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Original Research

Survey of prosthodontics techniques among the dental practitioners of Ludhiana: An original research

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ABSTRACT:

Aim: Different new techniques and methods have been used by the dental practitioners so that there can be reduction in the visits and the patient should be satisfied with the treatment. The purpose of our survey was to analyze the current trend in the use of prosthodontics techniques in the clinics to construct conventional CD's and RPD's. **Material and method:** Dentist Questionnaire was prepared which consists of 13 questions. This survey was conducted on the 50 dental professionals. The dentist approval was taken before participation and was conducted online in the view of covid-19 pandemic. **Result:** Most of the practitioners fabricate the acrylic RPD (68%). Maximum of the practitioners 80% selected the choice of irreversible hydrocolloid. A majority of the respondents (64%) favored mucocompressive impression philosophy. Almost all practitioners border moulded the custom tray before taking final record. Maximum prosthodontists used zinc eugenol impression paste (70%). **Conclusion:** From the present study it can be concluded that majority of the private dental practitioners follow shortcuts like use tap water for disinfecting impression, don't generate awareness about the CPD and flexible RPD and many of them follow their own convenient method for the treatment of prosthodontics problems.

Keywords: Dental practitioners, prosthodontics techniques, questionnaire, impression

Abbreviations:
CD's = Complete Dentures
RPD's= Removable Partial Dentures
FPD's = Fixed Partial Dentures
CDP = Cast Partial Denture
PPS= Posterior Palatal Seal

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INTRODUCTION

Prosthodontics is defined as the branch of dentistry pertaining to the restoration and maintenance of oral function, comfort, appearance and health of the patient by the restoration of the natural teeth and / or replacement of missing teeth with artificial substitutes (1). Loss of tooth or damaged tooth form often occurs due to dental caries, periodontal problems or trauma. There are various prosthetic replacements such as CD's, RPD's and FPD's to restore form, function and aesthetic of the destroyed or lost dentition. According to Rosenstiel et al (2006), treatment should accomplish the correction of existing disease, arresting decay, prevention of future disease, restoration of function and improvement of appearance and good oral hygiene. The sequence, materials and techniques chosen to restore a patient should take into consideration the expectations and objectives set forth (2).

Despite advances in preventive dentistry, edentulism is still a major public health issue worldwide (19). Complete denture impression making is considered as most vital step in the fabrication of denture (21). Over the past few years, prosthodontics services have changed markedly due to an introduction of new materials, techniques and treatment options (20). Before using the various techniques and making specific treatment plan, practitioner should be aware about the biocompatibility and bioacceptability of the technique and prosthesis which is being used for the patient.

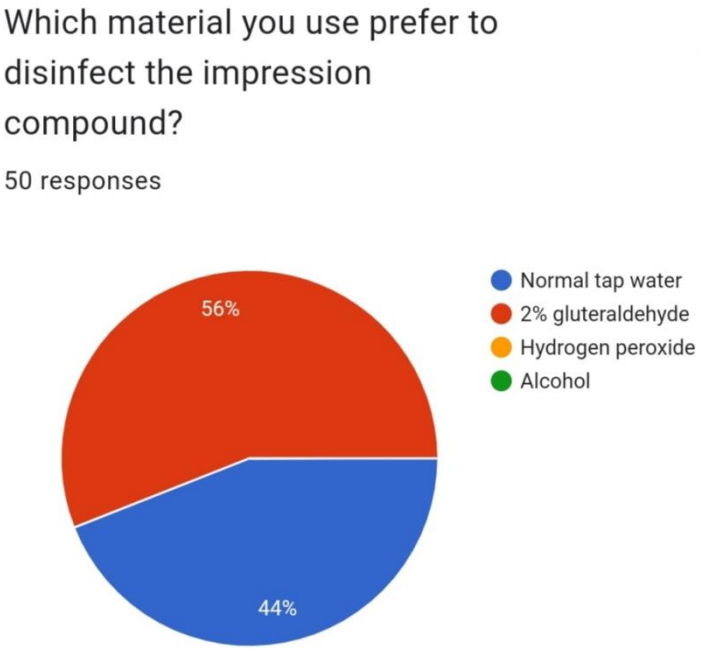
MATERIALS AND METHOD

A survey was planned to determine the prosthodontics techniques applied by private dental practitioners of Ludhiana city, Punjab, India. An English language questionnaire was created online (docs.google.com) concerning the use of prosthodontics techniques by dental professionals. The participants included in the survey were dental practitioners irrespective of whether they are general dental practitioners or specialists. This questionnaire includes 13 questions all were mandatory to answer. The URLs of the questionnaire were created and shared via messaging apps to 50 dentists, in the view of COVID-19 Pandemic. All the participants responded to the questionnaire. The result was analyzed and the percentage evaluation was done. Then the statistical analysis was done and the graph and pie chart was prepared.

