

COMPREHENSIVE ASSESSMENT OF DENTISTS KNOWLEDGE AND AWARENESS TOWARDS SURGICAL TEMPLATE USED IN DENTAL IMPLANT THERAPIES: A QUESTIONNAIRE BASED RESEARCH STUDY

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ABSTRACT

Aim: As a proven fact we know that treatment planning for implant that involves anatomical factors and prosthetic needs is mandatory to ensure a predictable rehabilitation. It also diminishes the overall likelihood of known post-treatment complications. The aim of this study was to evaluate the current knowledge and awareness about surgical template among general dental practitioner in an eastern Indian district. **Materials & Methods:** This study was wholly attempted on a cross sectional ideology. Here, authors have utilized a reframed questionnaire. All questions was selected and adjusted to meet the actual requirement and concept of present study. A total of 150 private dental practitioners of an eastern Indian district, were originally filtered and contacted for the study. Nonetheless, after considering few crucial aspects, this number was lastly reduced to 100. Authors performed the study by close ended questionnaire having questions about the current knowledge and awareness about surgical template. Response was recorded and data was processed statistically to evaluate the real-time knowledge and awareness level. **Results:** Statistical analysis was done using statistical software 'Statistical Package for the Social Sciences (SPSS)'. The recorded data was subjected to suitable statistical tests to obtain p values, mean, standard deviation, standard error an 95% CI. $P \leq 0.05$ was considered as statistically

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*significant. 89 participants believe that current dental syllabus is inadequate about the concepts of implant surgical template. Only 15 dentists have participated in any CDE/ Webinar/Demo/Hands-On on implant surgical template. 62 dentists think that usage of implant surgical template must be made compulsory for all dental clinics and hospitals. 42 dentists think that dental implant surgical template possibly will be proved as an definitive tool in implant dentistry and related researches. Only 10 dentists have actually used surgical template at their clinic/hospital. **Conclusion:** Within the limitations of the study authors concluded that dentists Knowledge and awareness about implant surgical template was at moderate levels.*

Key words: *Implant, Surgical Template; Awareness, Knowledge*

I. INTRODUCTION

It is an established fact that for a precise and optimal prognosis of implant therapy, exact implant placement is the sole criteria. Hence, defined treatment planning for dental implant which regard nearby anatomical structure; is deemed necessary to ensure a predictable quality treatment.¹ Moreover, implant therapy reduces the general possibilities of expected common post-surgical complications. Usually an ideal dental implant placement aids the right institution of favorable forces on the implants.² Though, in order to enhance the treatment success rate, it is required that the implants are being surgically placed in the logical and accurate way. To make certain a rational link between diagnosis, prosthetic planning and surgical phases, usages of direction transfer armamentarium is crucial. The concept of a steady transition to an implant retained prosthesis (commonly seen in full-mouth rehabilitation) typically involves a staged treatment concept. In this restorative approach, the installation of implants can sometimes be segregated into many phases.³ During a subsequent surgical phase of treatment, the pre-existing implants can serve as anchors for the surgical template. Surgical guides are used extensively to improve the correctness of implant placement. An ideal surgical guide must be made very carefully to offer optimal stability, rigidity and transparency. Literature has well evidenced different methods of manufacture for the surgical guide or template.⁴⁻⁷ The use of surgical guides to implant placement will unquestionably help the operator to generate biomechanically healthy implant locations. It also illustrates the operator about the implant body placement that offers the best combination of support for the repetitive forces of occlusion, esthetics and hygiene requirements.⁸⁻⁹ Using three-dimensional planning software, a virtual implant treatment plan can be made and transferred to the patient via surgical templates or surgical guides in implant surgery. The ideal implant position can be attained, and it helped to avoid damaging the surrounding anatomical structures. The aim of this study was to intricately evaluate the current knowledge and awareness about implant surgical template among general dental practitioner in an eastern Indian district.

