

Knowledge, awareness, and practice of various impression techniques for removable partial denture among practicing dentists in Chennai

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ABSTRACT

Background: Removable partial dentures (RPD) still form a significant part of treatment modalities in prosthodontics. Most distal extension RPD is constructed from single reversible or irreversible hydrocolloid impressions. **Aim:** The aim of this study was to check the awareness and utilization of different impression techniques used for RPD. **Materials and Methodology:** A self-structured questionnaire was designed consisting of 18 questions regarding various impression techniques used for RPD and dentists were also asked about the most common technique used by them. The survey was made on Google forms and distributed to dentists through electronic media. **Results:** The response rate was 93%. 97.8% dentists used alginate for the diagnostic impression of which 61.3% used medium setting alginate and 92.5% used perforated full tray for making the impression. 94.6% were aware about anatomic and functional impressions. 2% glutaraldehyde is most commonly used for disinfecting impressions by the dentists. **Conclusion:** Although dentists are aware of various impression techniques, maximum of them use selective pressure technique in their clinical practice.

KEY WORDS: Clinical practice, Impression techniques, Partial dentures, Removable partial denture, Survey

INTRODUCTION

A removable partial denture (RPD) prosthesis is defined as any prosthesis that replaces some teeth in a partially edentulous arch that can be removed from the oral cavity and replaced.^[1] RPDs are still used in the conventional rehabilitation of partially edentulous patients.^[2]

Most distal extension RPDs are constructed from single reversible or irreversible hydrocolloid impressions. An accurate reproduction is made of the teeth, and the soft tissue surfaces are recorded in a passive or negative state. Border molding is impossible because of the use of overextended stock trays.^[3] Occlusal rests are included in the finished denture, and the when masticatory forces are applied, the restoration becomes a lever with the rests as a fulcrum. Its important to take anatomical and functional impression in these cases.

There have been recent speculations among prosthodontists that if edentulism and tooth loss continue to decline in the coming decades, the need for prosthodontic services will also decline. However, a recent survey said that a large increase in the number of elderly individuals are expected in the future.^[4] Therefore, there will be a large number of patients in need of RPDs. This survey stresses on the different techniques used for making an impression in partially edentulous patients and also awareness about it among the dentists. It evaluates which technique is most commonly used in the clinical practice for RPD.

MATERIALS AND METHODOLOGY

A self-structured questionnaire consisting of 18 questions was formulated with the help of Google forms. It was distributed to 100 practicing dentists in Chennai through e-mail, WhatsApp, and other electronic media. A second follow-up e-mail was sent, and telephone calls were made to those who had still not replied. All

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participants were assured at the beginning of the study that data collected would be kept strictly confidential.

Percentages were obtained with respect to each question (For a copy of the questionnaire, contact the corresponding author). The questions were related to awareness about the different impression techniques and the number of times and comfortability of the dentists to use these techniques. It also involved the material used for these techniques and how did the dentists disinfect their impressions. Pie charts and graphs were made for results.

RESULTS

The response rate was 93%, 93 dentists responded of 100, and 7 could not respond due to variable reasons. 97.8% dentists used alginate for diagnostic impression of which 61.3% used medium setting alginate. 92.5% dentists used 92.5% perforated full trays for impression.

The awareness about anatomic and functional impressions were very good among the dentists (94.6%). Dentists were aware about the various impression techniques for RPD, namely the McLean’s technique, Hindle’s modification of McLean’s technique, functional relining technique, selective pressure technique, and the fluid wax technique. However, approximately 75% used only selective pressure technique in their clinical practice [Graph 1 and Figures 1-7].

DISCUSSION

The purpose of the discussion is to relate the findings of this article and others to the fulfillment of the practice of RPD prosthodontics.^[5] There is a good awareness among the dentists about various impression techniques, but they do not use all the learned techniques in their clinical practice. This also shows that all that is learned in the dental school is not practiced outside in the private clinic scenario. Full arch impressions in custom trays are commonly used for recording the supportive ridges in the distal extension cases.^[6]

Various different reasons were cited by the dentists to not use the other techniques for impression making. These included it being time-consuming, technique sensitive, difficulty in handling the material, uncomfortable, never tried it before and lastly not aware about it. Time-consuming and cumbersome to use were the most common reasons.

