

# Knowledge and Self Perception among Dental Students (Interns) about Procedures Involved in Complete Denture Fabrication.

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## Abstract

### Background:

In dentistry, one can gain knowledge only when they are students after which working in a private clinic or anywhere else will demand application of their skills in a wholesome manner. Questionnaire based assessment of how much information the students have gained will serve as a tool in evaluating the competency of interns and also the efficiency of dental education.

### Aim:

To evaluate the knowledge, level of confidence and convenience of interns in performing various procedures in complete denture fabrication.

### Methodology:

A questionnaire survey was designed for interns using a five point grading scale. The questionnaire had 18 questions about procedures and materials involved in the fabrication of complete dentures. The subjects involved were interns (n=100) who had completed four years of dental education. Questionnaires were distributed to the interns and Data analysis was done using spss software.

### Results:

The overall confidence percentage was observed to be 44%. The results were analysed separately for the procedures involved- diagnosis, impression making, border moulding, jaw relation, teeth setting and processing of dentures and was found that the interns were very confident with the diagnosis and impression making procedures.

### Conclusion:

The confidence levels of the dental interns about the procedures involved in complete denture is lower. Increase in the clinical time along with providing added information on the subjects of least confidence will help the interns achieve higher self-perception and confidence leading to a successful private practice.

**Keywords:** Complete Denture, Competence, Fabrication, Interns, Knowledge, Procedures.

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## 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<sup>(1)</sup>. Many dental graduates who move overseas find it difficult to face the clinical tests and other tests for entry into the institution<sup>(2)</sup>. 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 practised popularly worldwide.

Combination of knowledge and attitudes with reliable performance in natural settings without assistance is what makes a graduate competent<sup>(3)</sup>. When the students attain enough competency, it incorporates in them a positive attitude and confidence to work independently<sup>(4)</sup>. Literature reveals that dentists are the main source of information for the patients<sup>(5)</sup>. 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.

## MATERIALS AND METHODS

The study population included 100 dental interns in Chennai city who have completed four years of dental education. A questionnaire was prepared using a five point grading scale (**Table 1**). The questionnaire had 18 questions that would reveal the level of confidence and knowledge of the interns about complete denture. The questions in the questionnaire were arranged in order of the steps involved in complete denture fabrication, starting from diagnosis till the management of sequelae of wearing complete denture. Ethical clearance to carry out the study

was obtained from the Institutional Review Board. The questionnaire was mailed via google forms to interns from various colleges in Chennai. All 100 respondents filled in the questionnaire completely. The grading scale was marked as follows: **0-never done before/not aware, 1-very low confidence /hardly aware, 2-low confidence, 3-confident, 4-very confident.** The collected data was tabulated, and analyzed using the Statistical Package for Social Sciences software, SPSS. A chi-square test was used to evaluate the confidence levels in various procedures in complete denture fabrication.

### RESULTS

The Percentage of various scores for each question was calculated and tabulated. The following results are the implications of the scores 3 and 4 (confident and very confident respectively):

**Diagnosis of an edentulous patient:** 40% of the interns consider MM House classification of mental attitude often in the diagnosis of an edentulous patient. 18% consider radiographic findings in their diagnosis. 71% of the interns do a complete intraoral and extraoral examination before starting the procedure. 7% are quite confident about performing pre prosthetic procedures.

**Impression making:** 68% of the interns are confident about getting a proper impression in the first trial. 49% are able to select the appropriate impression materials for the edentulous patient. 40% are aware of the various spacer designs available for the impression. 42% are aware of the techniques for recording posterior palatal seal in secondary impression.