RESULT

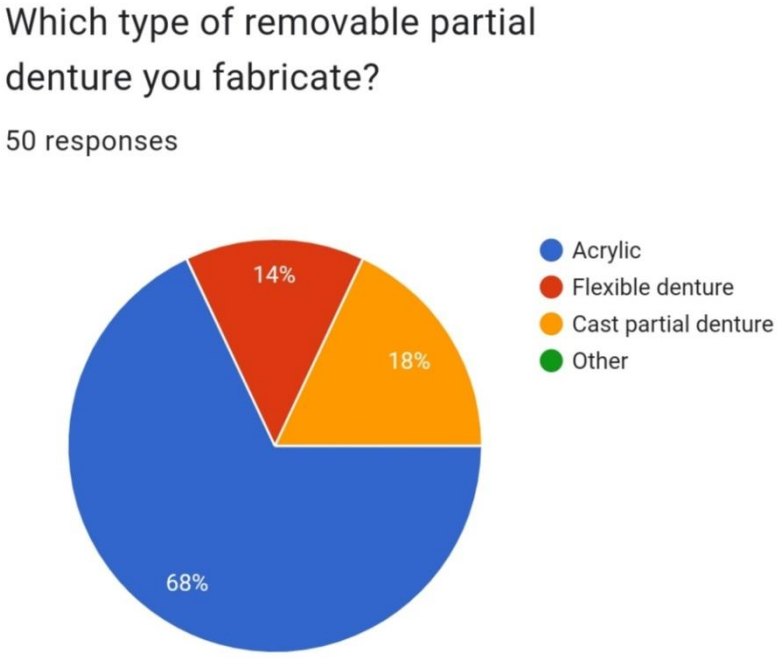
The current status for prosthodontic practice in various dental clinics in Ludhiana city indicates that most of the participating dentists use 2% gluteraldehyde (56%) while remaining uses normal tap water (44%) for disinfecting the impression compound (Figure1).

Figure1:



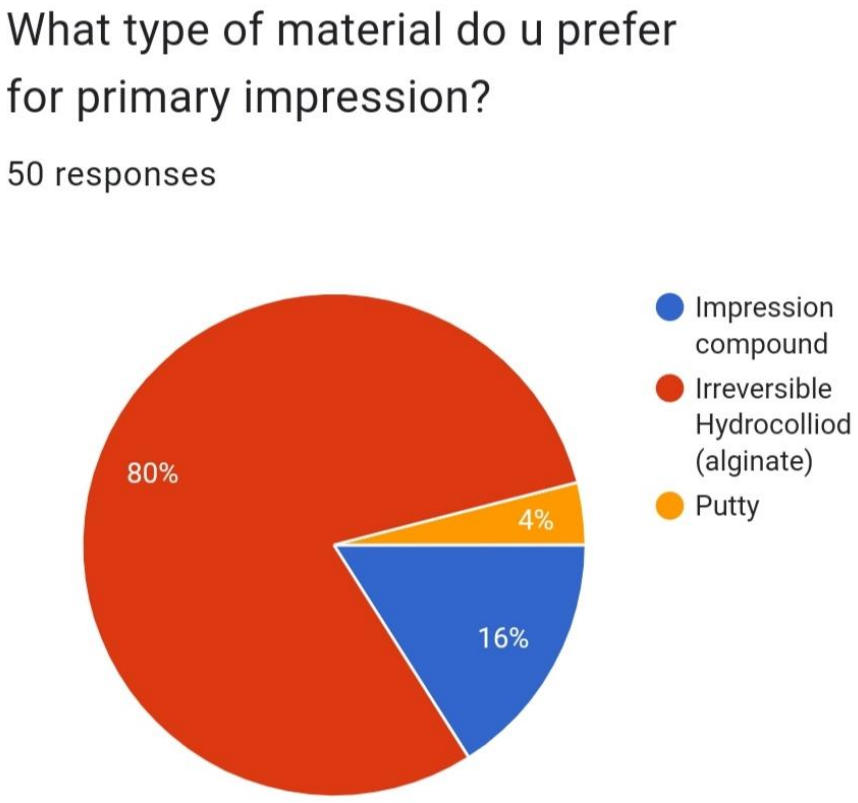
Most of the practitioners fabricate the acrylic RPD (68%) while (18%) fabricate CPD and remaining(14%) fabricate flexible RPD's(Figure3).

