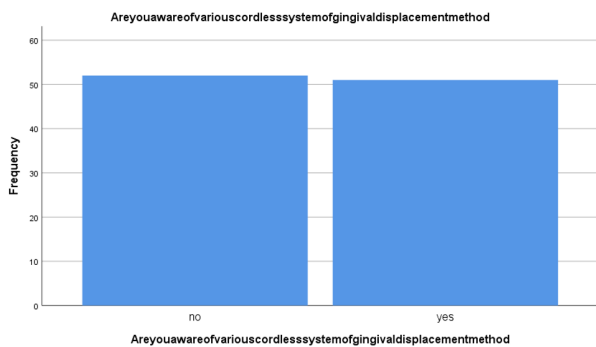


**Figure 3:** Bar graph showing the responses collected for the question they reasons for not practising gingival displacement method

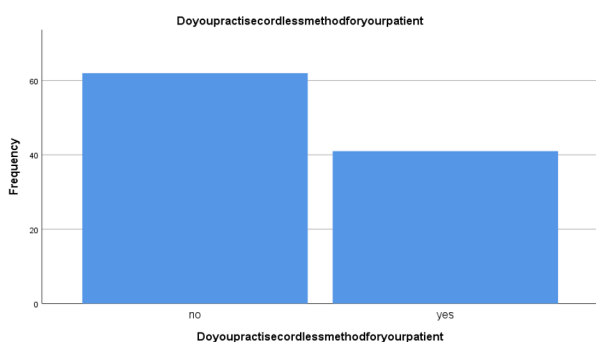


**Figure 6:** Bar graph showing results for the question on what type of medicament do the practitioner prefer for gingival retraction cords

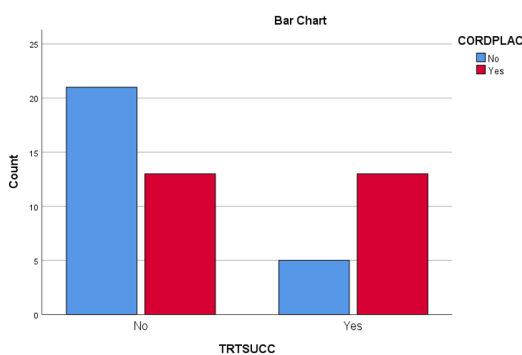
efficient dental treatments with immediate availability and cost effectiveness are in demand currently. Unsatisfactory adaptation of prosthesis/restorations can lead to problems arising from accumulation of biofilm, secondary caries and inflammation of the periodontal tissue. These issues can be alleviated by effective impression making which in turn is heavily aided by gingival retraction methods. One of the recent advancements in the field of prosthodontics is the introduction of cordless gingi-



**Figure 7: Bar graph depicting the responses collected for the question for if they are aware of cordless method of gingival retraction**



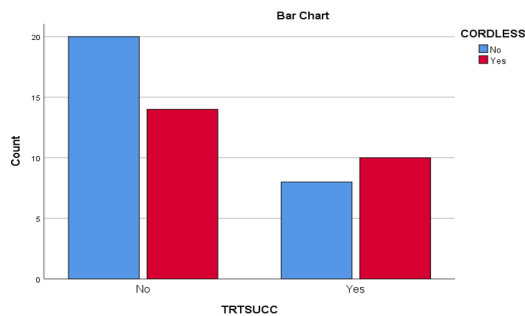
**Figure 8: Bar graph depicting the responses collected for the question if they would practise cordless method for their patient**



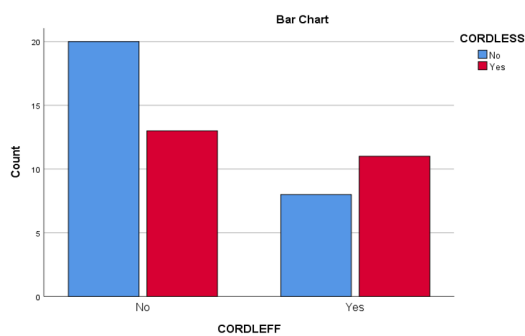
**Figure 9: Association between gingival cord usage for gingival retraction mechanism and the success of treatment outcomes**

val displacement method.

The results shown in Figure 1 indicate that 55.3% are not practising gingival displacement method. A similar study done by Al-Ani *et al.* (2010) showed similar results as 62% didn't practise gingival technique and the results showed that dental practitioners are not aware about retraction methods. Figure 2 depicts the response given by practitioners on whether they practise gingival displacement method for which the respondents of the current



**Figure 10: Association between cordless method of gingival retraction and the success of treatment outcomes**



**Figure 11: Association between cordless method and its effectiveness on gingival retraction**

study 69.9% answered yes and agreed that it provides visibility to the finish line. A similar study conducted by Vijeta Gajbhiye at 2018, shows that 16% of practitioners preferred retraction for better finish line visibility (Banerjee *et al.*, 2019) depicting that those that follow gingival displacement method find it effective for better impressions of the patient's dentition.

Figure 3 Depicts that 49.5% do not prefer gingival displacement as they think it might require skill. Similar responses were collected in survey conducted by Moldi *et al.* (2013) showed 38% of them didn't prefer using this result shows that dental practitioners lack the knowledge about benefits of gingival displacement method and that practising gingival displacement method must be started from their training in undergraduate level to understand its benefits further. As shown in Figure 4 49.5% preferred surgical cord method whereas a survey conducted by McCracken *et al.* (2018), showed only 12.4% preferring to use surgical cord method while majority preferred mechano-chemical (McCracken *et al.*, 2018). this shows that dental practitioners preferred a non-surgical way of doing treatments for patients. Figure 5 shows that 65.5% chose gingipak as their preferred displacement cord (Bennani *et al.*,

2008).

64.1% preferred to give epinephrine as a medication in the present study [Figure 6]. Previous study conducted by Denovan at 1985 similarly reported that majority of about 79.3% preferred using epinephrine (Donovan *et al.*, 1985) as epinephrine is a potent vasoconstrictor and vasodilator under certain concentrations. Figure 7 portrays that 50% practitioners are not aware of cordless methods of gingival retraction. This shows the lack of knowledge dental practitioners have on the newer development in equipment and its benefits. As shown in Figure 8, the current study depicts that 59.2% practitioners stated cordless to be inefficient with gingival retraction. Similar study by Prasad DK at 2018 reported that 38.1% practitioners found it less efficient and stated no response to it (Prasad *et al.*, 2011). This shows that majority of dental practitioners are not aware about the recent advancement in dentistry for which certain awareness programmes can be done in order to make them understand its efficiency for better and affordable treatment.

Figure 9 shows that practitioners do not associate the procedure of gingival retraction with successful treatment outcomes whereas Figure 10 and Figure 11 indicate that practitioners do not associate the usage of cordless methods with effective treatment outcomes. These associative results indicate that while practitioners are unaware of the importance of retraction and the cordless methods of gingival retraction.

## CONCLUSION

Based on the responses obtained, it can be concluded that practitioners are generally unaware about cordless methods of gingival retraction. This is mostly seen with the disassociation of successful treatment outcomes with the usage of gingival retraction. Current literature indicates that cordless methods are equally effective to, if not superior to gingival cord. This suggests that practitioners need to be made aware about the efficacy and types of gingival retraction methods through workshops or courses, in order to improve their arsenal of therapeutic equipment.

## Conflict of Interest

The authors declare that there is no conflict of interest for this study.

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