



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

Shreenidhi S¹, Venkatesh*², Vinay Sivaswamy²

¹Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai, Tamilnadu, India

²Department of Prosthodontics, Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Science, Saveetha University, Chennai, Tamilnadu, India

Article History:

Received on: 10 Sep 2020
Revised on: 13 Oct 2020
Accepted on: 15 Oct 2020

Keywords:

Gingival Retraction,
Gingival Displacement,
Cordless Method

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.



*Corresponding Author

Name: Venkatesh
Phone: 9959954123
Email: Venkateshk.sdc@saveetha.com

ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v11iSPL3.3489>

Production and Hosted by

Pharmascope.org
© 2020 | All rights reserved.

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 practise 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.

The improvement in technology and the need for efficient dental treatments with immediate availability and cost effectiveness are in demand cur-

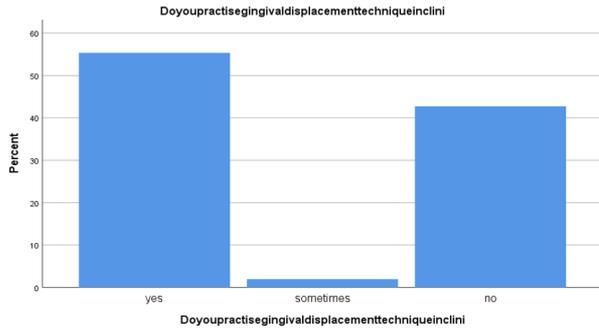


Figure 1: Bar graph depicting the responses collected to the question of do they practise gingival displacement for impression making

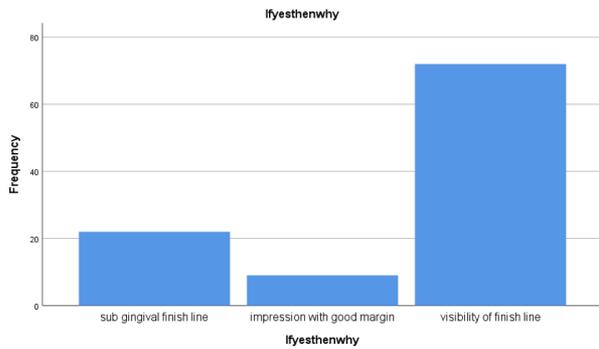


Figure 2: Bar graph depicting the responses collected for the question for the reasons for practising gingival displacement method

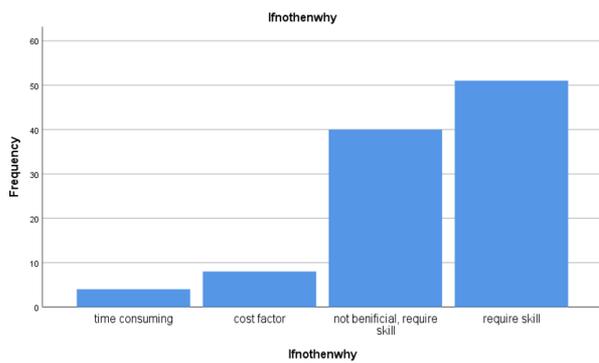


Figure 3: Bar graph showing the responses collected for the question they reasons for not practising gingival displacement method

rently. 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 gingival displacement method.

The results shown in Figure 1 indicate that 55.3%

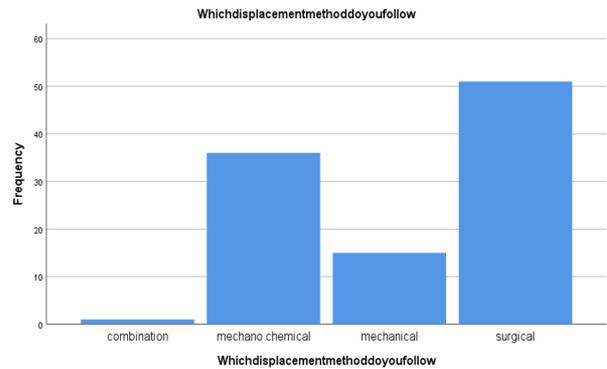


Figure 4: Bar graph depicting the responses for question on the type of gingival displacement method practitioners follow