Figure 3:



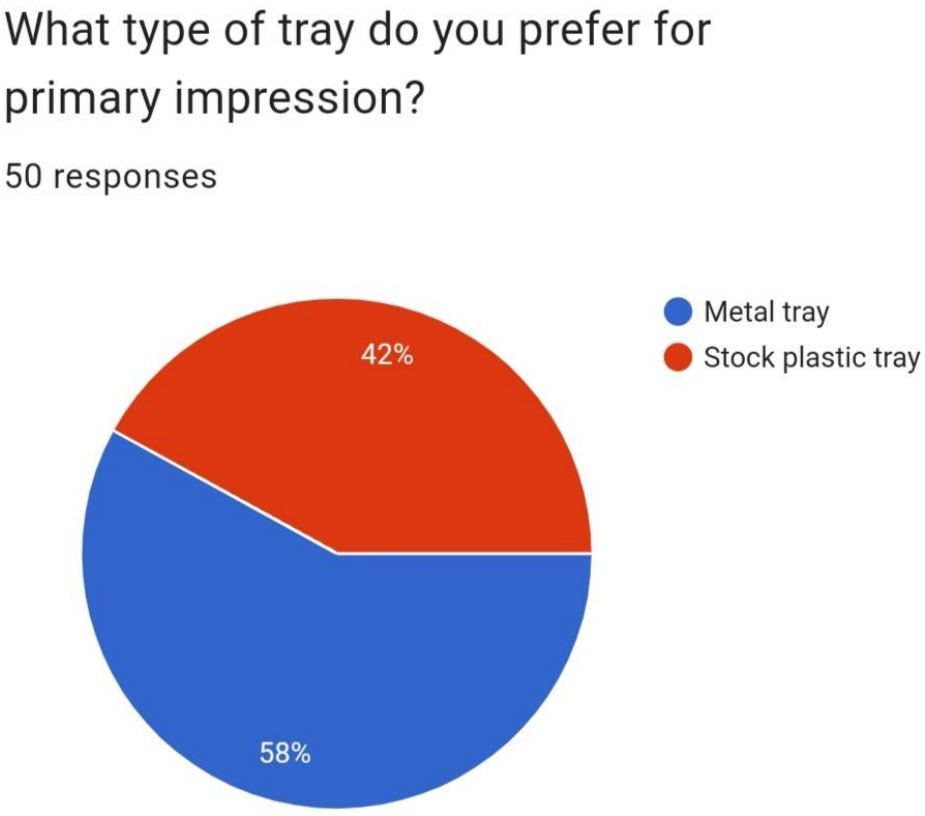
Maximum of the practitioners 80% selected the choice of irreversible hydrocolloid (alginate) followed by the choice impression compound by 16% (Figure 4).

Figure 4:



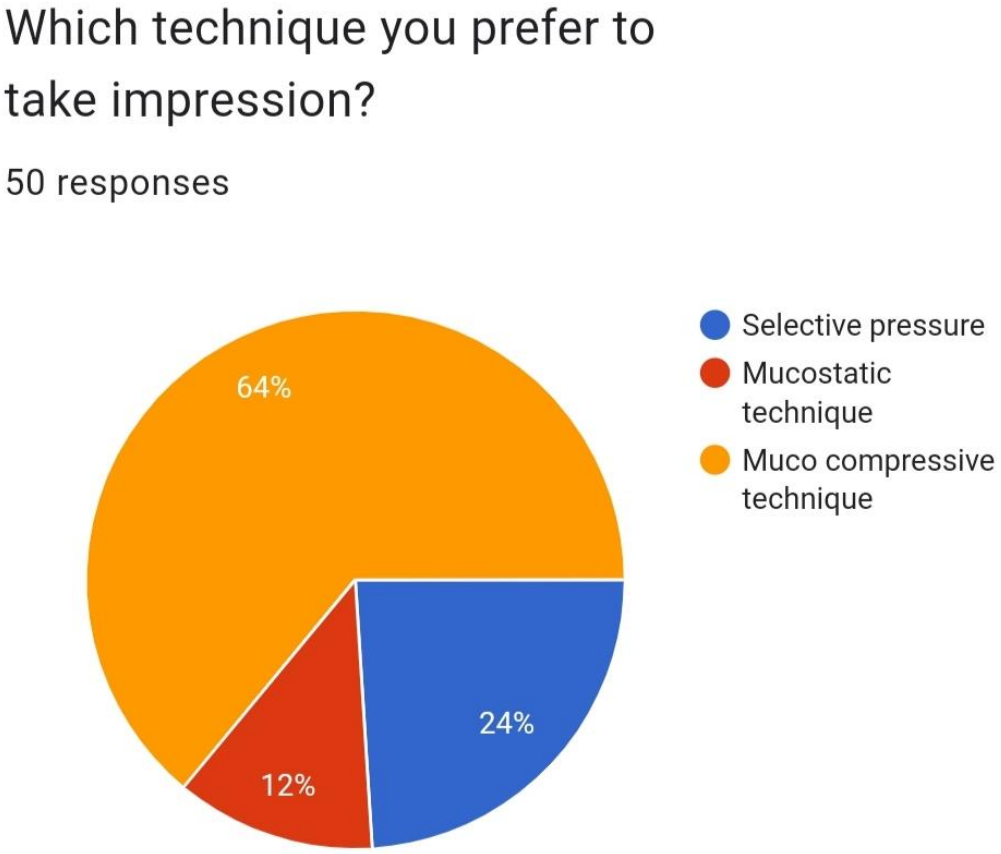
42% of the respondents uses the stock tray for primary impression (Figure 5).