According to Dubal et al, irreversible hydrocolloid is better compared to addition-cured polyvinyl-siloxane

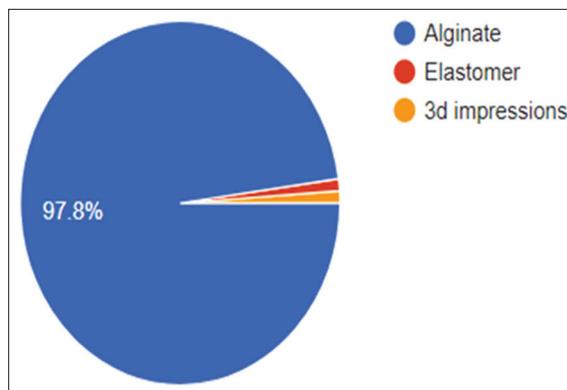


Figure 1: Which material do you use for diagnostic impression

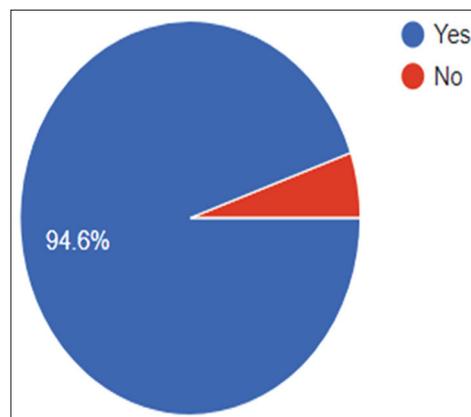
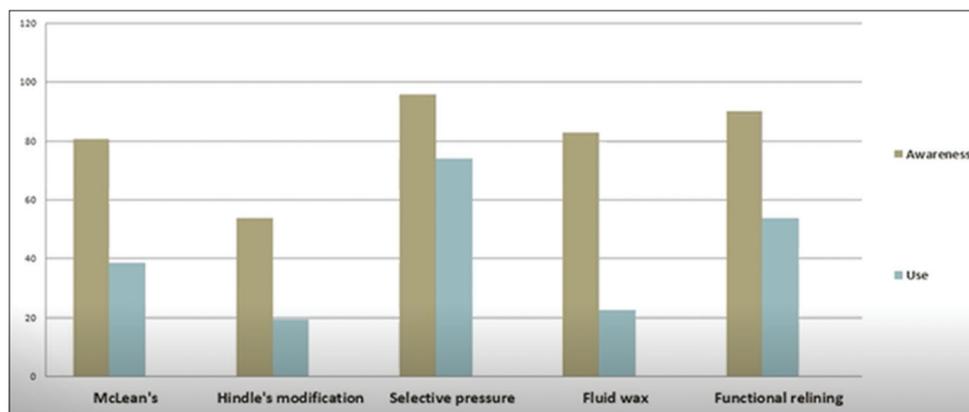