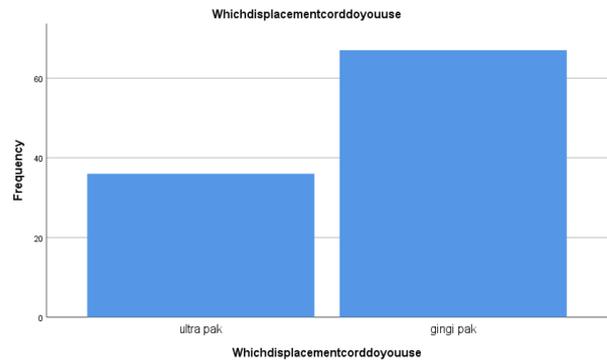


Figure 5: Bar graph showing responses collected for the question on what type of displacement cord do the practitioners

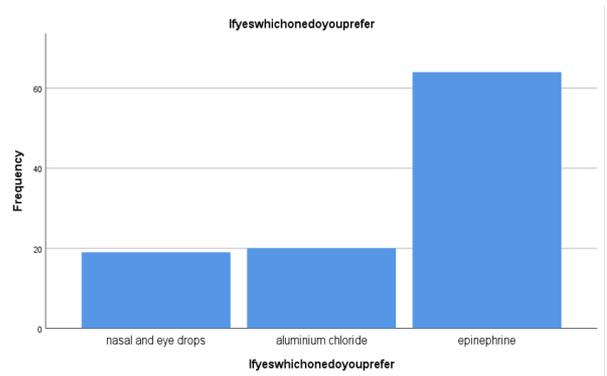


Figure 6: Bar graph showing results for the question on what type of medicament do the practitioner prefer for gingival retraction cords

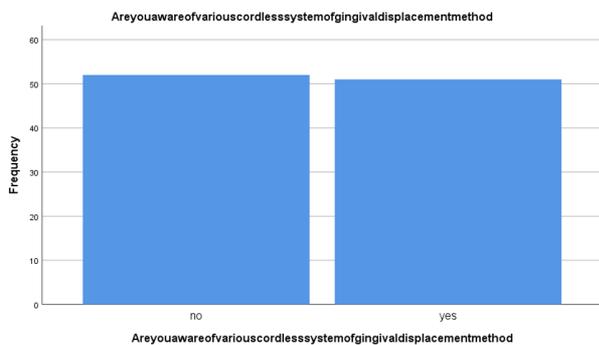


Figure 7: Bar graph depicting the responses collected for the question for if they are aware of cordless method of gingival retraction

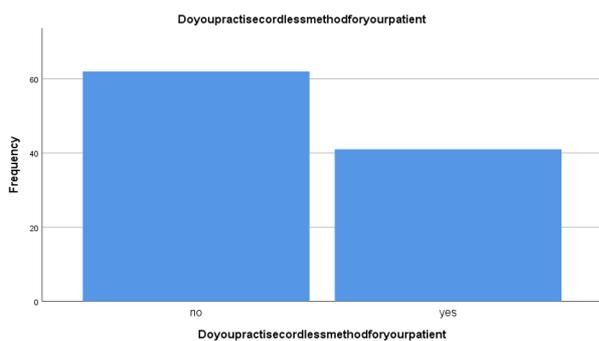


Figure 8: Bar graph depicting the responses collected for the question if they would practise cordless method for their patient

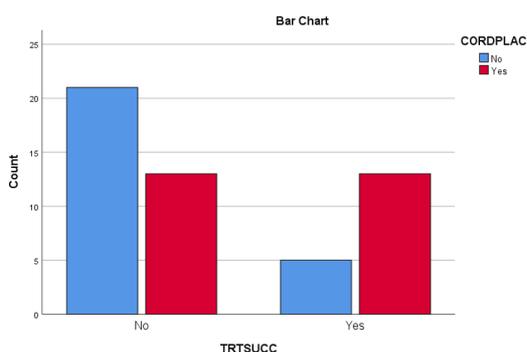


Figure 9: Association between gingival cord usage for gingival retraction mechanism and the success of treatment outcomes

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 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%

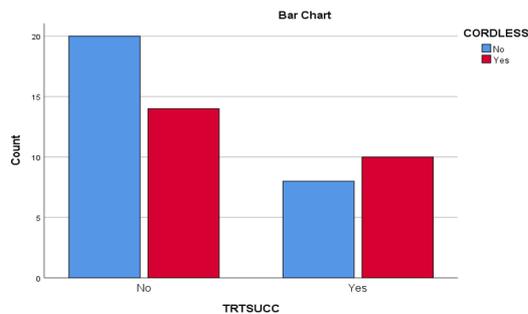


Figure 10: Association between cordless method of gingival retraction and the success of treatment outcomes