Figure 5:



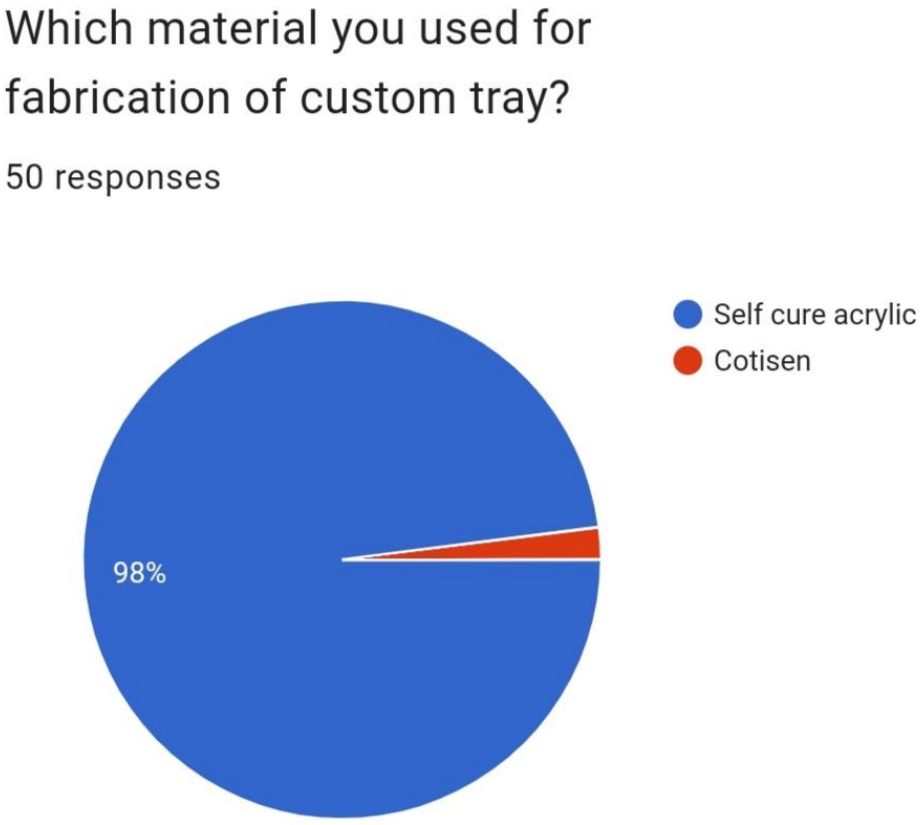
A majority of the respondents (64%) favored mucocompressive impression philosophy. 12% advocated using the mucostatic technique and 24% utilized the selective pressure procedure (Figure6).

Figure 6:



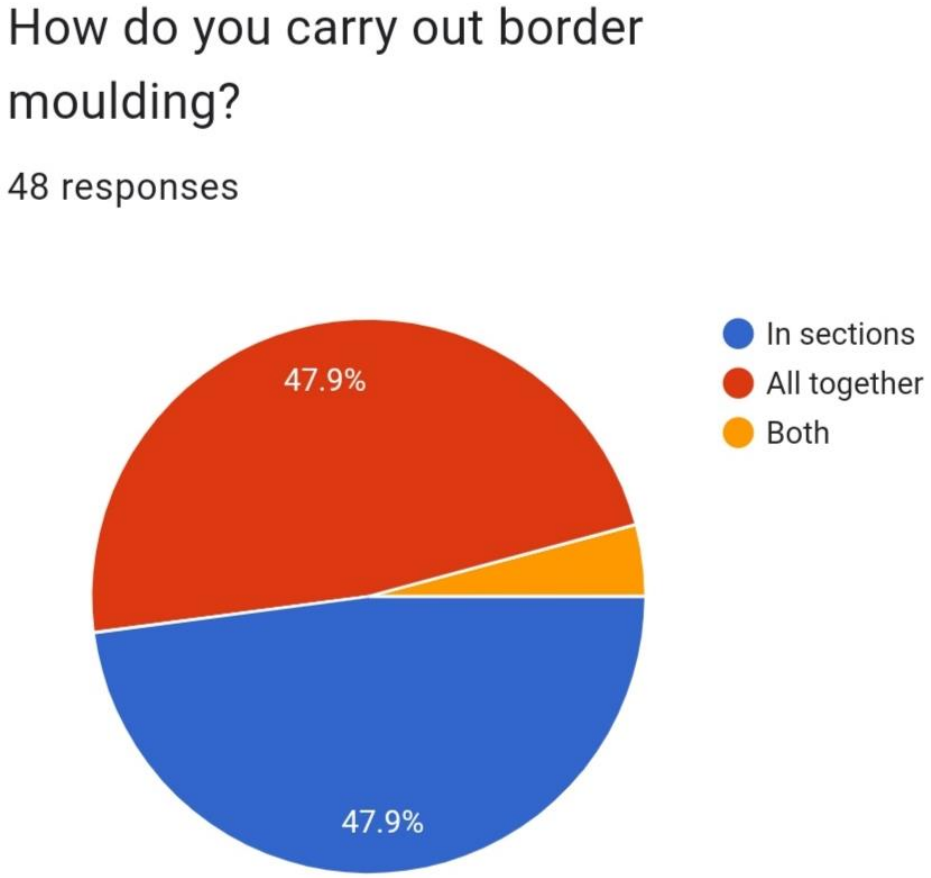
Most of the practicing prosthodontists used self-cure acrylic for the fabrication of custom trays (98%) (Figure7).