Figure 2: Do you know about anatomic and functional impression



Graph 1: Impression techniques for removable partial denture

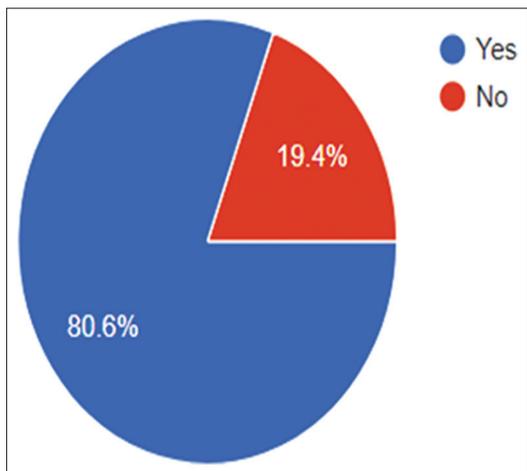


Figure 3: Have you heard about Mclean's secondary impression technique

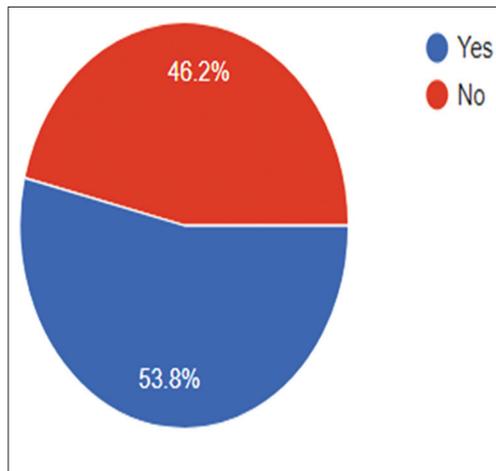


Figure 6: Are you aware about Hindle's modification of McLeans's technique

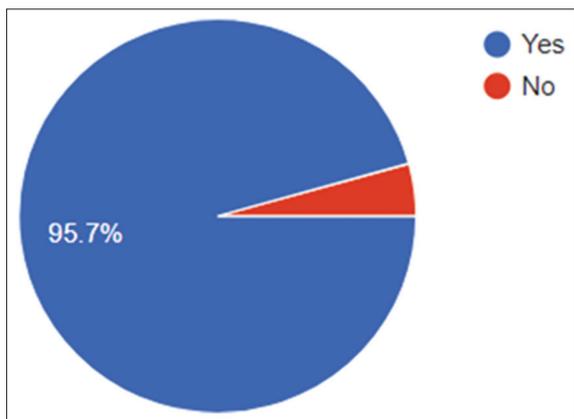


Figure 4: Are you aware about the selective pressure technique

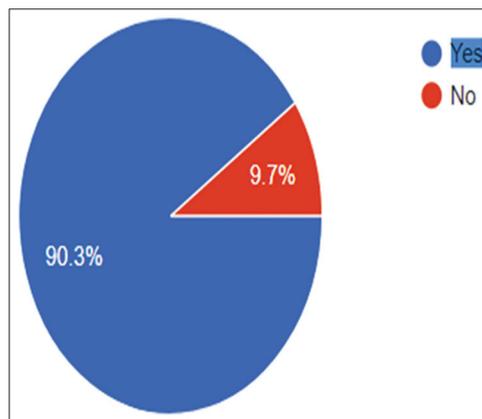


Figure 7: Have you heard about functional relining technique

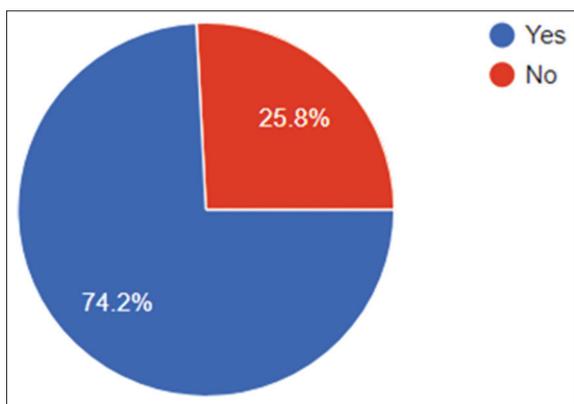


Figure 5: Do you use it?

as an impression material for cobalt-chromium framework construction.^[8]

According to Turbyfill *et al.* adequated impressions for partial denture construction when crowns are already present in the mouth is a problem. They are included as part of the master cast. It is a dilemma in having already cemented crowns with attachments on them. An easy technique has been developed for analog production.^[18]

In general, partial dentures are not designed by the dentists. However, it is the responsibility of the dentist to do so.^[9] According to one of the studies by Taylor *et al.* the dental educators stated that partial denture design is the dentist's responsibility, whereas 77.9% of dental technicians reported that the designing work of partial denture is done by them most of the times.^[10]

Blatterfein gave his technique to overcome the limitations of existing impression techniques for semiprecision and precision distal-extension cases.^[11] According to Holmes *et al.*, least amount of movement was provided by the altered cast technique.^[12]

According to a study by Gunne *et al.*,^[13] two impression techniques were compared. A special device was constructed to secure an identical position of the impression trays. The results showed that ZOE-paste impression in a border molded tray produced more extended impressions lingually, but buccally there were no differences between the chosen materials/methods.

According to Madihalli AU et al, selective tissue placement method provided maximum overall tissue placement. is is considered to be a preferred technique for impression making for bilateral distal extension removable partial denture fabrication.^[14]

The most common technique used by the dentists was selective pressure technique that is too using green stick compound and spacer wax. Maximum dentists even today use only an alginate impression as the final impression technique. These are most of the graduate dentists. Postgraduates prefer using a better technique for impression. This also indicates that though dentists are aware about or have heard about the techniques, they prefer using the techniques that they are most comfortable with. Dentists use their own techniques best suitable to them.^[15]

CONCLUSION

The practice of giving removable dentures is reducing. Although there seems to be an evolution toward the widespread usage of implants all over the world, the ongoing necessity of RPD fabrication should not be overlooked, especially considering economic conditions as well as particular cases that do not permit the placement of implants. It puts one to think if learning about so many techniques in the dental curriculum is required at all when dentists do not actually practice it outside in their clinics.

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