II. MATERIALS & METHODS

This study was aimed to evaluate the existing knowledge and awareness about surgical template among general dental practitioner in an eastern Indian district. It was planned to conduct on the cross sectional and questionnaire model. Initially, the authors screened total 150 private dental practitioners of the district. However, it was reduced 100 after considering feasibility factors related to doctors. Addresses and other communication details of the general dental practitioners were gathered from the registry of the district society/association of dental practitioners. In the starting phases, authors noticed that there were total 156 registered in this society. Out of which, 36 were not involved in the clinical field, rest remaining was 120. 20 dentists have showed their non interest in the study. Consequently final sample included in the study was total 100 general dental practitioners of the studied district. Authors have critically processed the results and questionnaire response data of 100 clinicians. Authors had electronically delivered this questionnaire to the participating clinicians via their emails. The questionnaire was having total 8 questions arranged in very systematic manner. A period of one month was provided to dentists to express their feedback in the form of questionnaire. It was believed that the participating dentist will be providing true and real-time practical responses based on their personal experiences. The relative importance of the study was already discussed with the participants. The identity of the participants was kept confidential so as to meet the personal rights and ethical mythologies. This was also done to guarantee the private policy aspect related to studied clinicians. Informed consent was obtained from the participating clinicians those were eagerly ready for involvement. The significance of this study was explained in detail to all general dental practitioners. Results thus obtained was tabulated and subjected to basic statistical analysis. P value less than 0.05 was considered significant ($p < 0.05$).

III. STATISTICAL ANALYSIS AND RESULTS

Responses which observed from questionnaire work out were sent for statistical analysis using statistical software Statistical Package for the Social Sciences version 21 (IBM Inc., Armonk, New York, USA). The resulting data was subjected to suitable statistical tests to obtain p values, mean, standard deviation, chi- square test, standard error and 95% CI. Table 1 and Graph 1 showed that out of 100 practitioners, males were 70 and females were 30. Total 12 practitioners were belonging to age group >70 years. 17 practitioners were related to the age range of 41-50 years. Total 25 practitioners were belonging to the age range of 31-40 years. Total 20 practitioners were belonging to the age range of 61-70 years. P value was significant in group I of age range 31-40 years. Valuations of Questionnaire responses showed noteworthy responses. Here p value was also noticed to be significant ranges (Table 2). 63 dentists were found to be familiar with usages of surgical template in implant procedures. 72 dentists think that surgical template is deemed necessary for implant procedures. 54 participants think that surgical template is a successful key factor in accurate drilling site detection. 89 participants believe that current dental syllabus is inadequate about the concepts of implant surgical template. Only 15 dentists have participated in any CDE/ Webinar/Demo/Hands-On on implant surgical template. 62 dentists think that usage of implant surgical template must be made compulsory for all dental clinics and hospitals. 42 dentists think that dental implant surgical template

possibly will be proved as an definitive tool in implant dentistry and related researches. Only 10 dentists have actually used surgical template at their clinic/hospital. Table 3 & Graph 2 illustrate fundamental statistical explanation with level of significance evaluation using Pearson Chi-Square Test for all 8 studied questions. Question no 5, 7 and 8 exhibited significant levels on performing Pearson Chi-Square ($p < 0.05$ significant).

Table 1: AGE & GENDER WISE DISTRIBUTION OF PRACTITIONERS

Age Group (Yrs)	Male	Female	Total %	P value
31-40	15	10	25 [25 %]	0.00*
41-50	11	6	17 [17 %]	0.06
51-60	19	7	26 [26 %]	0.09
61-70	16	4	20 [20 %]	0.08
>70	9	3	12 [12 %]	0.06
Total	70	30	100%	*Significant

* $p < 0.05$ significant

Table 2: QUESTIONNAIRE ESTIMATION AND EVALUATION WITH RELATED STATISTICAL INFERENCES

Questionnaire	Questions	Responses of Practitioners [Yes]	Responses of Practitioners [No]	p Value
1	Are you familiar with usages of surgical template in implant procedures ?	63	37	0.020*
2	Is it deemed necessary for implant procedures ?	72	28	
3	Do you believe that surgical template is a successful key factor	54	46	

	in accurate drilling site detection ?			
4	Do you believe that current dental syllabus is inadequate about the concepts of implant surgical template ?	89	11	
5	Did you participated in any CDE/ Webinar/Demo/Hands-On on implant surgical template ?	15	85	
6	Usage of implant surgical template must be made compulsory for all dental clinics and hospitals ?	62	38	
7	Dental implant surgical template possibly will be proved as an definitive tool in implant dentistry and related researches. Y/N	42	58	
8	Your personal usage of surgical template at your clinic/hospital ? Y/N	19	81	

