



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2023; 9(3): 166-177
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www.oraljournal.com
Received: 02-05-2023
Accepted: 04-06-2023

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Awareness and knowledge of fixed partial denture among prosthodontic postgraduate students of India: A survey

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DOI: <https://doi.org/10.22271/oral.2023.v9.i3c.1800>

Abstract

With the advent of fixed restoration, replacing the missing tooth has become an indispensable way to restore. The practice of fixed partial prosthodontics varies among various clinicians and students.

An attempt has been made to compile and process the information about various ways of practicing fixed partial denture via a questionnaire survey exclusively on Fixed partial denture.

Total of 27 questions were composed in this survey and was circulated exclusively among the postgraduate students of prosthodontics of India. Responses were collected via Google form and were subjected to statistical analysis.

The results obtained were in accordance with to set standards for a few questions and other responses were in contrary to the set standards of fixed partial denture. With the continuous dental education, courses and many other means, knowledge about the advancement can be made available at various levels of all the institutions.

Keywords: Elastic modulus, flexural strength, provisional restorative materials

Introduction

One of the most essential goals of dentistry is to restore and replace damaged or missing teeth. This can be accomplished by using a fixed prosthesis to restore both function and aesthetics. Crowns fixed partial dentures, and veneers are viable options for restoring a lost or damaged tooth. Fixed prosthodontic treatment gives excellent satisfaction to both patients and the dental practitioners. It transforms an unhealthy, unaesthetic teeth with poor function into a comfortable healthy occlusion that improves both aesthetics and function ^[1].

Various materials and extraordinary methods have been used over the years to restore lost natural teeth. Initially, replacement crowns were fabricated from bone, ivory, animal teeth, and sound natural tooth crowns using pivots. Porcelain progressively replaced these natural substances. Porcelain, which was brought into dentistry in 1789, revolutionised fixed prosthesis dental restorations. Ceramic improvements during the past few decades have enhanced aesthetics, reduced the amount of tooth fractures associated with combined crown-post restorations, and reduced impingement on soft tissue ^[2].

For treatment to last, the dental practitioner must adhere to all of the essential clinical standards. Research focused on assessing practitioners' knowledge, awareness level, and clinical application in fixed prosthodontics (FPD) practice.

Aim: The purpose of this study was to evaluate the knowledge, attitude, and practice of fixed prosthodontics among the post-graduate prosthodontist students in India.

Material and Methodology

In this study, an online survey was conducted among all the postgraduate prosthodontist students in India. A confidential questionnaire was designed to evaluate the details of the impression materials and techniques used in fixed partial dentures, finish line

configuration and gingival displacement techniques. The survey instrument was a structured, self-administered, multiple-choice questionnaire which comprised of 27

questions in total. All the questionnaires were then compiled and analysed.

Results

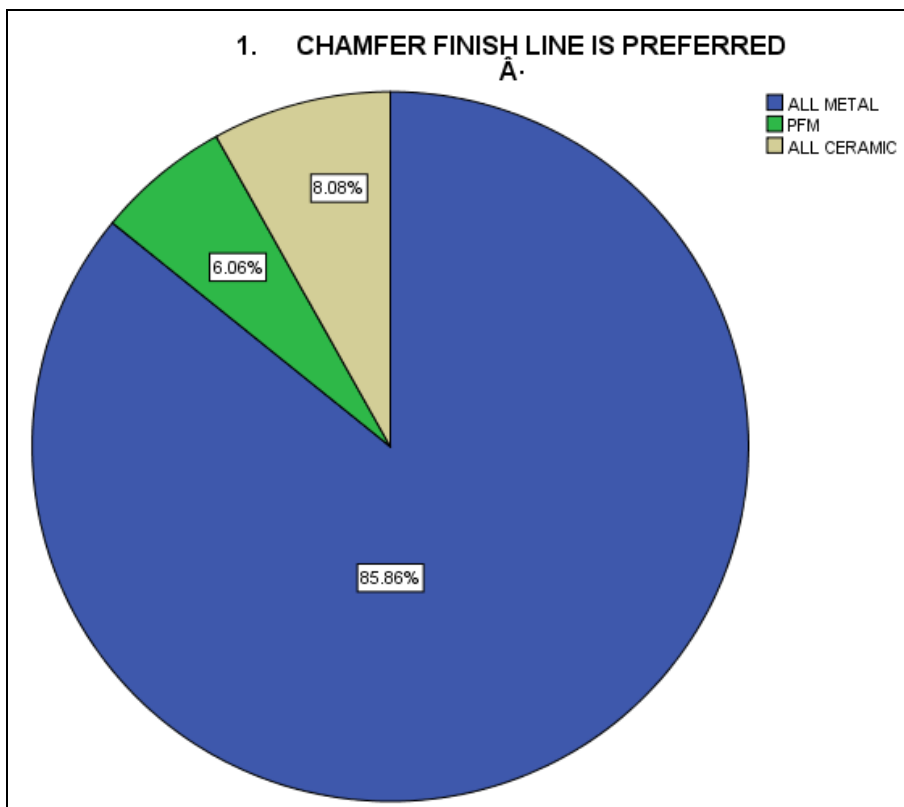


Fig 1: When asked for which restoration, the chamfer finish line configuration was preferred, 85.86% of them said all metal restorations.