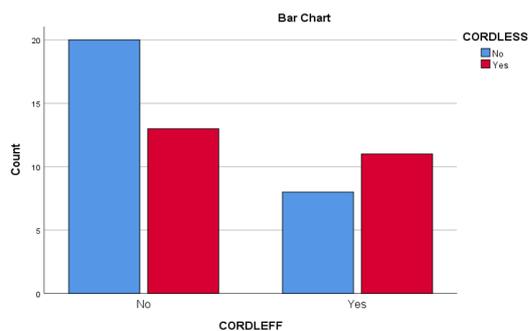


Figure 11: Association between cordless method and its effectiveness on gingival retraction

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]. Previ-

ous 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.

Funding Support

The authors declare that they have no funding support for this study.

REFERENCES

- Acar, Ö., Erkut, S., Özçelik, T. B., Ozdemir, E., Akçil, M. 2014. A clinical comparison of cordless and conventional displacement systems regarding clinical performance and impression quality. *The Journal of Prosthetic Dentistry*, 111(5):388–394.
- Ajay, R., Suma, K., Ali, S., Sivakumar, J. K., Rakshagan, V., Devaki, V., Divya, K. 2017. Effect of surface modifications on the retention of cement-retained implant crowns under fatigue loads: An In vitro study. *Journal of Pharmacy And Bioallied Sciences*, 9(5):154–154.
- Al-Ani, A., Bennani, V., Chandler, N. P., Lyons, K. M., Thomson, W. M. 2010. New Zealand dentists' use of gingival retraction techniques for fixed prosthodontics and implants. *The New Zealand Dental Journal*, 106(3):92–96.
- Anupam, P., Namratha, N., Vibha, S., Anandakrishna, G. N., Shally, K., Singh, A. 2013. Efficacy of two gingival retraction systems on lateral gingival displacement: A prospective clinical study. *Journal of Oral Biology and Craniofacial Research*, 3(2):68–72.
- Ariga, P., Nallaswamy, D., Jain, A. R., Ganapathy, D. M. 2018. Determination of Correlation of Width of Maxillary Anterior Teeth using Extraoral and Intraoral Factors in Indian Population: A Systematic Review. *World Journal of Dentistry*, 9(1):68–75.
- Ashok, V., Nallaswamy, D., Begum, S. B., Nesappan, T. 2014. Lip Bumper Prosthesis for an Acromegaly Patient: A Clinical Report. *The Journal of Indian Prosthodontic Society*, 14(S1):279–282.
- Ashok, V., Suvitha, S. 2016. Awareness of all ceramic restoration in rural population. *Research Journal of Pharmacy and Technology*, 9(10):1691–1691.
- Ashri, N. Y., AlRifaiy, M. Q., Metwally, A. E. 2016. The Effect of Gingival Retraction Cord on Periodontal Health Compared to Other Gingival Retraction Procedures: A Systematic Review. *Periodontics and Prosthodontics*, 02(023):2–2.
- Banerjee, R., Gajbhiye, V., Jaiswal, P., Chandak, A., Radke, U. 2019. Comparative evaluation of three gingival displacement materials for efficacy in tissue management and dimensional accuracy. *The Journal of Indian Prosthodontic Society*, 19(2):173–173.
- Basha, F. Y. S., Ganapathy, D., Venugopalan, S. 2018. Oral Hygiene Status among Pregnant Women. *Research Journal of Pharmacy and Technology*, 11(7):3099–3099.
- Bennani, V., Schwass, D., Chandler, N. 2008. Gin-