***p<0.05 significant**

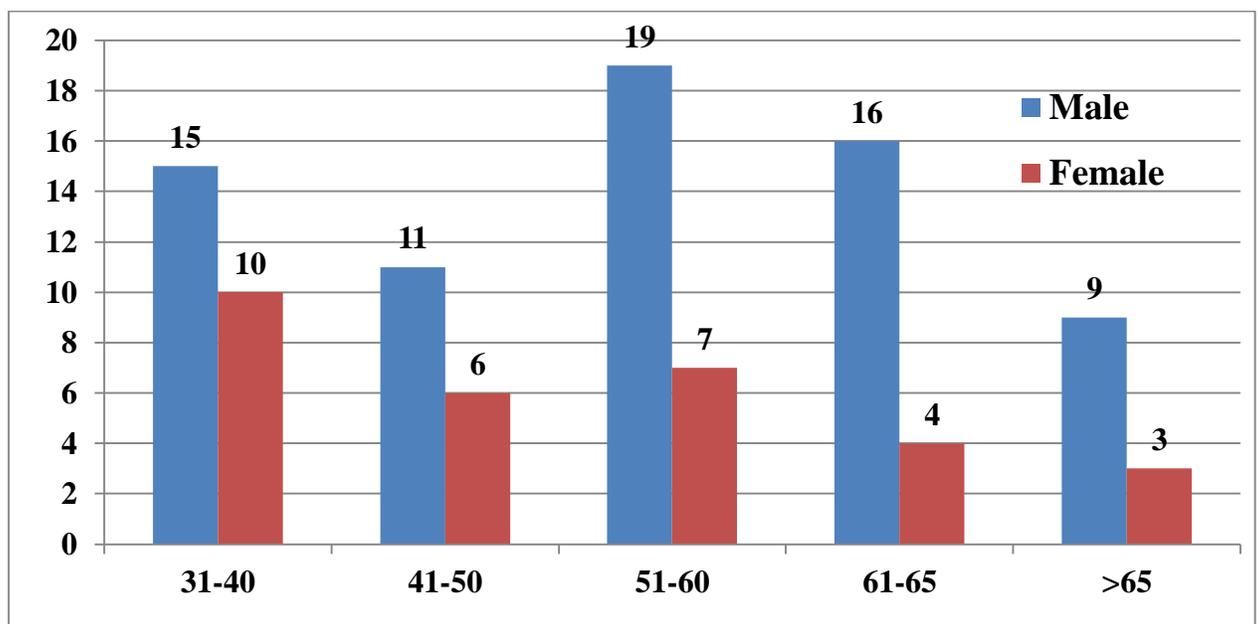
Table 3: BASIC STATISTICAL DESCRIPTION WITH LEVEL OF SIGNIFICANCE EVALUATION USING PEARSON CHI-SQUARE TEST

Question No.	Mean	Std. Deviation	Std. Error	95% CI	Pearson Chi-Square Value	df	Level of Significance (p value)
1	2.53	0.657	0.567	2.23	1.454	1.0	0.451
2	2.56	1.968	0.565	1.34	2.345	1.0	0.786
3	2.23	1.658	0.322	1.65	21152	1.0	0.080

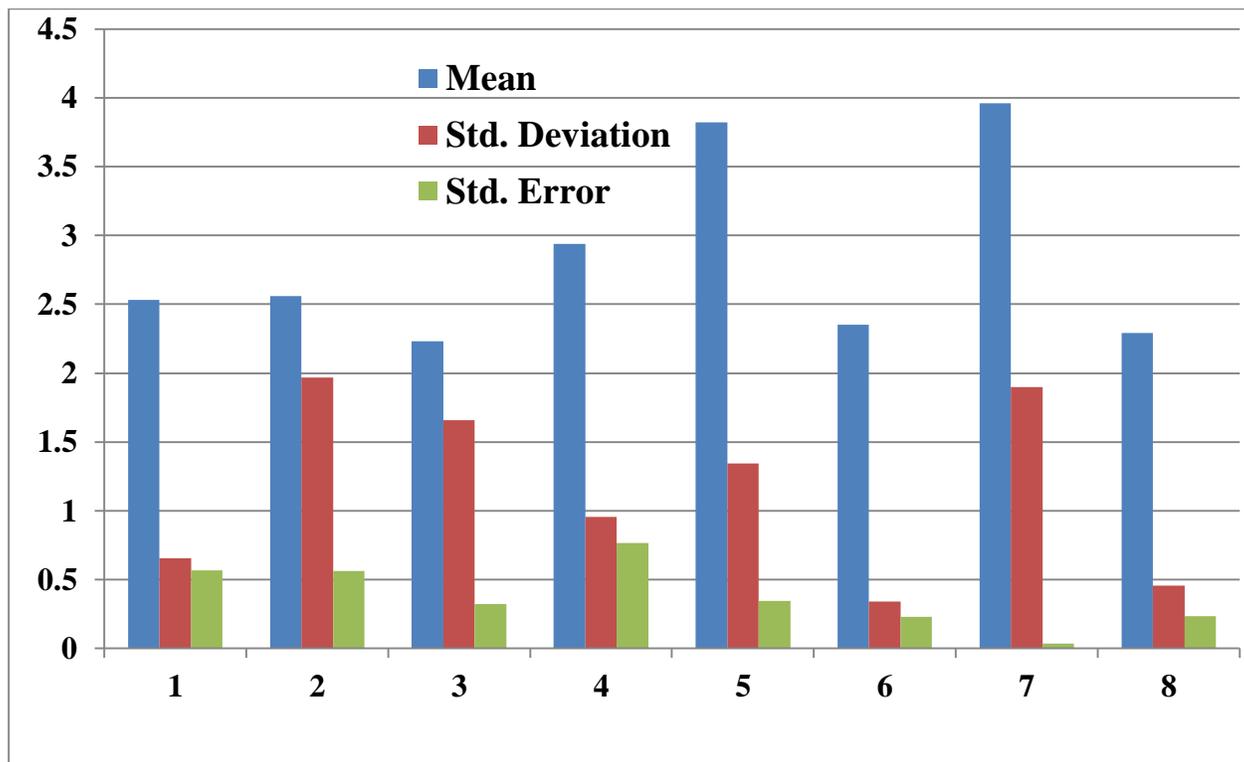
4	2.94	0.956	0.767	2.67	2.347	2.0	0.900
5	3.82	1.343	0.345	1.45	2.674	2.0	0.000*
6	2.35	0.343	0.232	1.56	2.542	1.0	0.685
7	3.96	1.898	0.036	1.67	1.458	2.0	0.001*
8	2.29	0.458	0.235	2.78	2.563	1.0	0.005*