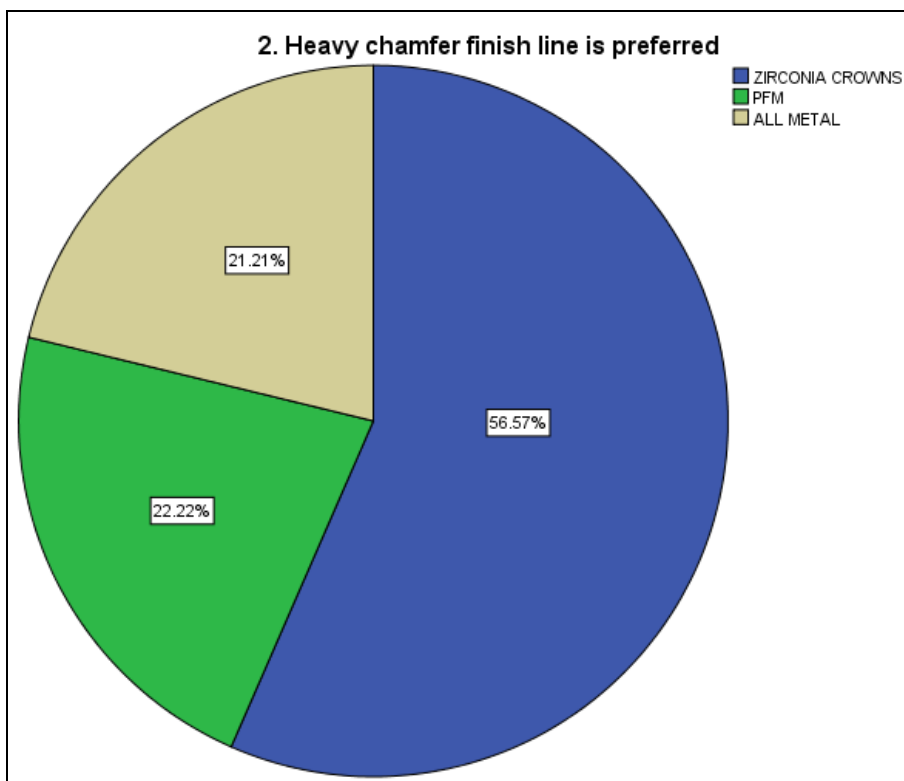


Fig 2: When asked which restoration the heavy chamfer finish line configuration was preferred, 56.57% of them said zirconia restorations.

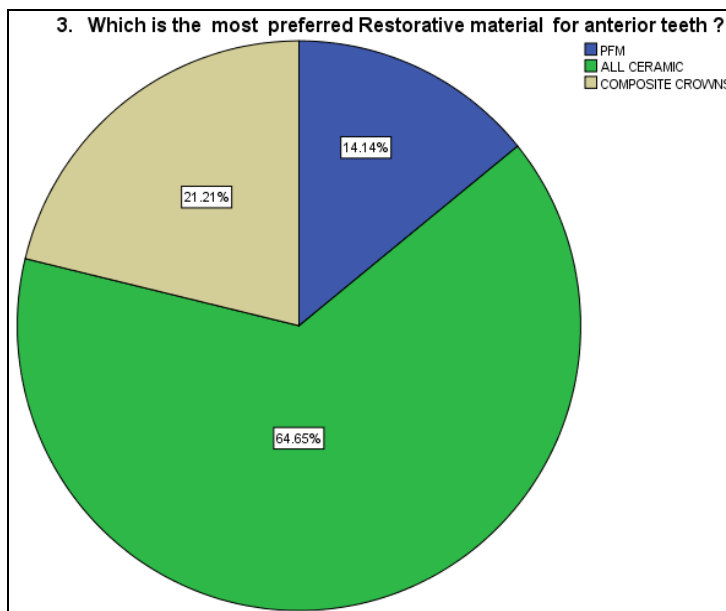


Fig 3: When asked for the most preferred restoration in anterior region, 64.65% of them said all ceramic restorations.

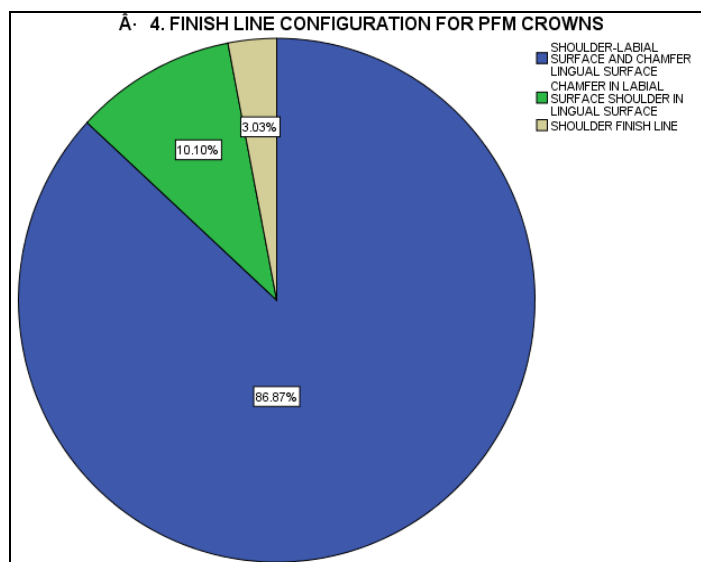


Fig 4: When asked the type of finish line configuration for PFM Restoration, 86.87% of them said shoulder on labial surface and chamfer on lingual surface.

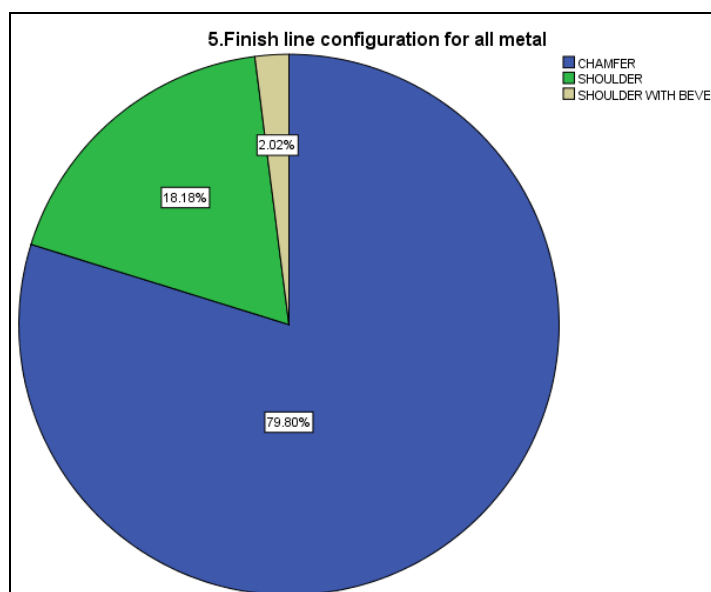


Fig 5: When asked the finish line configuration for all metal Restoration, 79.80% of them said chamfer finish line.