- gival Retraction Techniques for Implants Versus Teeth. *The Journal of the American Dental Association*, 139(10):1354–1363.
- Chandra, S., Singh, A., Gupta, K. K., Chandra, C., Arora, V. 2016. Effect of gingival displacement cord and cordless systems on the closure, displacement, and inflammation of the gingival crevice. *The Journal of Prosthetic Dentistry*, 115(2):177–182.
- Donovan, T. E., Gandara, B. K., Nemetz, H. 1985. Review and survey of medicaments used with gingival retraction cords. *The Journal of Prosthetic Dentistry*, 53(4):525–531.
- Duraisamy, R., Krishnan, C. S., Ramasubramanian, H., Sampathkumar, J., Mariappan, S., Sivaprakasam, A. N. 2019. Compatibility of Nonoriginal Abutments With Implants. *Implant Dentistry*, 28(3):289–295.
- Gadhavi, M. A., Nirmal, N., Arora, H. 2018. A survey on the use of various gingival displacement techniques in fixed partial denture by the prosthodontists in vadodara city. *Indian Journal of Dental Research*, 29(2):176–176.
- Ganapathy, D., Sathyamoorthy, A., Ranganathan, H., Murthykumar, K. 2016. Effect of resin bonded luting agents influencing marginal discrepancy in all ceramic complete veneer crowns. *Journal of Clinical and Diagnostic Research*, 10(12):67–70.
- Ganapathy, D. M., Kannan, A., Venugopalan, S. 2017. Effect of Coated Surfaces influencing Screw Loosening in Implants: A Systematic Review and Meta-analysis. *World Journal of Dentistry*, 8(6):496–502.
- Huang, C., Somar, M., Li, K., Mohadeb, J. V. N. 2017. Efficiency of Cordless Versus Cord Techniques of Gingival Retraction: A Systematic Review. *Journal of Prosthodontics*, 26(3):177–185.
- Jain, A. R., Ranganathan, H., Ganapathy, D. 2017. Cervical and incisal marginal discrepancy in ceramic laminate veneering materials: A SEM analysis. *Contemporary Clinical Dentistry*, 8(2):272–272.
- Jyothi, S., Robin, P. K., Ganapathy, D., Anandiselvaraj 2017. Periodontal Health Status of Three Different Groups Wearing Temporary Partial Denture. *Research Journal of Pharmacy and Technology*, 10(12):4339–4339.
- Kannan, A., Venugopalan, S. 2018. A systematic review on the effect of use of impregnated retraction cords on gingiva. *Research Journal of Pharmacy and Technology*, 11(5):2121–2121.
- McCracken, M. S., Louis, D. R., Litaker, M. S., Minyé, H. M., Oates, T., Gordan, V. V., Marshall, D. G., Meyerowitz, C., Gilbert, G. H. 2018. Impression Techniques Used for Single-Unit Crowns: Findings from the National Dental Practice-Based Research Network. *Journal of Prosthodontics*, 27(8):722–732.
- Mehta, S., Virani, H., Memon, S., Nirmal, N. 2019. A comparative evaluation of efficacy of gingival retraction using polyvinyl siloxane foam retraction system, vinyl polysiloxane paste retraction system, and copper wire reinforced retraction cord in endodontically treated teeth: An in vivo study. *Contemporary Clinical Dentistry*, 10(3):428–432.
- Moldi, A., Gala, V., Puranik, S., Karan, S., Deshpande, S., Neela, N. 2013. Survey of Impression Materials and Techniques in Fixed Partial Dentures among the Practitioners in India. *ISRN Dentistry*, 2013:1–5.
- Nemetz, H., Donovan, T., Landesman, H. 1984. Exposing the gingival margin: A systematic approach for the control of hemorrhage. *The Journal of Prosthetic Dentistry*, 51(5):647–651.
- Prasad, K. D., Agrawal, G., Hegde, C., Shetty, M. 2011. Gingival displacement in prosthodontics: A critical review of existing methods. *Journal of Interdisciplinary Dentistry*, 1(2):80–80.
- Reddy, S. V. G., Bharathi, M., Vinod, B., Reddy, K. K., Reddy, N. 2016. Gingival displacement methods used by dental professionals: A survey. *Journal of Orofacial Sciences*, 8(2):120–120.
- Selvan, S. R., Ganapathy, D. 2016. Efficacy of fifth generation cephalosporins against methicillin-resistant *Staphylococcus aureus*-A review. *Research Journal of Pharmacy and Technology*, 9(10):1815–1815.
- Shenoy, V. K. 2012. Gingival displacement in prosthodontics: A critical review of existing methods. *Journal of Interdisciplinary Dentistry*, 2(1):54–54.
- Subasree, S., Murthykumar, K., Dhanraj 2016. Effect of Aloe Vera in Oral Health-A Review. *Research Journal of Pharmacy and Technology*, 9(5):609–609.
- Venugopalan, S., Ariga, P., Aggarwal, P., Viswanath, A. 2014. Magnetically retained silicone facial prosthesis. *Nigerian Journal of Clinical Practice*, 17(2):260–260.
- Vijayalakshmi, B., Ganapathy, D. 2016. Medical management of cellulitis. *Research Journal of Pharmacy and Technology*, 9(11):2067–2067.