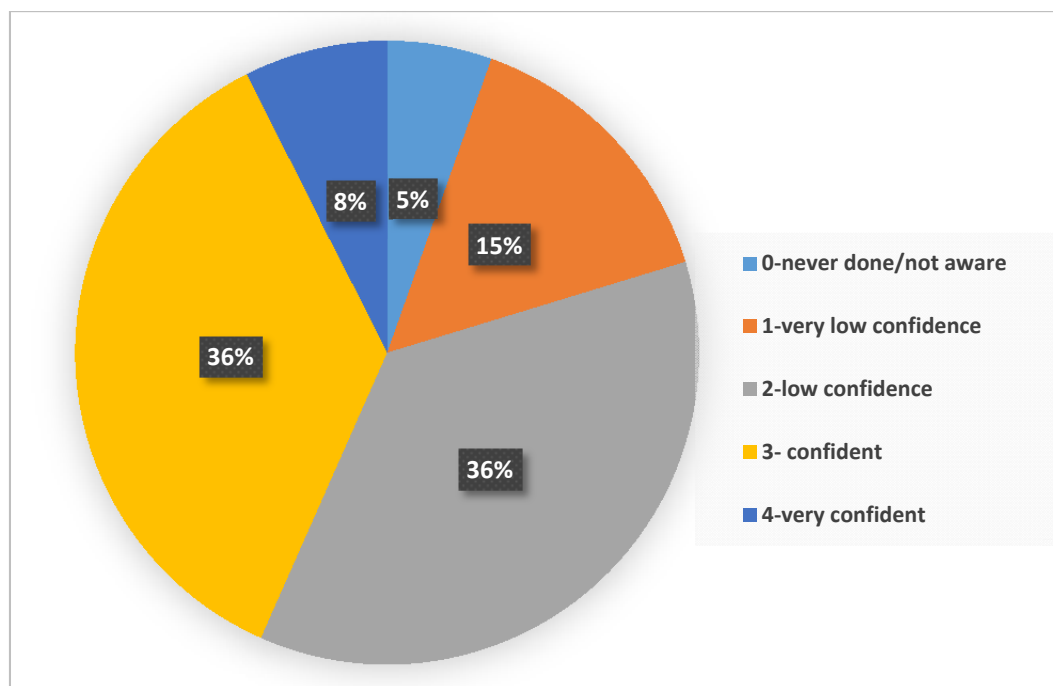
**Border moulding:** 40% are confident about their awareness about border moulding techniques and 66% are aware of the different materials available for the border moulding procedure.

**Jaw relation:** 40% of the interns can perform the three jaw relations confidently. 26% are comfortable in locating the hinge axis using facebow.

**Teeth setting and processing of the prosthesis:** 25% of the interns are aware of the commercially available teeth sets. 52% and 44% are confident in selecting the correct anthropometric method of anterior teeth selection and the correct processing techniques respectively. 47% of interns are aware of denture cleaning aids and 32% interns have confidence in managing the sequelae of wearing complete denture.

**Table 1: Sample Questionnaire**

Questions	0	1	2	3	4
1) How often do you consider MM house classification of mental attitude for diagnosis of edentulous patient?	6%	12%	22%	24%	16%
2) How often do you consider radiographs in diagnosis of an edentulous patient?	12%	31%	39%	14%	4%
3) How thoroughly do you do a complete intraoral and extra oral examination before starting the treatment?	2%	4%	23%	44%	27%
4) Are you confident in performing the pre prosthetic procedures( like frenectomy, ridge augmentation/extension, removal of tori)	28%	32%	33%	6%	1%
5) How confident are you about getting a proper impression in the first trial?	0%	12%	22%	52%	14%
6) How confident are you in selecting various impression materials available for edentulous patient?	1%	11%	39%	46%	3%
7) How much are you aware of various spacer designs to be used for the impression procedure?	2%	22%	36%	37%	3%
8) Score your awareness about simultaneous and sectional border moulding techniques?	1%	11%	34%	44%	10%
9) Score your awareness on different materials available for border moulding.	3%	11%	20%	56%	10%
10) How confident are you in selecting various techniques available for recording the posterior palatal seal in secondary impression?	1%	8%	49%	41%	1%
11) How confident are you in locating the hinge axis using facebow?	15%	21%	38%	23%	3%
12) How confident are you in performing the three types of jaw relations?	5%	12%	24%	36%	6%
13) Score your awareness on the commercially available denture teeth set in the market.	1%	26%	48%	23%	2%
14) How well are you aware of selecting various anthropometric methods for anterior teeth selection?	5%	8%	40%	44%	8%
15) How confident are you in selecting various processing techniques available .(eg. Compression technique/impression moulding technique)	6%	11%	39%	36%	8%
16) How much are you aware of various denture cleaning aids?	1%	4%	48%	37%	10%
17) How confident are you in managing post - insertion denture problems?	5%	14%	47%	29%	3%
18) How confident are you in managing the effects of sequelae of wearing complete denture?	3%	13%	45%	35%	4%