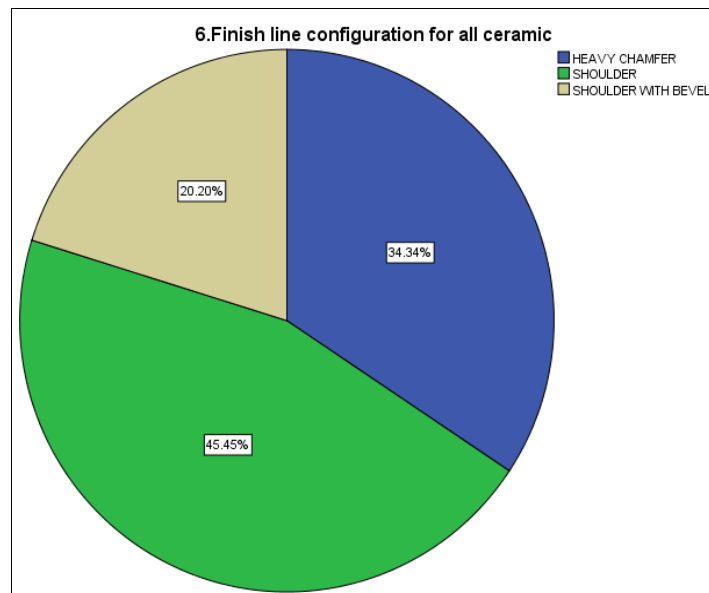


Fig 6: When asked the finish line configuration for all ceramic Restoration, 45.45% of them said shoulder finish line.

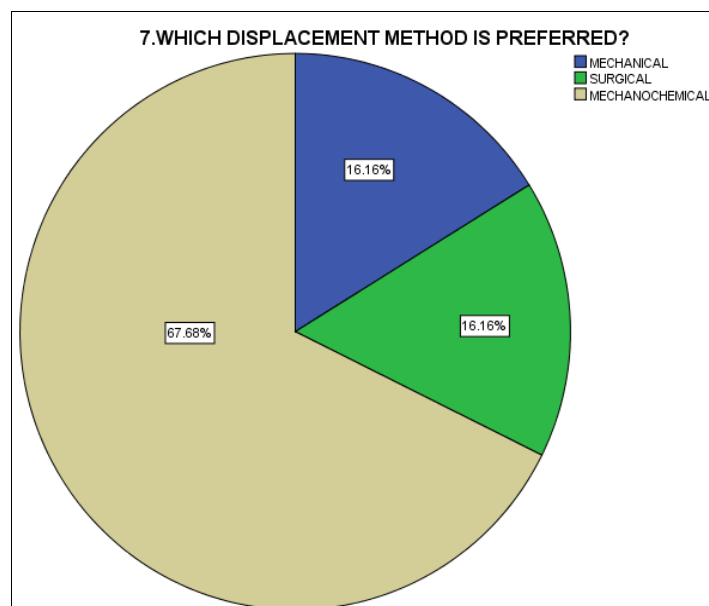


Fig 7: When asked for practitioner’s most preferred displacement technique, 67.68% of them preferred mechanochemical technique.

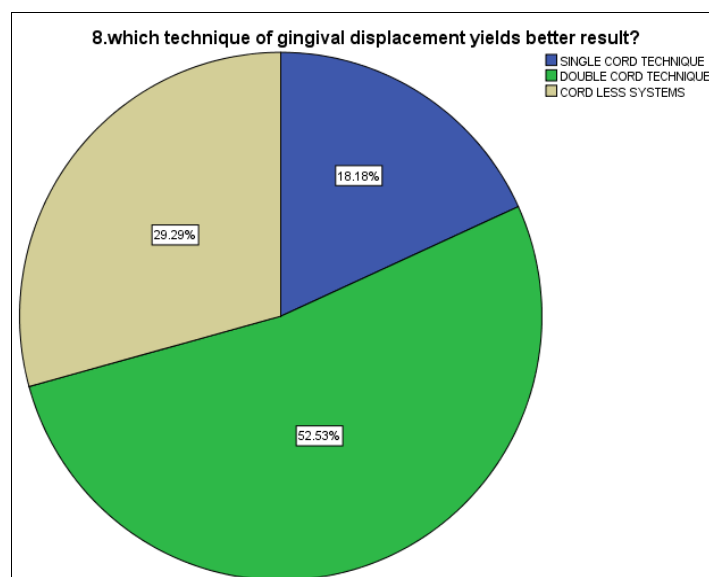


Fig 8: When asked which gingival displacement technique gave better results, 52.53% of them said the double cord technique.

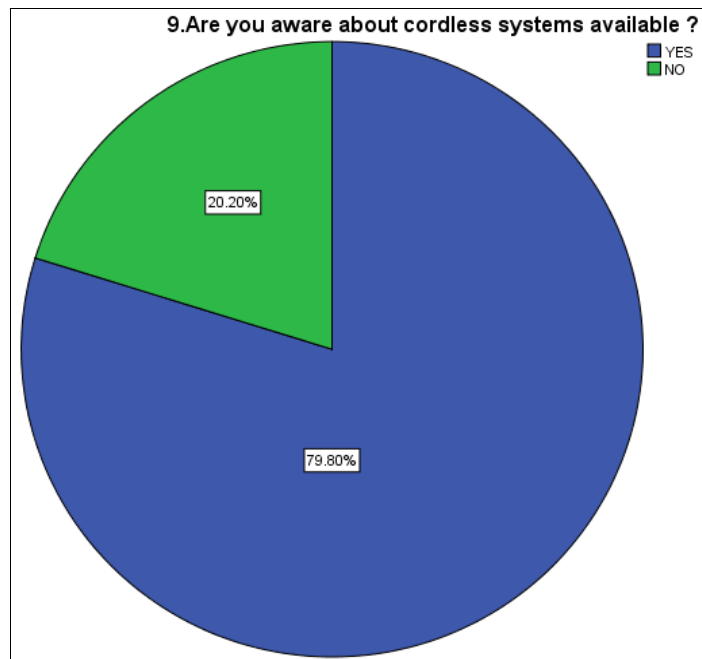


Fig 9: when asked about the cordless system, 79.80% of them were aware about this system