*p<0.05 significant

Graph 1: AGE & GENDER WISE DISTRIBUTION OF PRACTITIONERS



GRAPH 2: BASIC STATISTICAL DESCRIPTION SHOWING MEAN, STD. DEVIATION, STD. ERROR



IV. DISCUSSION

As we have noticed so many times that the exfoliation of just single tooth will eventually have a generalized impact on the whole dentition and stomatognathic system. Few of them are significant localized to generalized bone loss, drifting of teeth, occlusal alterations, lowered chewing efficiency. All these can be very well noticed by the patients. As per the Glossary of prosthodontic terms 8th edition, the surgical template is defined as a clinical guide used to assist in proper surgical placement and angulations of dental implants.¹⁰⁻¹² Usually all the Osseointegrated implants are a realistic substitute to conventional prosthodontics. Though, making of an implant-supported prosthesis with optimal clinical outcomes is a challenge since decades. Many of the pioneer researchers have showed that the superior accuracy in implant planning and conduction of surgical procedures is significant in maintaining the highest success rate with no post operative severe complications.¹³ In nineteenth century, the implant placement location and angulations were decided primarily by alveolar bone availability. The relative need for a conventional fixed partial prosthesis literally forced the discovery of newer ideas. These were later on become popular under the banner of prosthetically driven implantology. The concept of prosthetically driven implantology sets the accurate implant position. To obtain accurateness, a significant fit to the underlying tissue and the acceptable usage of the surgical guide is critical. As we all know that the partial edentulism of the molars (unilateral or bilateral) is one of the most common clinical situations wherein we can think of having implant prosthesis. By definition, a surgical stent is an appliance used for radiographic evaluation of height and width of the available bone

during treatment planning for implant placement or during surgical procedures to provide the site for optimum implant placement. Usually, the surgical templates are constructed in the dental laboratory either by manually or using CAD/CAM technology. They are made mostly from self cure acrylic resins. Equidistance and equi-diameter holes are placed into the surgical guide by micro-motor to guide initial implant drills. Several literature have shown us that the surgical guide not only help us in diagnosis and treatment planning but also ease correct placement and angulations of the implants in the available bone.¹⁴⁻¹⁶ Furthermore, implant placement done without a surgical template can decrease the overall clinical prognosis and outcomes. Additionally the operator must ensure that the surgical template should not infect the surgical site while implant osteotomy. The implant surgical template must be made transparent by clear acrylic so as to visualize underlying tissues clearly. Also, the transparent implant surgical template bony ridge and drills can be used to locate nearby anatomical structures.

V. CONCLUSION

Within the limitations of the study authors concluded that studied dentist's knowledge and awareness about implant surgical template was at moderate levels. All of the drawn inferences of this study should be considered judiciously. Authors expect some other similar large scale studies to be conducted that can further establish certain authentic guidelines in this prospective.

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