

Complete Denture Impression Procedures and Techniques Performed by Dentists in Madhya Pradesh : A Survey

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ABSTRACT

The aim of this study was to identify the attitude and practices of dentists towards impression procedures in complete denture fabrication. For this purpose 18 self-designed close ended questionnaire survey form were prepared. Ethical clearance was taken from the institute and only those the participants who had submitted the response were included in the survey. 500 questionnaires were distributed at Indore city and only 100 were analyzed, 400 responses were disqualified as participants did not attempt all the questions or participants had marked more than one answer. It was found that about 100% of practitioners claimed that they fabricate complete denture. Majority of responses; about 96% reported that they perform both primary and final impression for complete denture. For making primary impression 75% of practitioners used impression compound. All the practitioners responded positively for making final impression with custom trays. For fabricating custom tray, 60% used self-cured acrylic resin. 84% used Selective pressure impression technique for taking final impression. The survey concluded that the historic concepts of impression making still hold importance and practitioners still use the trends established long back.

KEY WORDS: complete denture, impression material, impression technique, practitioners.

INTRODUCTION:

Fabrication of complete dentures include various steps that include primary impression making, border moulding, final impression, laboratory procedures, jaw relation, teeth selection, teeth arrangement, try in stage and denture insertion. Accuracy in the fitting of the denture is achieved only if all the procedures are performed properly. However, dentists have their own level of convenience in performing the procedures. The interns, who are in the final year of the dental undergraduate course are expected to have enough competence to proceed with their private practice. This level of competence can be evaluated based on the perception of interns about themselves in performing various dental procedures. Also, these kinds of studies may reveal the strength and weakness of the education system itself since

student reviews are the most essential component of monitoring the quality of education^[1].

Many dental graduates who move overseas find it difficult to face the clinical tests and other tests for entry into the institution^[2].

The possible reason for this being the low levels of competence with respect to the field of work. For facing the current scenario, a learning system that takes the students towards achieving competence is needed and evidence based learning is practiced popularly worldwide. Combination of knowledge and attitudes with reliable performance in natural settings without assistance is what makes a graduate competent. When the students attain enough competency, it incorporates in them a positive attitude and confidence to work independently^[3].

Literature reveals that dentists are the main source of information for the patients^[4].

So, it is essential that the dentist has a thorough knowledge about the procedures. This study evaluates the level of confidence of dental interns in performing each of these procedures through a questionnaire. The study also evaluates the knowledge about the materials involved.

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MATERIALS & METHODS:

The study was conducted in the Department of Prosthodontics of RKDF Dental College and Research Centre after taking approval from the institutional Ethical Committee. The study population included dentists practicing in Madhya Pradesh. The online questionnaire was used for collection of data. The sample size calculated was 100.

The questionnaire had 18 questions that would reveal the attitude and practice of dentists towards the preparation of complete denture. The questions were arranged in order of the steps involved in complete denture fabrication. The questionnaire was mailed via google forms to interns from various colleges in Madhya Pradesh. Question papers were mailed to about 500 interns, and the first 100 completed question papers were used for research. The collected data was tabulated, and analyzed using the Statistical Package for Social Sciences software, SPSS version 22.0 (IBM Corporation, Statistical Package for the Social Sciences. N.Y., USA).

RESULTS:

The results stated that about 100% of practitioners claimed that they fabricate complete denture. Majority of responses; about 96% reported performing both primary and final impression for complete denture. For making primary impression 75% of practitioners used impression compound, 24% used alginate impression material. All the practitioners responded positively for making final impression with custom trays. For fabricating custom tray, 60% used self-cured acrylic resin, 38% used shellac base plate and 2% used light cured resin. 70% participants preferred to fabricate custom trays few hours before the procedure and 30% preferred few days before the procedure to avoid warpage. Regarding the spacer design 70 % used full spacer with tissue stops. Most common material for spacer was base plate wax (70%) followed by spacer wax (25%). The preferred type of handle design by 56% of the practitioners was L- shaped. All the participants responded positively for border moulding. The border moulding material used by 77% was low fusing impression compound while 23% used putty (rubber base material). 84% used Selective pressure impression technique, 15% followed mucostatic technique and 1% used muco- compressive technique. For making final impressions 73 % uses ZnO-E or non Eugenol pastes. For the disinfection of the impression 43% used lutaraldehyde as the disinfectant for impression.

DISCUSSION:

This survey was conducted to relate the theoretical procedures of impression making in complete dentures with the trends followed in clinical practice nowadays. In this survey, every practitioner responded positively for complete denture fabrication. This trend suggested that the complete denture fabrication which was an age old form of treatment, still the preferred treatment of choice for completely edentulous ridges^[5,6].