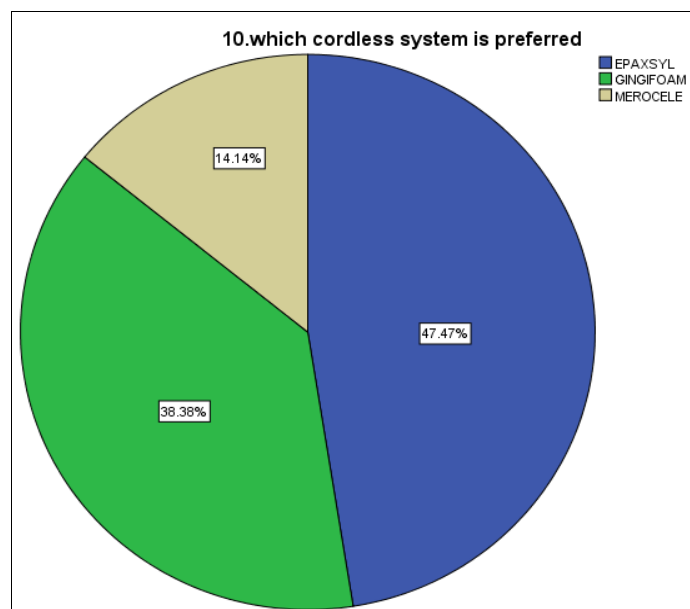


Fig 10: When asked about the most preferred cordless technique of gingival displacement, 47.47% of them preferred the Epaxsyl system

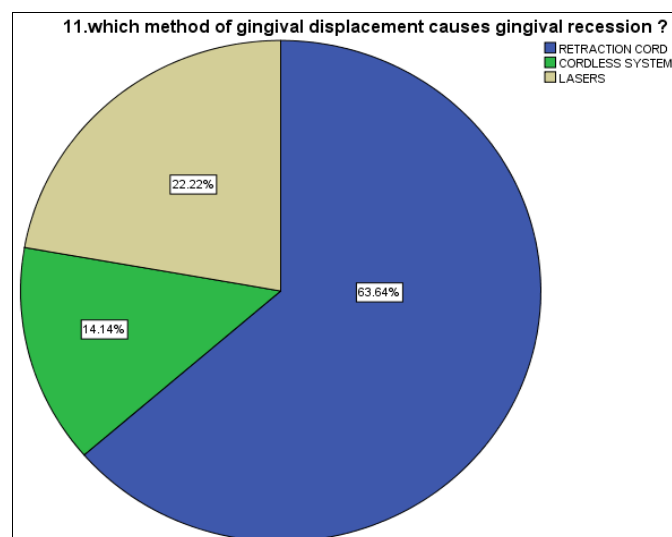


Fig 11: when asked about the method that leads to gingival recession, 63.64% of them said retraction cord technique leads to recession

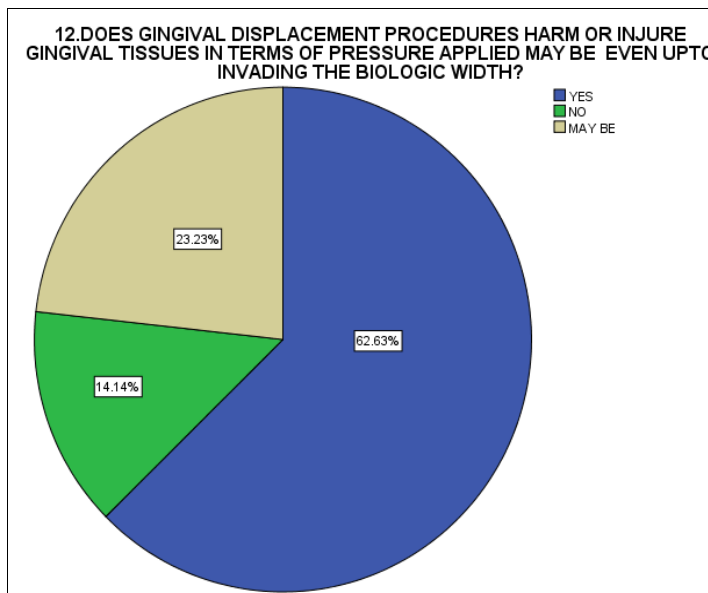


Fig 12: when asked whether the gingival displacement procedure harmed or injure the tissue, 62.63% of them agreed to this.

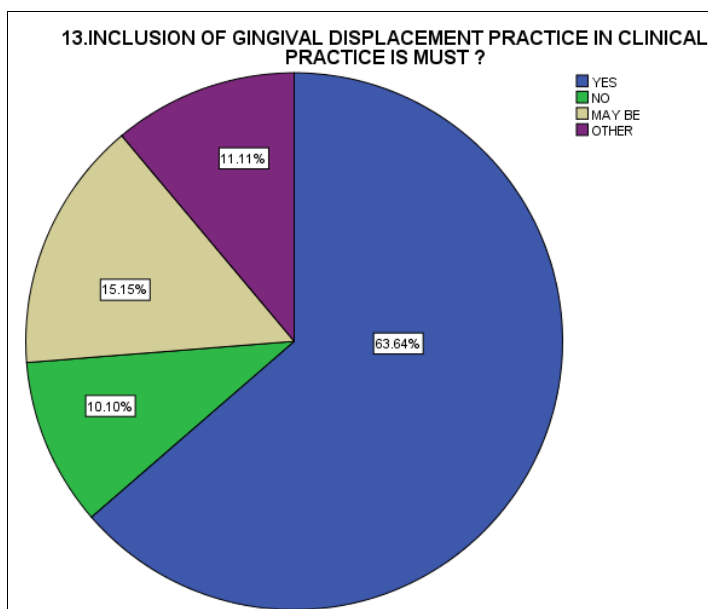


Fig 13: when asked whether gingival displacement should be employed in clinical practice, 63.64% of them agreed to it.