**Figure 1: Percentage Of Individual Scores**

On comparative analysis of the results, the interns had the least confidence in locating the hinge axis using facebow and in performing pre prosthetic procedures. A low level of confidence was found in the following aspects: use of radiographs for the diagnosis of edentulous patients, selecting various spacer designs used in the impression procedure, selecting various techniques available for recording the posterior palatal seal, knowledge about the commercially available teeth sets, selecting various processing techniques, knowledge about various denture cleaning aids and managing post-insertion denture problems and sequelae of wearing a complete denture. The interns were confident about the intraoral and extraoral examination and diagnosis of an edentulous patient, impression making, knowledge about impression material selection, border moulding, performing jaw relation and teeth selection. The percentage of individual scores obtained were 5.33%, 14.60%, 35.70%, 35.30% ,7.30% for the scores 0,1,2,3 and 4 respectively (Figure 1).

#### DISCUSSION

In this study, the overall percentage of score 2 (low confidence) and score 3 (confident) are equal. This gives an inference that the interns have an intermediate level of confidence (neither high nor low). The intermediate levels of confidence was observed in these fields: use of radiographs for the diagnosis of edentulous patients, selecting various spacer designs used in the impression procedure, selecting various techniques available for recording the posterior palatal seal, knowledge about various denture cleaning aids and managing post-insertion denture problems and sequelae of wearing a complete denture. It is important to view in detail on the least confident areas: performing pre prosthetic procedures and

locating hinge axis using facebow in order to take steps towards increasing the competence of interns.

Pre prosthetic procedures are surgical procedures that can be routinely used in a dental clinic to improve the function of the final prosthesis. Some of the procedures are alveoplasty, Vestibuloplasty, Fibrous Tuberosity Reduction, Denture Fibrosis, Tori and Exostosis, Labial and Lingual Frenum and Oro-Antral Opening<sup>(6)</sup>. The least confidence in dental interns about this may be attributed to the rare occurrence of these cases. However, the dentist is required to be able to manage these cases before proceeding with denture fabrication. The face bow is a caliper like device that is used to record the relationship of the jaws to the temporomandibular joints or the opening axis of the jaws and to orient the casts in the same relationship to the opening axis of the articulator<sup>(7)</sup>. The failure to use facebow will lead to errors in occlusion. So, the use of facebow is of utmost importance in complete denture fabrication. Also, the step of facebow transfer, being a crucial step, should not be avoided for the reason that the articulator is not able to accept the facebow<sup>(8)</sup>. In this study, the interns were confident about diagnosing, performing a complete intraoral and extraoral examination and their skills in impression making. These are the basic steps which are common to dentistry as a whole and not confined to complete denture fabrication alone. However, when it comes to the actual procedures involved, the interns were unable to admit complete confidence. In a study by Vasanti Lagali-Jirge et al, 20% of the subjects were very confident about replacing missing teeth with complete denture while 61%,14% and 5% were confident, average and non confident respectively<sup>(9)</sup>. They had mentioned that the interns were quite confident about performing complete denture procedures when compared to performing a root canal treatment, third molar extractions, complications of

oral surgery, management of patients with systemic disease, medical emergencies, performing basic life support, fixed partial dentures (FPD). Another study by Punya Sekhri et al has reported the various perceived competencies in different branches of dentistry and 100% confidence was reported in fabrication of complete denture<sup>(10)</sup>. However, it is important to note that the study did not consider evaluating the competency in the individual steps involved. The study did not have any details on how the procedure was done. Usually, the students learn clinical skills in individual departments. This method has been replaced with an integrated curriculum in many dental schools so that the student can practice holistic patient care right from the beginning<sup>(11,12)</sup>. Studies have reported the benefits of integration of disciplines using case-based learning<sup>(13,14)</sup>. Changes are being made in the dental education periodically for the students to achieve competency in private practice. A study by J. Honey et al showed that the dental students were most confident in simpler procedures and procedures in which they had had most clinical experience. They were least confident in more complex procedures and procedures in which they had the least clinical experience<sup>(15)</sup>. So increase in the clinical time along with providing added information on the subjects of least confidence will help the interns achieve higher self-perception and confidence leading to a successful private practice.

#### CONCLUSION

The percentage of low confidence level was significantly higher than expected as observed in the overall results indicating that there are procedures and information about complete denture that remains unknown to the interns. The unknown aspects about the steps in fabrication of a prosthesis may negatively influence the comfort of the patient. Changes in the undergraduate education system to focus on these aspects may facilitate the interns to be more confident about themselves and their work.

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