Majority of the dentists performed both primary and final impression for complete denture fabrication. These results were supporting the previous surveys^[5,7]. The most commonly used preliminary impression material in this survey was impression compound (75%); irreversible hydrocolloid was used by only 24% respondents. This is consistent with the result of past surveys^[5,7].

However, there has been decline in its use in primary impression due to difficulties in handling and unreliable sterilization in case of reuse. This result does not match with another surveys, carried out in other four major cities of India (which concluded that a majority (71%) use alginate for preliminary impressions^[6]) and survey from UK, US and Turkish dental school (use of alginate as the primary impression material of choice^[8-10]).

100% practitioners responded positively for making final impression with custom trays. This was in agreement with previous surveys^[5,7,8,10,11]. The choice of material for making custom tray is cold cure acrylic resin. The special tray should be rigid and dimensionally stable. In similar surveys in US of prosthodontists and dental schools, almost all use custom trays madeup of cold cure^[5,6]. The survey conducted in US, showed 70% of dentist used VLC trays for final impression^[9]. Visible light cured acrylic resin has lower residual monomer content, improved flexural strength and fracture toughness and offer advantages of rigidity, biocompatibility, accuracy and easy fabrication over cold cured trays^[1,2].

There was preference [70%] to fabricate custom trays a few hours before the procedure. This statement was in agreement with Gujrat survey^[5].

This was in contrast with previous U. S. survey, where 73% respondents fabricated custom trays few days before the procedure to prevent distortion by polymerisation shrinkage^[9].

Tissue stops helped in proper vertical orientation of the tray and maintained the thickness of impression material. This result was supported by many authors^[13,14].

Question	Responses	Percentage
Do you normally fabricate complete denture or not?	Yes	100
	No	0
Do you perform both preliminary and final impression for complete denture prosthodontics?	Yes	96
	No	0
	Not always	4
What material do you use for making primary impression?	Impression compound	75
	Irreversible hydrocolloid(alginate)	24
	Impression compound and Irreversible hydrocolloid	0
	Any other materials	1
Do you use special trays for making final impression?	Yes	100
	No	0
What is the tray material you normally used?	Shellac base plate	2
	Self-cure acrylic resin	60
	Light cure acrylic resin	38
	Any other material	0
When to fabricate custom trays to avoid warpage?	Few days before the procedure	70
	Few hours before procedure	30
	Any other	0
What spacer design do you prefer?	Full spacer with tissue stops	70
	Full spacer without tissue stops	20
	Any other design	10
Which material do you use for spacer in special tray?	Spacer wax	25
	Base plate wax	70
	Any other	5
How much relief do you normally provide in a special tray?	One layer of spacer wax	56
	Two layers of wax	44
	Relief only in undercut areas	3
	No relief	1
Do you specify your technician regarding handle design of special tray?	Yes	66
	No	34
What type of handle design do you prefer?	L- shaped	56
	Stub shaped in centre	36
	Stub in premolar region	8
Do you regularly do border moulding?	Yes	100
	No	0
What material do you prefer in border moulding?	Low fusing impression compound	77
	Polysulfide	0
	Polyvinyl siloxane	0
	Polyether	0
	Any other material	23 Putty
Which impression technique do you follow regularly?	Mucocompressive technique	84
	Mucostatic technique	15
	Selective pressure technique	1
	Zinc oxide Eugenol impression paste	73
Which impression material do you prefer for making final impression?	Light body elastomeric material	19
	Any other	8
	1-2	52
What are the number of escape holes do you make in custom tray?	2-3	27
	3-4	21
Do you disinfect your impression?	Yes	61
	No	39
What disinfectant do you use normally?	Alcohol	8
	Glutaraldehyde	43
	Sodium Hypochlorite	18
	Any other	31 (Tap water)

For spacer material results were constant with U.S. survey where they preferred base plate wax as a spacer material in custom tray^[15]. Results were similar with previous clinical reviews^[13,16,17].

The selective pressure impression philosophy predominantly used for making of final impressions. This theory was based on the anatomical differences and load bearing capabilities of the underlying structures. Previous surveys have shown the similar findings^[4,5,7,8,10,12,13,16,18,38].

For the final impression materials the results were constant with previous surveys where final impression was recorded with a wash material like ZOE paste or non eugenol impression paste. Light body elastomer can also be used^[5,7,10,18]. For the disinfection of the impression, majority were responded positively and coincided with Alqattan WA^[12], Vohra Fet al^[8] and Ferreira FM et al^[19].

CONCLUSION:

The present survey concluded that complete denture prosthesis is fabricated by most of the practitioners. Most of the practitioners are making primary and final impressions. The impression compound is the material of choice for making primary impression. All the participants are making final impression with custom tray made up of self-cure acrylic resin. Full spacer with tissue stops design is preferred using one layer of base plate wax. Border molding and Selective pressure impression technique followed by majority of practitioners for making final impression using zinc oxide Eugenol impression paste.

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