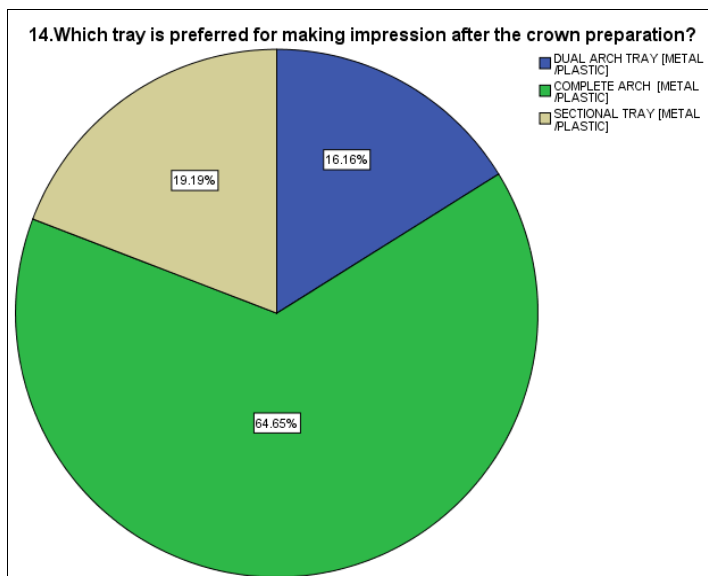


Fig 14: When asked which impression tray should be preferred for making an impression, 64.65% of them said complete arch (metal/ plastic).

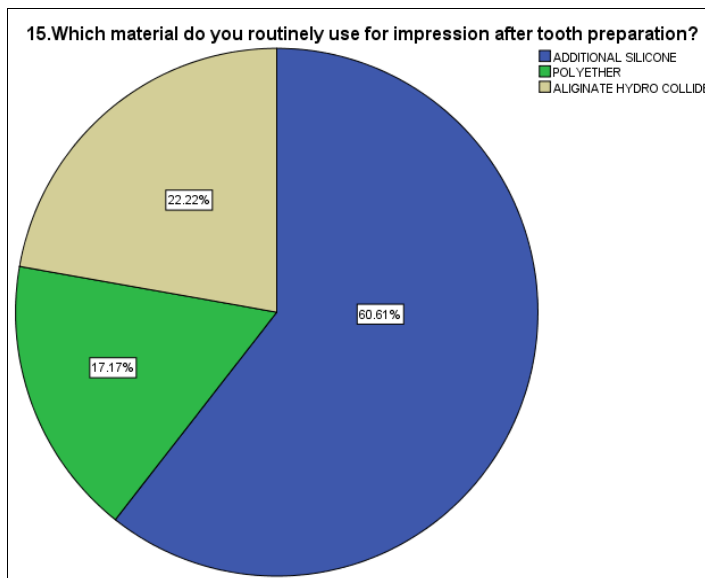


Fig 15: When asked for routinely employed impression material after tooth preparation, 60.61% said additional silicon impression material.

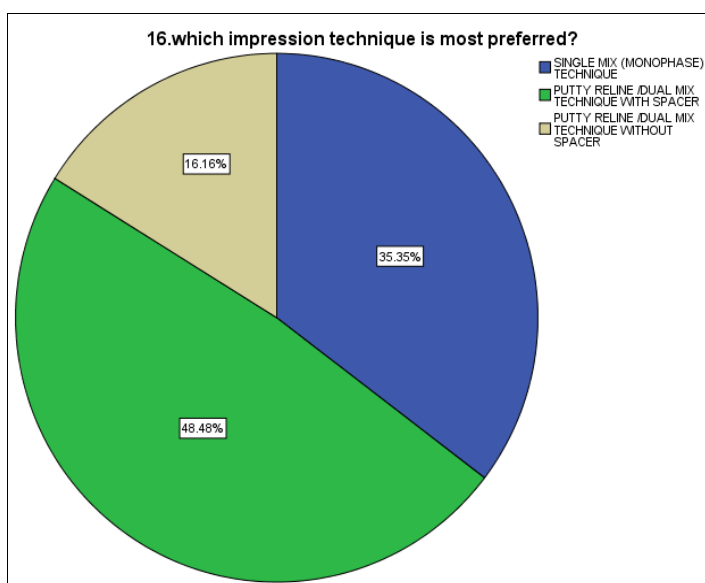


Fig 16: when asked for the most preferred impression technique, 48.48% said dual mix technique with spacer.

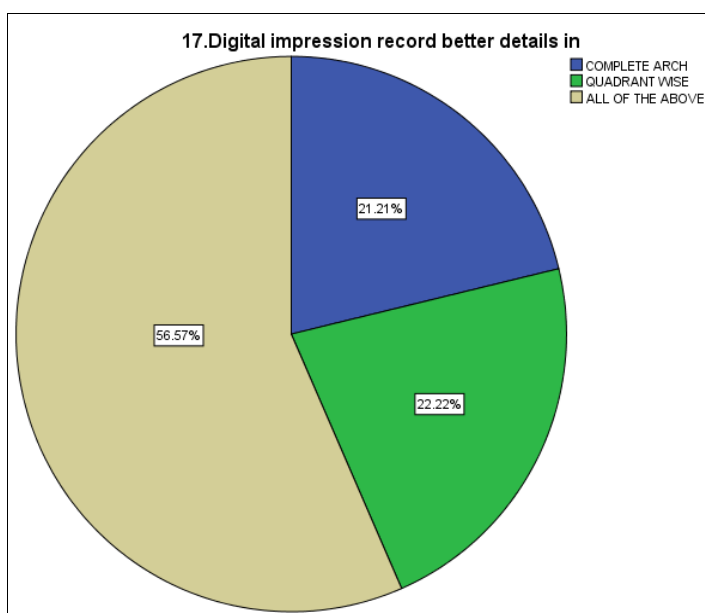


Fig 17: When asked about digital impression records better in the complete arch, quadrant-wise, and all of the above. 56.57% of them said agreed for all of the above

