

## The Knowledge, Attitude and Practice of Fixed Prosthodontics: A Survey Among Dental Practitioners in Eastern Nepal

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### Abstract

**Introduction:** The aim of the study is to evaluate the knowledge, attitude and fixed prosthodontics practice guidelines amongst dental practitioners of Eastern part of Nepal.

**Materials and Methods:** A descriptive cross-sectional study was done among dental practitioners of Eastern Part of Nepal Practicing in Private Clinics and Dental Schools. A total of 250 dentists were selected randomly from private and public sectors and dental schools. A survey was conducted through a printed and online standard questionnaire with 18 open as well as multiple choice questions delivered to dental practitioners. All data were collected and coded, the statistical analysis was done using SPSS statistical software package. Descriptive statistics were used for data analysis.

**Result:** The study showed that 167 (66.8%) were males while 83 (33.2%) were females. 80 (32%) of dentists were practicing crown and bridge for 1-3 years, 88 (35.2%) of dentists were practicing crown and bridge for 4-10 years, 38 (15.2%) of dentist were practicing for 11-15 years while 44 (17.6%) of them were practicing for more than 16 years. Most of respondents 175 (70%) worked in private clinics. 90(36%) of participants fabricated study models before commencing fixed prosthodontic treatment. 190(76%) of participants always used radiographs for abutment tooth evaluation. Vitality test for restored abutments were always done by 115 (46%) respondents. Majority of respondents 200 (80%) were using high-speed hand pieces and diamond bur during preparation 130 (52%) While preparing of teeth for dental prosthesis. additional cured silicon was mostly used by most of the practitioners 110 (44%) for making final impression with a Putty and wash techniques 183 (73.2%).165 (66%) participants used wax for bite registration, 100 (40%) of respondents always used retraction cord and 08(43.2%) practitioners never give provisional crown and bridges. Both written prescriptions and verbal communications were used during communication between dentist and lab by 175 (70%) respondents

**Conclusion:** The dental practitioners of Eastern part of Nepal displayed acceptable level of knowledge and awareness regarding fixed prosthodontics practice. However, to further enhance efficiency and performance, an effort should be made to update the knowledge by conducting CDE on recent advances in dentistry and dental practices.

**Key words:** Attitude, Dental Practitioner, Fixed Prosthodontics, Knowledge

*Conflict of Interest: No*

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### Introduction

Teeth play a remarkable role in the maintenance of a healthy personality and self-image of an individual.<sup>1</sup> Tooth loss is psychologically disturbing experience, and is considered to be a significant event in the life of a person, often requiring psychological, biomechanical and social readjustment.<sup>2,3</sup>

Fixed prosthetic treatment restores form, function and aesthetic of the damaged or lost dentition and has been the most preferred modality of therapy.<sup>2,3</sup>

It provides exceptional satisfaction for both patient as well as the dental practitioner and transforms an unhealthy, unattractive dentition with poor function into a comfortable, healthy occlusion capable of providing years of service.<sup>4</sup>

Following diagnosis and treatment planning, FPD should be fabricated with meticulous preparation of the abutment teeth, appropriate soft tissue management, precise impression recording of the prepared and unprepared surfaces of the abutment, adequate temporization, critical evaluation of fit in metal trial and proper occlusion during cementation.<sup>3,5,6</sup>

This study was conducted to evaluate the knowledge, attitude and fixed prosthodontics practice guidelines amongst dental practitioners of Eastern part of Nepal.

## Materials and Methods

This descriptive cross-sectional study was done among dental practitioners in Eastern region of Nepal. Dentists were selected randomly from private and public sectors through simple random sampling. The study was approved by Ethical Committee of Nobel Medical College and Teaching Hospital, Biratnagar, Nepal. A total of 250 dentists participated in this study.