Figure 7:



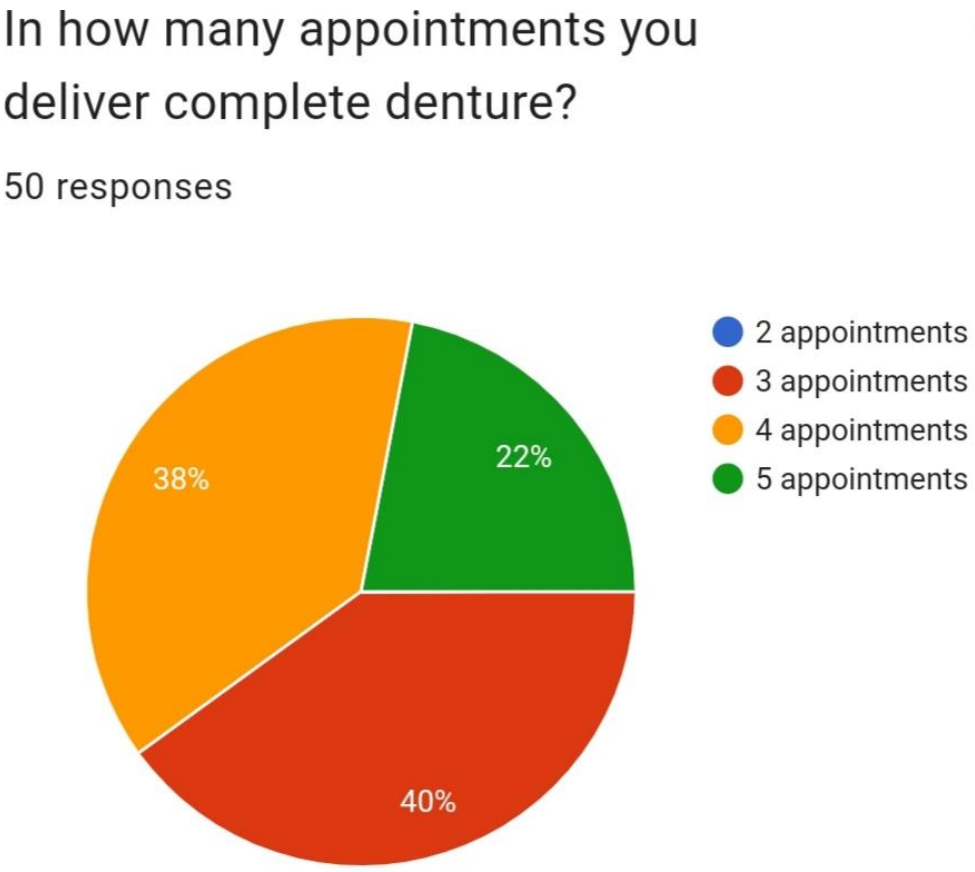
Almost all practitioners border moulded the custom tray before taking final record. Equal number of participants recorded the borders in sections as well as all together (47.9%) and 4.2% reported using both the techniques (Figure 13).

Figure 13:



Majority of the professionals deliver the CD within 3 to 4 appointments (Figure2).

Figure 2:



Only 4% and 10.2% don't incorporate wax spacers and tissue stops respectively (Figure 9, 10).

Figure 9:

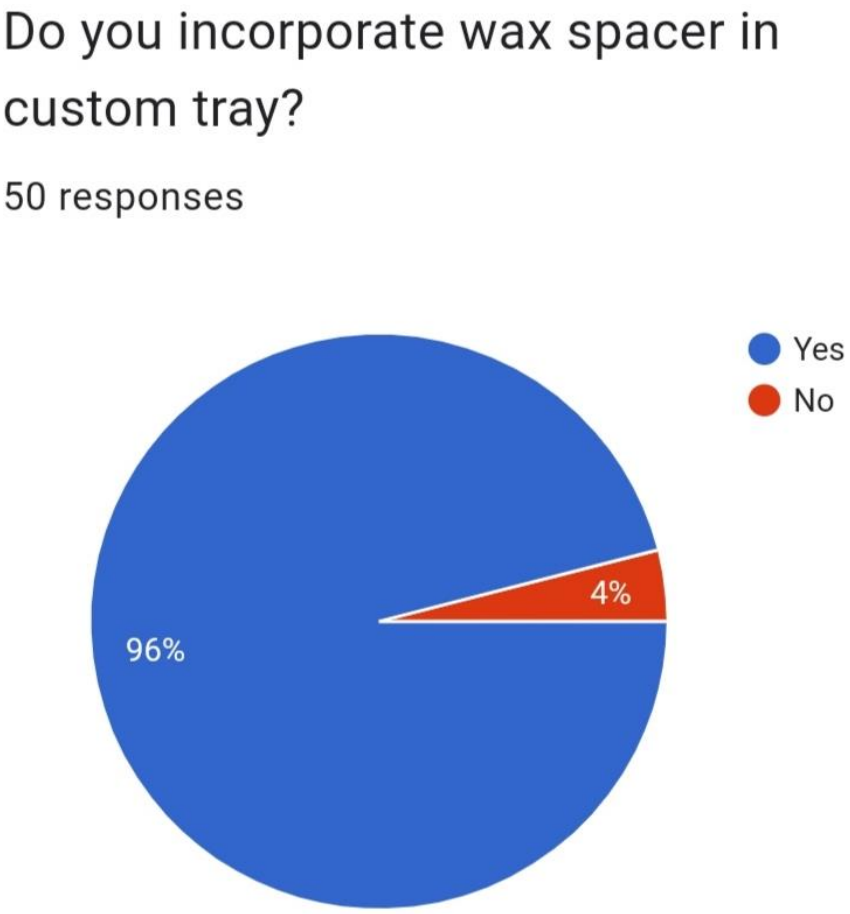
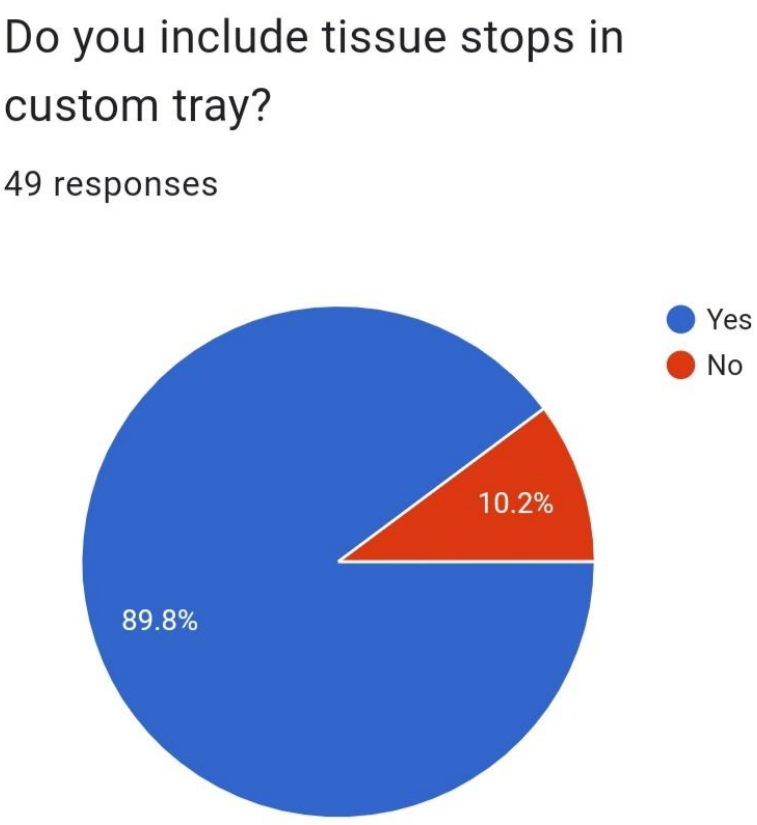
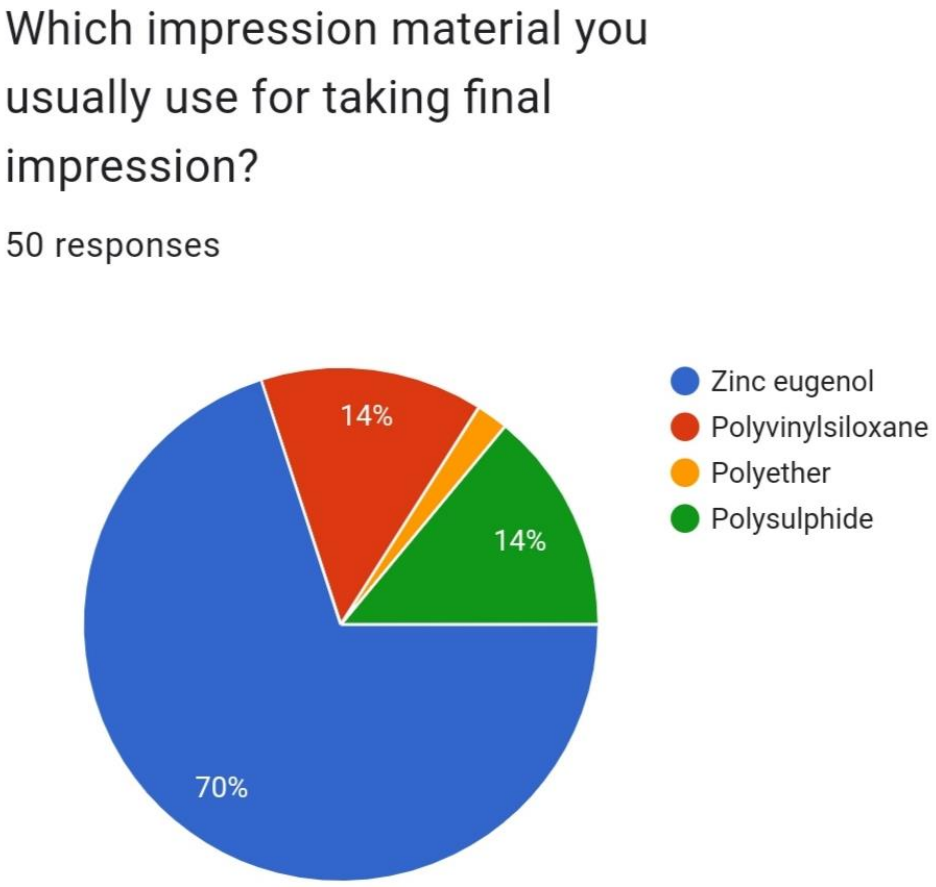