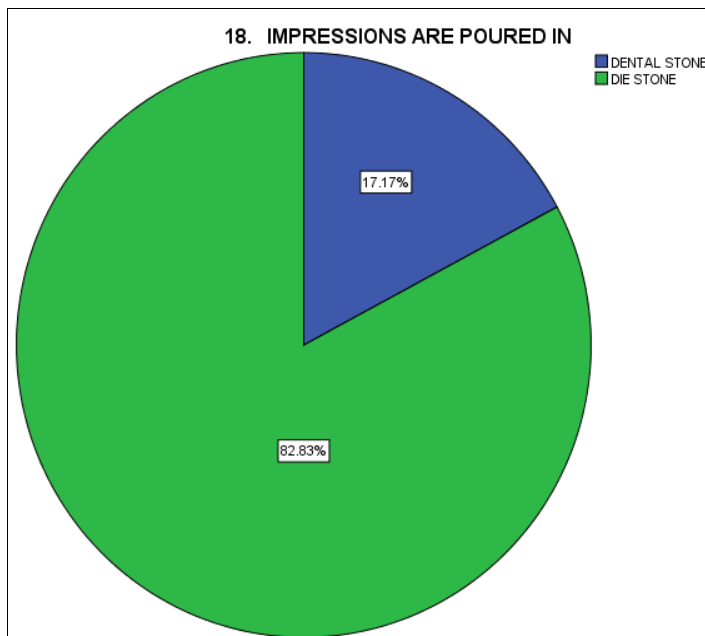


Fig 18: When asked about the pouring of the impressions, 82.83% of them preferred to die stone instead of a dental stone.

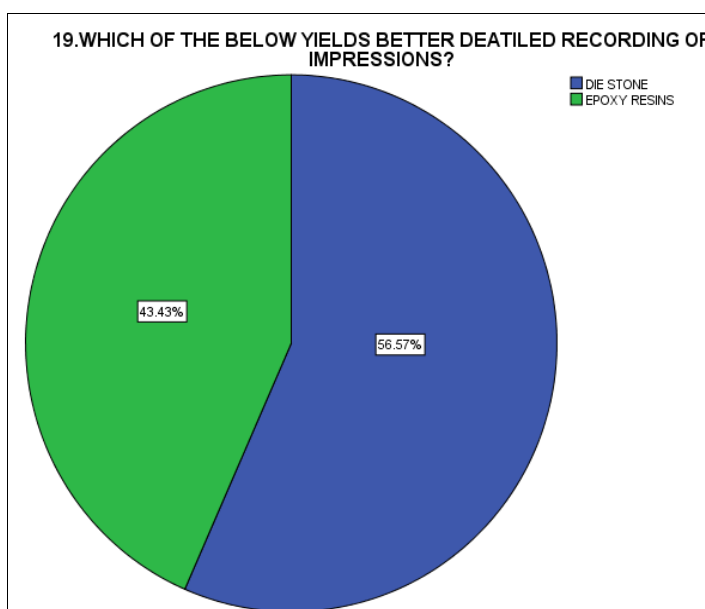


Fig 19: When asked which among die stone and epoxy resin gave the detailed recording of the impression, 56.57% of them said die stone.

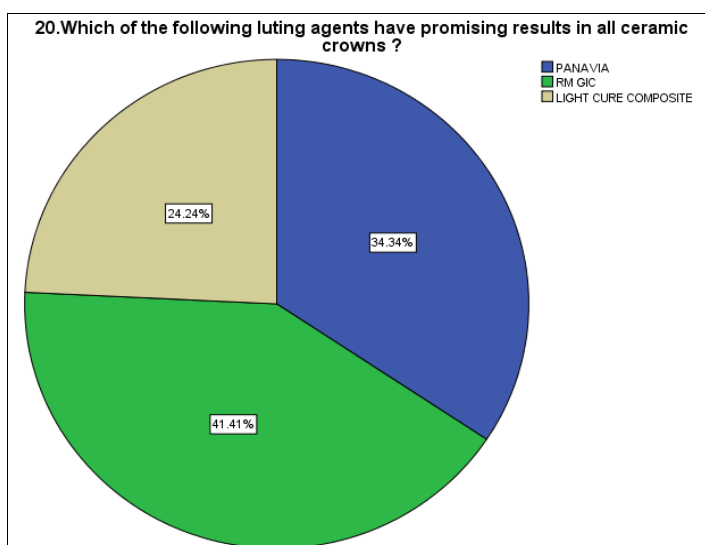


Fig 20: When asked if the luting agents have promising results in all ceramic crowns, 41.41% of them said RM GIC gave promising results among all.

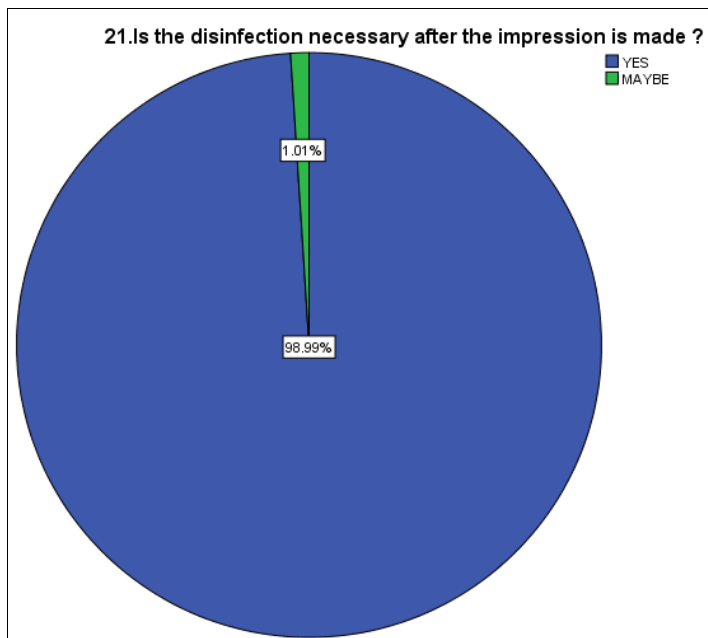


Fig 21: When asked about the necessity of the disinfection of the impression, only 1.01% of them disagreed with the necessity of disinfection.