The survey was conducted through a printed and online standard questionnaire with 18 open as well as multiple choice questions delivered to dental practitioners. Questionnaire was prepared in English language. The questionnaire comprised questions to assess the knowledge, attitude, and practice of fixed prosthodontics among dental practitioners in the eastern part of Nepal, practicing in private clinics and dental schools that is adapted to Kannan *et al.*<sup>5</sup>

All the respondents were informed about the aims and objectives of study. After eliciting their consent in participation, the questionnaires were distributed. Adequate time was provided to fill the questionnaire. The response of practitioners was recorded, analyzed for flaws, checked for completeness and were taken up for assessment. The questionnaires consisted of two parts. The first part recorded gender, level of education, nationality, place of work and number of years of practicing experience. The second part evaluated the knowledge of standard guidelines to be followed by the practitioner in prosthodontics practice such as pre-treatment vitality tests, radiographic evaluation, type of tray used, type of impression, impression material and quality of communication with the dental laboratory technician.

After data was collected and coded, the statistical analysis was done using SPSS statistical software package. Descriptive statistics were used for analysis.

## Results

Total of 250 dentists participated in the study; 167 (66.8%) were males while 83 (33.2%) were females. 80 (32%) of dentists were practicing crown and bridge for 1-3 years, 88 (35.2%) of dentists were practicing crown and bridge for 4-10 years, 38 (15.2%) of dentist were practicing for 11-15 years while 44 (17.6%) of them were practicing for more than 16 years.

Among 250 respondents, 90 (36%) were newly graduated dentists (interns) and 160 (64%) were general practitioners. Most of the respondents [175 (70%)] worked in private clinics, 50 (20%) of them worked in dental schools and 25 (10%) of them worked in governmental hospitals [Table: 1].

90 (36%) of the respondents fabricated study models before commencing fixed prosthodontic treatment and 70 (28%) of them rarely fabricated, 76 (30.4%) of the them answered that they often

fabricate study models and 14 (5.6%) of them starts treatment without study models.

190 (76%) of the respondents always used radiographs for abutment tooth evaluation, 30 (12%) of them used it often, 20 (8%) of them used it rarely and 10 (4%) of them never used any radiograph before starting treatment [Table 2].

Vitality test for the restored abutments were always done by 115 (46%) respondents, 85 (34%) of them often used it and 22 (8%) of them never used it on regular basis [Table 2].

Majority of the respondents [200 (80%)] used high-speed hand pieces and 50 (20%) of them used both the high and low speed hand pieces during the tooth preparation. More than 50% of the dentists used diamond bur during preparation while 48% of them used both carbide and diamond burs during preparation [Table 2].

Addition silicon was used by most of the practitioners 110 (44%) for making the final impression which provides the level of quality of final impression, followed by condensation silicon [80 (32%)]. 40 (16%) of them preferred to make final impressions using alginate while 20 (8%) of them used other materials.

180 (72%) and 25(10%) of the respondents used stock trays and special tray respectively and 45 (18%) of them preferred to use both special and

stock try in their practice [Table 2].

Putty wash techniques were mostly used by the dentists [183 (73.2%)] who use elastomeric impression material. Single step technique was used by 35 (14%) of the respondents. Monophase material was rarely used 17(6.8%).

Majority of the respondents 210 (84%) always took bite registration for multiple teeth replacements. 9 (3.6%) of the respondents never and 9 (3.6%) of them rarely took bite registration. 165 (66%) participants used wax for bite registration, 45 (18%) of them used wax and silicon while 40 (16%) of them used silicone alone. [Table 2].

100 (40%) of the respondents always used retraction cord and 25 (10%) never used it. 108 (43.2%) of them never gave provisional crown and bridges while 15(6%) gave them post tooth preparation.

178 (71.2%) of the respondents disinfected the final impression chemically before fabricating cast and sending it to the lab, while 25 (10%) of them never disinfected it [Table 2].

Both the written prescriptions and verbal communications were used during communication between the dentist and the lab technician by 175 (70%) respondents while 50 (20%) of them provided only written instructions [Table 2].