Figure 10:



It was seen that maximum prosthodontists used zinc eugenol impression paste (70%), polyvinylsiloxane (14%), polysulphide impression material (14%) and polyether impression material (2%) (Figure 8).

Figure 8:



Limited practitioners use the authentic technique for measuring the depth and locating the PPS on the final impression i.e. T- Burnisher (20.4%) and Fluid wax (8%) respectively (Figure 11, 12)

Figure 11:

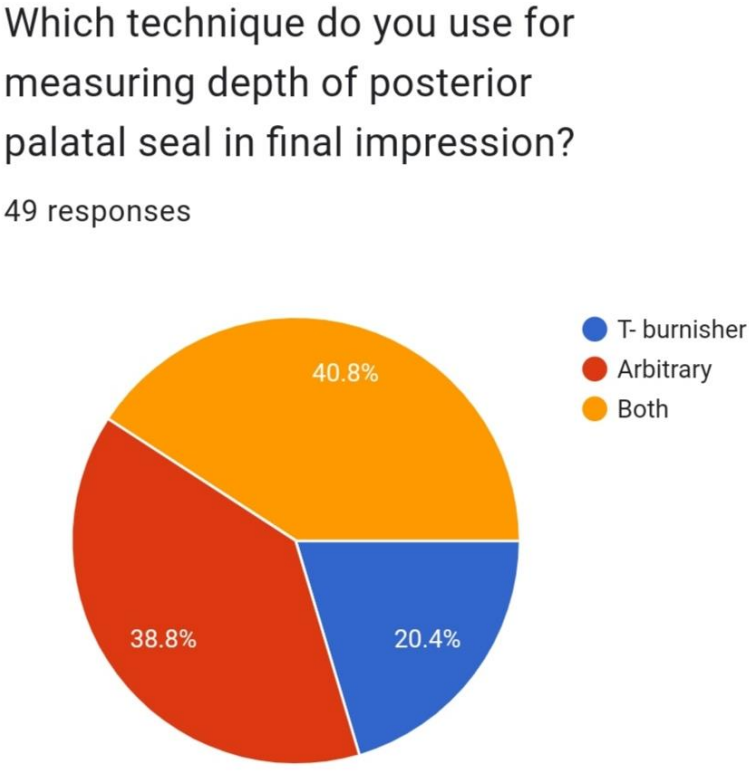
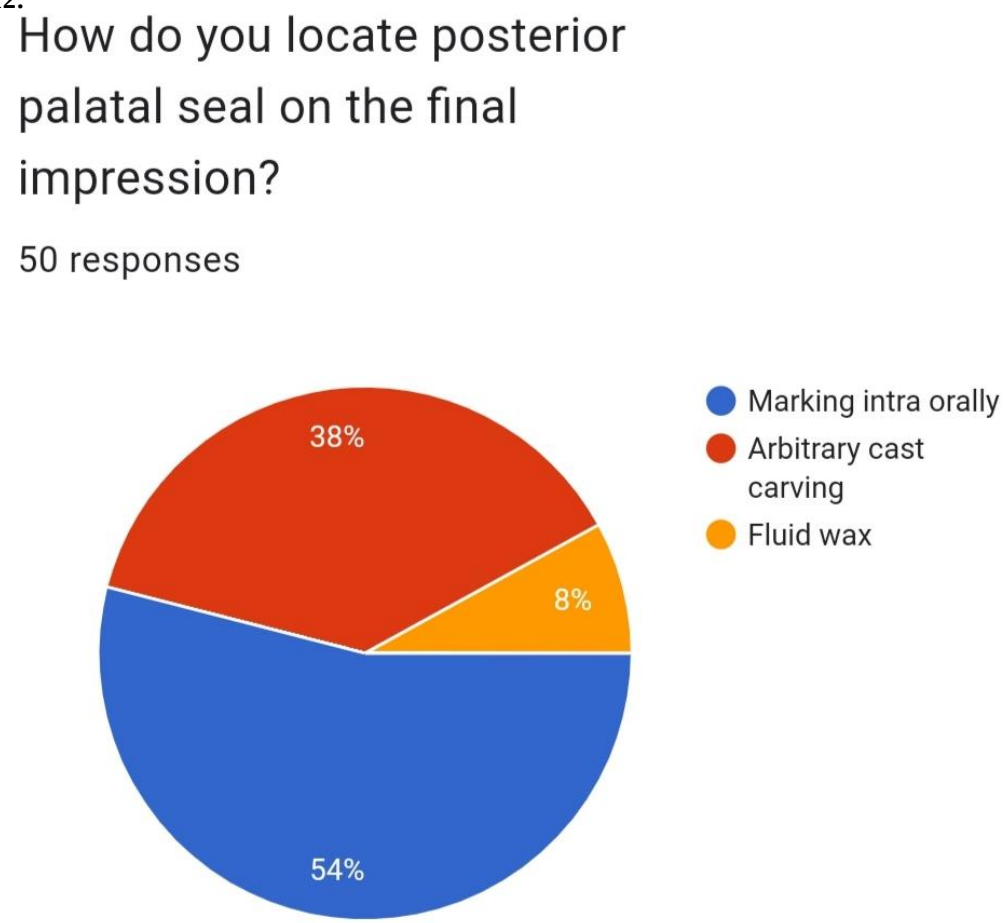