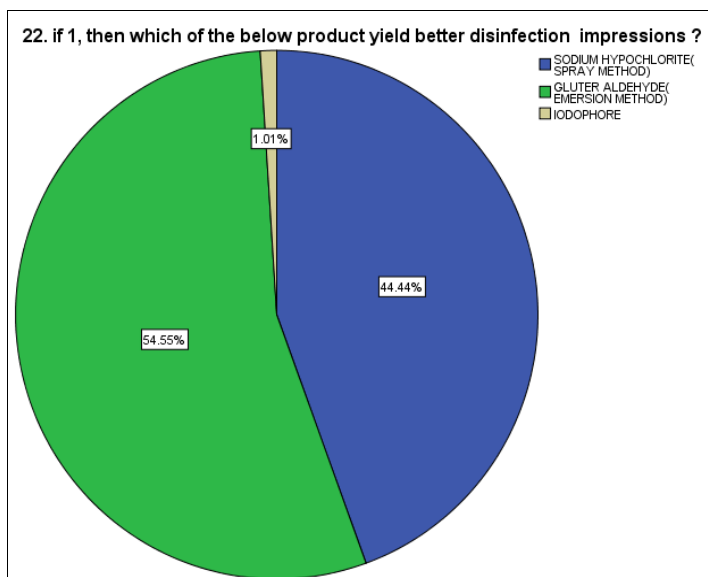


Fig 22: When asked about the type of disinfectant, 54.55% of them said glutraldehyde by emersion method gave better results among all.

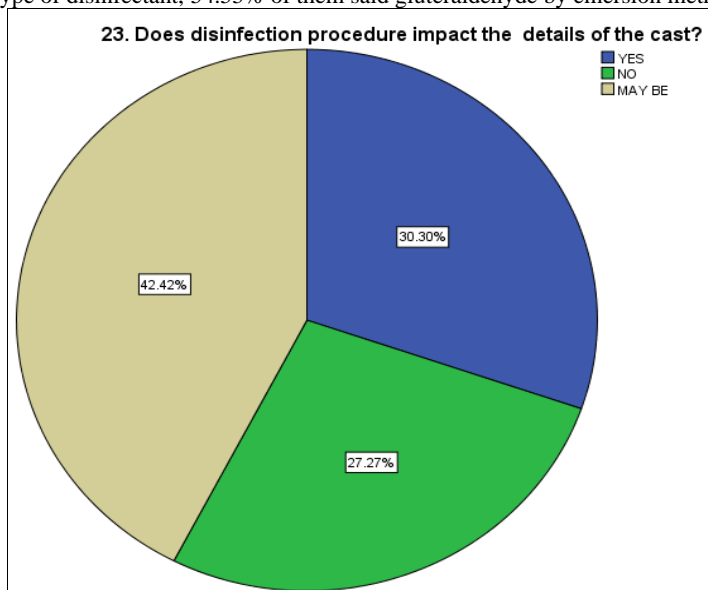


Fig 23: When asked about the effect of disinfectant on the details of the cast, 30.30% of them agreed about the effect of disinfection on the details of the cast.

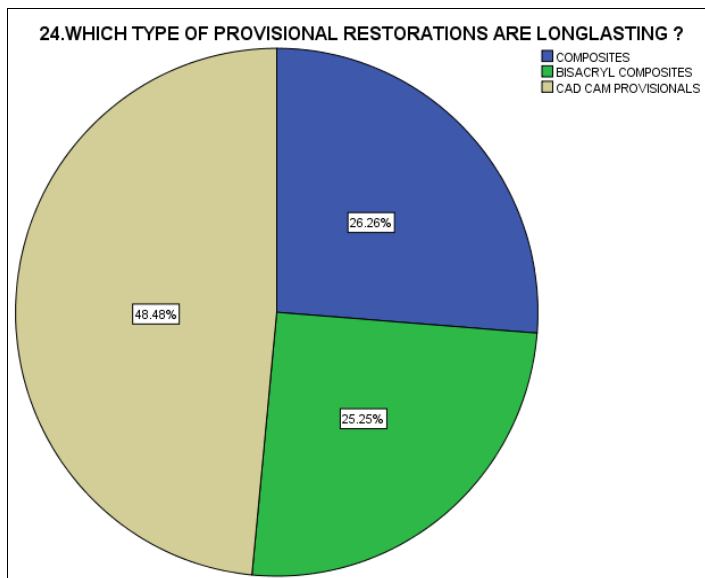


Fig 24: When asked the type of provisional restoration provides long-lasting, 48.48% of them said CADCAM Provisionals were long-lasting compared to the other 2.

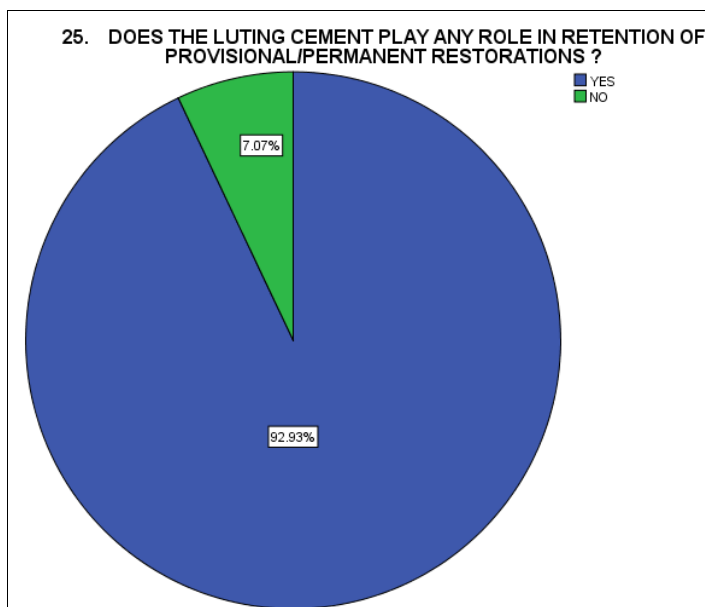


Fig 25: When asked about the role of the luting cements on the retention of the restoration, 92.93% of them had agreed on it.