**Table 1:** Demographic characteristics of sample.

Variables		Number of participants	N (%)
Gender	Male	167	66.8
	Female	83	33.2
Year of practice	1-3 years	80	32
	4-10 years	88	35.2
	11-15 years	38	15.2
	More than 16 years	44	17.6
Level of education	Interns	90	36
	General Practitioners	160	64
Place of work	Private clinics	175	70
	Dental schools	50	20
	Government hospital	25	10

**Table 2:** Response rate of the participants on different parameters evaluated

Questions asked to participants	Total, N (%)
Do you make study cast?	
Always	76 (30.4)
Often	90 (36)
Rare	70 (28)
Never	14 (5.6)
Do you take a preoperative radiograph for the abutment tooth?	
Always	190 (76)
Often	30 (12)
Rare	20 (8)
Never	10 (4)
Do you do vitality test for restored abutment?	
Always	115 (46)
Often	85 (34)
Rare	28 (11.2)
Never	22 (8.8)
Which type of hand piece do you use in the preparation?	
High speed	200 (80)
Low speed	0 (0)
Both of them	50 (20)
Which types of burs you usually use?	
Carbide bur	0 (0)
Diamond bur	130 (52)
Carbide and diamond burs	120 (48)
Which type of impression material do you often use for the final impression?	
Alginate	40 (16)
Additional cured silicon	110 (44)
Condensation cured silicon	80 (32)
Others	20 (8)
Which type of impression tray do you use for final impression?	
Stock trays	180 (72)
Special trays	25 (10)
Both of them	45 (18)
If you use elastomeric impression materials, which type of impression techniques do you use?	183 (73.2)
Putty and wash techniques	17 (6.8)
Monophase	35 (14)
Single step	15 (6)
Other	
If yes, which material do you use?	
Wax	165 (66)
Silicon	40 (16)
Wax and Silicon	45 (18)
Do you do interocclusal records (bite) for multiple teeth replacement?	
Always	210 (84)
Often	22 (8.8)
Rare	9 (3.6)
Never	9 (3.6)
Do you use retracting cord for soft tissue displacement before you take the impression?	
Always	100 (40)
Often	85 (34)
Rare	40 (16)
Never	25 (10)
Do you do Provisional or temporary crown or bridge after finishing the preparation?	92 (36.8)
Always	108 (43.2)
Often	35 (14)
Rare	15 (6)
Never	
Do you chemically disinfect the impression after your remove it from the patient mouth and before you pour it or send it to the lab?	178 (71.2)
Always	30 (12)
Often	17 (6.8)
Rare	25 (10)
Never	
What is your communication method with the dental technician?	
Written prescriptions	50 (20)
Verbal communications	13 (5.2)
Both written prescriptions and verbal communications	175 (70)
Other	12 (4.8)



## Discussion

Present survey showed that most of participants (90) 36% fabricated study models routinely before starting treatment. (76%) 190 of participants always used radiographs for abutment tooth evaluation. Vitality test for restored abutments were always done by 115 (46%) respondents. The study of Moldi E *et al.* (2013) was to integrate impression techniques evolved all over the years for fixed partial dentures and to know the techniques and materials which are used by the practitioners, they found that 29% practitioners do not take diagnostic impressions and proceeded with the tooth preparation after the clinical intraoral examination.<sup>7</sup> Mohamed AB *et al.* (2010) found that unacceptable practice in crown and bridge work was noted that the majority of the surveyed practitioners rarely used study casts (38.1%) and radiograph (35.6%) for the abutment tooth, Sixty eight (46%) of surveyed dental practitioner's never used vitality test for abutment tooth.<sup>8</sup> The results of the present study revealed that addition silicon impression material was mostly used, 110 (44%) for making final impression followed by condensation cured silicon, 80(32%) and 16(40%) preferred to make final impression using alginate which in contract to the results of questionnaire undertaken in Maharashtra state (2016) where 44% of participants used irreversible hydrocolloid, 26% used Condensation silicone, 23% used addition silicone, 5% use polyether, 2% uses polysulfide impression material[9]. Similar study conducted in Khartoum showed that alginate impression material, 101 (68.2%) was the most commonly used type of impression material by the surveyed dental practitioners while Condensation silicone 36 (24.3%) and addition silicone 11 (7.4%) materials were also selected.<sup>8</sup> In another study conducted in India (2013), they found that 55.46% use irreversible hydrocolloid and 44.54% use elastomeric