Figure 12:



DISCUSSION

An impression is defined as a registration of intraoral hard and soft tissues made with an impression material (3). The objectives of impression making are to capture all denture-bearing surfaces and tissues to provide support, retention, and stability for dentures to perform its adequate function (18). The sample of private dental practitioners provides a unique opportunity to determine the various prosthodontics techniques followed by them and to know the problems encountered by them while treating prosthodontic subjects.

The study showed that the majority of practitioners preferred alginate for taking primary impression while a way smaller percentage of them used impression compound. Currently, alginate is universally used impression material for primary impression (18). Several studies (4, 5, 6, 7, 8) have shown that to make an accurate impression and to achieve the objective of impression it is necessary to take two impressions (primary and secondary). It is also reported in many studies (9, 7) that impression compound in the material of choice for making preliminary impression but findings of the present study support that 80% of the practitioners used alginate instead of impression compound.

Several studies (8, 10, and 11) have suggested the use of adequate wax spacer over the entire denture bearing area with tissue stops which is contrary with the findings of the study as still 4% of the practitioners were not providing wax spacers and 10% of them were not incorporating vertical tissue stops.

In 2014, study conducted in Qassim They found that the majority of Qassim Prosthodontists participating routinely rinses and disinfects the preliminary/working impressions prior to sending them to the dental laboratory (12) Also in present study 56% of practitioners disinfect the final impression chemically before pouring it and sending it to lab.

In Nithin Kumar Sonnahalli et al.(14)study, 62.42% preferred flexible dentures, whereas prosthodontists preferred CPDs 62.84%, in G Singh et al.(13) study 480 (71.1%) did only acrylic partial denture, 10 (1.5%) did exclusive cast partial denture and 185 (27.4%) did both acrylic partial denture and cast partial denture. But in this present study, majority of them preferred the acrylic denture (68%) and only small amount of prosthodontics prefer flexible (14%) and CPD (18%). This happened due to the less awareness among the patients regarding the flexible and cast partial denture.

In the present study almost equal preference is for both metal (42%)and stock metal trays (58%) for preliminary impressions as mentioned in the recent study of postdoctoral prosthodontic curriculums in the

US revealed that there was almost equal preference for both metal and plastic trays (15) but Preference of using stock metal trays for preliminary impression has been cited in previous studies (16,17)
The possible explanation for the preferred use of zinc oxide eugenol could be its cost effectiveness and the difference in teaching in dental schools.

CONCLUSION

From the present study it can be concluded that majority of the private dental practitioners follow shortcuts like use tap water for disinfecting impression, don't generate awareness about the CPD and flexible RPD and many of them follow their own convenient method for the treatment of prosthodontics problems.
But the results showed following fascinating trends. Firstly, majority of respondents used irreversible hydrocolloids (alginate) for primary impressions. Secondly, practitioners are aware about the infection control that's why majority of the preferred 2% gluteraldehyde. Thirdly, the largely used impression philosophy among respondents was mucocompressive impression theory. Lastly, the material of choice for final impression was zinc oxide eugenol impression paste.

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