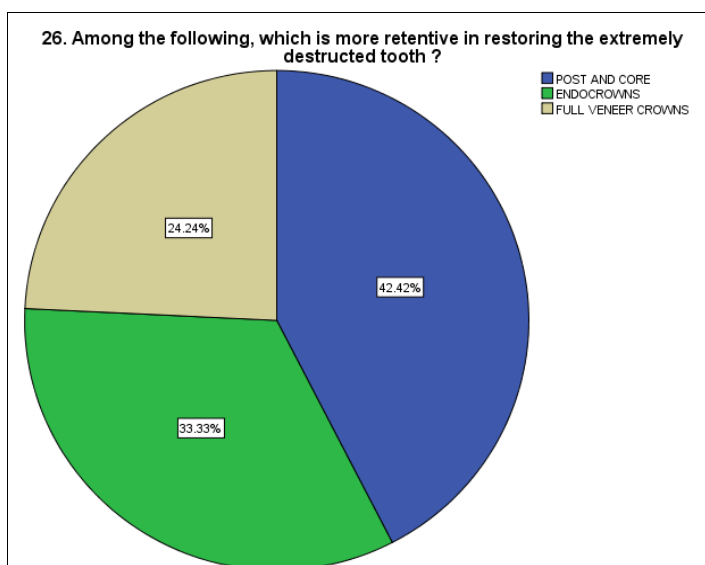


Fig 26: When asked about the best restoration for the extremely destructed teeth, 42.42% of them said post and core would be the most retentive among them.

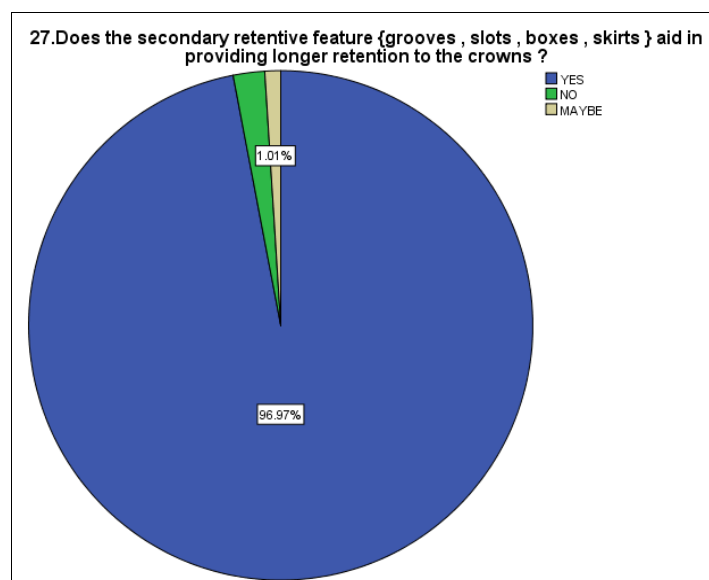


Fig 27: When asked about the role of secondary retentive features, in providing retention to the crowns. 96.97% of agreed that secondary retentive features provide additional retention to the restoration.

Discussion

This survey was conducted online to collect and process the choices and preferences of postgraduate students of prosthodontics in India about in-depth knowledge of fixed prosthodontics treatment. The study revealed that most of the practitioners preferred chamfer finish line for all metal restorations, heavy chamfer for zirconia crowns, and labially shoulder and lingually chamfer finish line for PFM restorations. The results are similar to those in the study by Aroonika. S. Bedre *et al.* The majority of study participants preferred all ceramic restorative material for anterior teeth and the results were similar to those in a study by Sonia K. Makhija^[2].

The gingival retraction cord is being used from a long time for gingival retraction to make impressions in FPD. The haemostatic agents are also used along with it to achieve desired haemostasis hence majority of the practitioners preferred mechanochemical method of gingival displacement which was almost similar to the study conducted by Moldi *et al.* in 2013^[3].

But cords can be painful and uncomfortable for the patient. Also, the sulcus collapses soon after the removal of the cord; that is, it might rupture the epithelial attachment. Haemostasis achieved is limited, and the placement of the cord in the sulcus takes time. The participants in the survey were aware of the cordless system of displacement and preferred EPAXSYL system similar to the survey conducted by Gadhavi, *et al.* 2021.

When the preference of trays for final impression was concerned, it was revealed that maximum participants preferred using a complete arch metal/plastic tray as they have many advantages like it records complete arch and the practitioner can make the impression with proper control over the setting time of the impression material unlike the dual arch impression tray^[3]. The partial arch tray are also poor choice for impression making as full arch recording is mandatory for proper mounting of the models, and further fabrication of the prosthesis depends on this mounting^[3].

For impression making, elastomeric impression materials are the most superior in terms of recording finish lines and the surface detail of the prepared teeth, maximum participants preferred additional silicone impression material by dual mix technique which is in accordance with the studies conducted

by Ansari, *et al.* 2021^[1] & Majumder, *et al.* 2022^[5]. When asked about digital impression technique, better results were obtained for both complete arch and quadrant wise impression.

Participants preferred die stone because of its higher mechanical properties as compared to type III stone, Gadhavi, *et al.* evaluated the similar results^[6].

Participants preferred RMGIC as a luting agent for all ceramic restorations. Nearly all the participants considered that it was important to disinfect impressions, with glutaraldehyde via emersion technique being the most preferred option. The majority of respondents to the survey were uncertain about the impact of disinfection on the details of impression.

According to this survey, CAD-CAM provisional were long lasting among all. The retention of the permanent or provisional restoration significantly depends on the luting cements. In addition to these secondary retentive features such as grooves, slots, boxes and skirts also have a role in retention. Participants of the survey chose post and core as the best alternatives for treating severely destructed teeth.

This study does have certain limitations, and conclusions should consider these issues. This study relied on questionnaire information rather than direct observation of procedures; therefore, the inferences made are based on responses from this questionnaire. Additionally, the response rate was very good.

This survey emphasises the very crude steps of achieving best prosthesis, with all the procedures followed judiciously. The results of this questionnaire survey, should form the backbone for further research and educating aspiring professionals to inculcate these procedures in their day-to-day practice.

Conclusion

This survey is one of first kind to assimilate the entire principles of Fixed prosthodontics. The ideal materials, technique, and armamentarium are required for the long-term success of the treatment for fixed partial denture. The results of the survey show wide variations in the knowledge and awareness of tooth preparation perceived among various general dental practitioners. The results of this survey also suggests the importance in the need for various dental education programs and workshops to be conducted among

the fraternity of General dental practitioners

Conflict of Interest

Not available

Financial Support

Not available

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How to Cite This Article

Singh S, Harsha RH, Pooja Nagoji S, Sai S, Galagali G, Nazeer N. Awareness and knowledge of fixed partial denture among prosthodontic postgraduate students of India: A survey. *International Journal of Applied Dental Sciences.* 2023;9(3):166-177.

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