impression materials to make final impression.<sup>7</sup> Regarding Impression technique used for final impression, Putty-wash techniques were mostly used by dentists who used elastomeric impression material 183 (73.2%) in present study. Amruta et al found that impression technique practiced most commonly is single mix technique (48%); 28% used putty reline without spacer, 20% used putty reline with spacer and 3% used multiple mix technique.<sup>9</sup> Another study found that elastomeric impression technique practiced most commonly is putty reline with/without spacer (77.2%).<sup>7</sup> Similar study done in Khartoum state show that The putty and wash impression technique was the most recommended technique and it was selected by 38 dental practitioners (80%).<sup>8</sup> Regarding using retraction cord before taking final impression, Gadhavi *et al*, the aim of their study was to evaluate the use of various gingival displacement techniques prior to impression making in fixed partial dentures by the Prosthodontists in Vadodara, the result of their study show that 62% prefer the use of gingival displacement technique for successful clinical practice while 38% of them do not follow the procedure believing it does not make major difference in clinical practice.<sup>10</sup> also Moldi *et al.* found that 72.8% of practitioners use gingival retraction cord.<sup>7</sup> and in the other hand, Only 9.4% used retraction cord while 53.7% of the surveyed dental practitioners never adopted the use of retraction cords<sup>8</sup>, while in the present study 100 (40%) of respondents always use retraction cord and 15 (3.6%) never use retraction cord. Regarding using of inter-occlusal record. Maru K *et al*, the aim of their study was together information on selection, usage, and materials and methods employed in inter-occlusal records and their communication with the dental laboratory for restorative procedures practiced by dentists, their result showed that a significant number of dental practitioners (79%) use inter-occlusal recording materials

for the fabrication of crowns and bridge works. The most commonly used inter-occlusal recording material was wax (54.6%).<sup>11</sup> Wax was the most popular registration material, being selected by 100 dental practitioners (94.3%), followed by silicone 5 (4.7%) and silicone putty 1 (0.9%) [8]. In present study the majority of respondents, 210 (84%) always took bite registration for multiple teeth replacement and wax was the most used material for bite registration 165 (66%). Prevention of cross infection in dental practice in general and dental laboratory specifically should now be a routine in practice. In Khartoum state, 73% of the surveyed dental practitioners never disinfect the impression before being sent to the dental laboratory and they recommended that provide continuous dental education programmes for all dental practitioners especially in the practice of crown and bridge work [8]. Also, in present study 178 (71.2%) of respondents disinfect the final impression chemically before pouring it and sending it to lab. Many studies have demonstrated concerns about the quality of dentist technician communication. Poor communication between dental practitioners and dental technicians for fixed prosthodontics was cited in conducted in Khartoum showed that both verbal and written prescriptions (54%) were selected as a communication method between dental practitioners and technicians.<sup>9</sup> A survey conducted in Riyadh by Tulbah *et al.*, they evaluate the quality of communication between dentists and dental their result showed that the quality of communication between dentists and dental technicians in Riyadh can sometimes be inadequate, and governmental laboratories have a lower level of communication<sup>12</sup> and another study conducted in Qassim by Sedky N. in 2014, found that lack of communication between Prosthodontists and their dental technicians, reported a significant nonconformity of view between dental technicians and prosthodontics<sup>13</sup> While in the present study showed that

the in eastern Nepal dentists, 175 (70.1%) communicated well with the labs by giving both written and verbal instructions.

## Conclusion

The dental practitioners practicing in Eastern part of Nepal displayed an acceptable level of knowledge and a level of awareness of fixed prosthodontics practicing. However, to further enhance the proficiency, efforts should be made to encourage the practitioners to be aware of the advances in fixed prosthodontics practice through state-of-the-art continuous education programmes.

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