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# Attitude of Dental practitioners Towards Complete Denture Impression Procedures

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**ABSTRACT**

Although material choice usually relies on personal preference and experience, but following the predefined steps during complete denture constructions guarantee a successful treatment. This study aimed to identify the attitude of dental practitioners towards complete denture impression procedures. 200 questionnaires were distributed among general practitioners in Tabriz, Iran. The structured questionnaire consisted of 8 multiple-choice questions on the preferred impression material for primary and final impressions, types of impression tray, and impression technique. Data were analyzed by using frequency distribution. 73.8% of respondents used alginate for making primary impression and only 3.8% preferred impression compound. 75.1% favored the use of custom impression trays and 69.9% border molded the tray with green stick compound. Polyvinylsiloxane, zinc oxide eugenol, and alginate were selected as final impression materials in respectively 45.6%, 32.9%, and 13.2% of responses and the most common impression technique was selective pressure. Most practitioners followed the traditional techniques of complete denture impression procedures; however, an increase in the preference for polyvinyl siloxane impression materials was seen.

**Key words:** Custom tray, Impression technique, Impression Material.

## INTRODUCTION

Proper impression procedure is essential to obtain good retention and peripheral seal and provides support and stability for complete denture[1,2]. Ideally, the established borders of final impression should be similar in thickness and length to denture flanges[1,3,4]. Following the predefined sequential steps ensures a successful complete denture[3,5,6]. These include primary impression, custom tray construction, border molding, and final impressing. Methods of Impression making have evolved with the introduction of new material and techniques; currently a wide range of materials and techniques are available for various clinical situations which mandate the complete understanding of impression concepts and principles. Despite the advances, material choice usually relies on personal preference and experience[7]. The current study aimed to identify the attitude of dental practitioners towards complete denture impression making.

## METHODS

The structured questionnaire was designed to collect the data. The initial draft of the questionnaire was created using previous studies and refined with the aid of experts and practitioners. Final questionnaire included 8 multiple-choice questions about the primary and final impression procedures. The first part of the questionnaire considered the general items such as demographic information, types of practice, and years of experience. The second part consisted of 8 multiple-choice questions on the preferred impression

material for primary and final impressions, types of impression tray, and impression technique. Questionnaires were distributed to a random sample of 200 general practitioners in Tabriz, Iran. Descriptive analyses were conducted to analyze all items on questionnaire using SPSS statistics software.

## RESULTS

A total of 173 questionnaires were collected and the overall response rate was 86.5%. Regarding the primary impression procedures, 62.3% preferred plastic edentulous stock trays while 28.4 % used metal edentulous stock trays. Alginate was the most common material used for making primary impression (73.8%) and only 3.8% of practitioners indicated using impression compound (Table1).

Regarding the final impression procedures, the great majority (75.1%) of the respondents favored the use of custom impression trays and autopolymerizing resin was the preferred material (49.2%). Most of the respondents (69.9%) border molded the tray with green stick compounds; other materials such as wax, polyether, and polyvinyl siloxane were mentioned in 30.1%. Based on the responses, 45.6% of final impression materials were polyvinyl siloxane, 32.9% zinc oxide eugenol, 13.2% alginate and 6.9% polyether. The most common impression technique was selective pressure (38.7%) followed by functional method (27.1%) and only 19.6% employed mucostatic philosophy.

**Table 1: Participants responses regarding complete denture impression procedures.**

| No | Question | choices | N (%) |
|---|---|---|---|
| 1 | Do you make primary impressions? | Yes | 130(75.1) |
| | If no, proceed to Q4. | No | 43(21.5) |
| 2 | What type of tray is used for making primary impression? | Stock plastic | 9(6.9) |
| | | Stock plastic edentulous | 81(62.3) |
| | | Stock metal | 3(2.3) |
| | | Stock metal edentulous | 37(28.4) |
| 3 | Which material do you use to make primary impressions? | Impression compound | 5(3.8) |
| | | Alginate | 96(73.8) |
| | | Others ( please specify) | 29(22.3) |
| 4 | Which type of tray do you use for final impression? | Stock plastic edentulous | 28(16.1) |
| | | Stock metal edentulous | 15(7.5) |
| | | Custom | 130(75.1) |
| 5 | Which material do you use for custom tray fabrication? | Autopolymerizing resin | 64(49.2) |
| | | Light cure resin | 43(33.10 |
| | | Base plate | 23(17.6) |
| 6 | Which material do you use to carry out border molding? | Green sticks | 121(69.9) |
| | | others | 52(30.1) |
| 7 | Which material do you use for final impression? | Alginate | 23(13.2) |
| | | Zinc oxide eugenol | 57(32.9) |
| | | Polyvinylsiloxane | 79(45.6) |
| | | Polysulfide | 2(1.1) |
| | | polyether | 12(6.9) |
| 8 | Which technique do you use for final impression? | Functional | 47(27.1) |
| | | Mucostatic | 34(19.6) |
| | | Selective pressure | 67(38.7) |
| | | Not known | 25(14.4) |

## DISCUSSION

The impression procedure of complete denture is a critical step which customizes the prosthesis to the optimal denture-supporting area and ensures a peripheral seal. Preliminary impression is made with various impression materials from modeling compound to alginate in a stock metal tray. Currently, there has been an increase in the use of high viscosity irreversible hydrocolloid as a primary impression material due to its availability and working properties[8–13]. The current study showed that the majority of practitioners preferred alginate for making primary impression while a much smaller percentage of them used impression compound. Previous studies in UK, India, and America revealed the similar tendency among clinicians to employ alginate impression materials.

Green stick compound is commonly utilized in predoctoral training programs. 95% of US dental schools and 81% of North American dental students used green stick modeling compound[13,10]. Other materials such as elastomeric impression materials are gaining popularity as alternative border molding materials[12]. Although these materials make it possible to record all the borders simultaneously in a single stage, but modeling compound still constitute the major preference of most clinicians. In the current study the most reported border molding material was green stick modeling compound. Similarly, 67% of the American college of prosthodontists members border molded the custom tray with modeling plastic[13].

Polyvinyl siloxane impression material was the most preferred material of the participants. This is in accordance with the most recent surveys. Conversely, a survey in UK showed the preference of practitioners towards alginate impression materials followed by ZOE paste[14]. Polysulfide was preferred in other surveys conducted in north American dental school and UK[10,9] and polyether in US dental schools[13]. Although the studies regarding the materials for final impression procedures are heterogeneous, previous studies in the literatures indicated that the tendency is shifted towards the elastomeric impression materials. Long term dimensional stability, proper working, and significant improvement in their properties are the reason of the recent increase.

Consistent with the previous surveys[13,15,16,3,11], selective pressure philosophy was the most common employed technique among the participants. The theory is based on the anatomical differences and load bearing capabilities of the edentulous arches[1,5,17]. Certain areas of the denture bearing area cannot tolerate the forces and require relief while forces are predominately applied to primary stress bearing area[1].

## CONCLUSION

This study explained the current trends of general practitioners regarding impression procedures in complete dentures. Majority of the participants made use of green stick modeling compounds for border molding custom impression trays. Moreover, the most common primary and final impression materials were alginate and polyvinylsiloxane respectively.

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