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Original Research

To Determine Dentist's Interest In Knowing The Longevity Of Dental Implants- A Quantitative Study

Akash Gopi[1], Vishwa Deepak Singh[2]

[1] Research Scholar, Reader, Department of Prosthodontics and Crown & Bridge, Teerthanker Mahaveer Dental College and Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India
[2]Professor, Department of Prosthodontics and Crown & Bridge, Teerthanker Mahaveer Dental College and Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India

Corresponding author:
AkashGopi
Research Scholar, Reader, Department of Prosthodontics and Crown & Bridge, Teerthanker Mahaveer Dental College and Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh, India
Email: akashgopi88@gmail.com

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ABSTRACT-
The longevity of dental implants is a critical aspect in dentistry. Several studies have systematically compared dental implants to other treatments (e.g., supportive periodontal therapy or root canal treatment). Aim: Toevaluatethenumber of dental professionals who are willing to assess dental implants durability. Objective: Toevaluatethe factors influence in dental implant longevity assessment. Todetermine how many dental professionals are using tools or technology. Tocompareage and location affects for using new technology in their practices. Material and Methods- Thestudy wasconductedfor aperiod of1-2 months in TeerthankerMahaveerDentalCollegeandResearchCentre,Moradabad. The sample size was morethan 500 by filling the questioners given by researcher. This study was conducted among the dentist with random approach from all over India.We are selected such type of dental practices who have more than 20 years of experience in the dental field and do their practices in urban as well as rural area of India.By using online surveys, phone interviews, or in-person interviews, depending on feasibility and the preferences of your target dentists. Sample collection is done by city and state wise. After data collection, analyze the data using appropriate statistical **methods.** Consider using descriptive statistics, correction analysis, and potentially regression analysis to assess the factors influencing interest by using online surveys, phone interviews.The data for the present study was entered in the Microsoft Excel 2007 and analyzed using theSPSS statistical software 23.0 Version. The intergroup comparison of mean scores between groups will be done using the One-wayANOVA/Kruskal Wallistestdepending upon thenormalityof the data.Results- Among the study subjects 92.7% were under 30 years of age and 7.3% were above 30 years of age , Among the study subjects 59.8% of the subjects were the females and 40.2% were the males, Among the study subjects 15.9% were from rural area, 74.4% were from the urban areas and 9.8% were from Metropolitan areas, Based on the years of practice as dentist 17.7% of the subjects were students, 73.8% were in practice for less than 5 years and 8.5% were in practice for 5-10 years and more, Among the 164 study subjects 56.7% had not received any specific dental education related to Implantology and 43.3% had received training related to Implantology ,Among the study subjects 61.6% had never placed the implant, 24.4% had placed 1-5 implants in last 1 year and 14% had placed more than 5 implants in last one year.**Conclusion-**Dental implant longevity is a crucial consideration for dentists. While survival rates are promising, understanding risk factors and individual patient needs remains essential. Dentists should stay informed about long-term outcomes and tailor implant decisions accordi

INTRODUCTION-

Edentulism affects function, aesthetics, speech, and psychological well-being.[1,2]

Globally, millions suffer from untreated caries, severe periodontitis, and total tooth loss. Dental implants have become popular for replacing lost teeth.Modern root-form implants, healing through osseointegration, offer advantages for edentulous patients.The longevity of dental implants very last on average between 15 years to 20 years.[3] Of course, there are so many factors that affect the longevity of your dental implant restoration. Most particularly, the ability of the patient to keep good periodontal health through a consistent oral care routine is essential. When cared for properly, some patients see their dental implant restorations last for more than twenty-five years.Proper patient care and maintenance are crucial for longevity. Some patients experience successful implant restorations for

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over 25 years.[4]Most of these failures can be prevented with proper patient selection and treatment planning. Implant failures can be largely classified into four main categories: 1) loss of integration, 2) positional failures 3) soft tissue defects, and 4) biomechanical failures.Patient selection and treatment planning play key roles. Implant failures can be categorized into integration loss, positional issues, soft tissue defects, and biomechanical problems. Artificial intelligence, smart toothbrushes, augmented reality, virtual reality, and tele dentistry enhance diagnostics and treatment planning.

Computer-assisted design, 3D printing, intra-oral cameras, regenerative dentistry, and CRISPR contribute to high-quality care.AI assists in diagnosis, treatment planning, and outcome prediction.Deep learning aids general dentists in providing accurate care.[5]

AIM: Toevaluatethenumber of dental professionals who are willing to assess dental implants durability.

OBJECTIVE:

Toevaluatethe factors influence in dental implant longevity assessment.

Todetermine how many dental professionals are using tools or technology.

Tocompareage and location affects for using new technology in their practices.

MATERIALS AND METHODS

This study was conducted among the dentist with random approach from all over India.

We are selected such type of dental practices who have at least 20 years of experience in the dental field and do their practices in urban as well as rural area of India.By using online surveys, phone interviews or in - person interviews based on feasibility and your target dentist preference.

The sample size will be more than 500 by filling the questioners given by researcher. Sample collection is done by city and state vise. After data collection, analyze the data using appropriate statistical methods. Consider using descriptive statistics, correction analysis, and potentially regression analysis to assess the factors influencing interest by using online surveys, phone interviews.

SAMPLEEVALUATION:

Define Research Objectives | |--- Design Survey Questionnaire | |--- Identify Target Population | | | |--- Determine Sample Size and Sampling Method | | | |--- Select Dentist Participants | | | |--- Send Survey Invitations | | | |--- Collect Survey Responses | | | |--- Data Cleaning and Validation | |--- Data Analysis | | | |--- Descriptive Analysis | | | | | |--- Demographic Summary | | | | | |--- Calculate Basic Statistics | | | |--- Hypothesis Testing (if applicable) | | | |--- Correlation Analysis (if applicable) | | | |--- Regression Analysis (if applicable) | |--- Ethical Considerations | | | |--- Obtain Informed Consent | | | |--- Maintain Data Anonymity and Confidentiality | |--- Results Presentation | | | |--- Create Tables, Charts, and Graphs | | | |--- Highlight Significant Findings | |--- Discussion and Conclusion | | | |--- Interpret Results | | | |--- Discuss Implications | | | |--- Suggest Future Research | |--- Peer Review (if applicable) | |---

STUDY DESIGN: To determine Dentist's interest in knowing the longevity of dental implants- A quantitative study"

STUDYCENTRE: TeerthankerMahaveerDentalCollegeandResearchCentre,Moradabad

NULL HYPOTHESIS: Null hypothesis for the study states that there is no significant proportion of dental professionals who are willing to determine dental implant durability.

ETHICALCLEARANCE: PermissionfromtheinstitutionalethicscommitteeofTeerthankerMahaveerUniversity was obtained forconducting this study.

STUDYPERIOD: Thestudy wasconductedfor aperiod of1-2 months.

STATISTICALANALYSIS:

The data for the present study was entered in the Microsoft Excel 2007 and analyzed using theSPSS statistical software 23.0 Version. The descriptive statistics included mean, standarddeviation.Thelevel of thesignificanceforthe present study was fixed at 5%.

The intergroup comparison of mean scores between groups will be done using the One-wayANOVA/Kruskal Wallistestdepending upon thenormalityof the data

RESULTS-

AGE DISTRIBUTION OF STUDY SUBJECTS

92.7% of study subjects were under 30 years old, and 7.3% were above 30.

GENDER DISTRIBUTION OF STUDY SUBJECTS

59.8% were female, and 40.2% were male.

AREA OF WORKING:

15.9% rural, 74.4% urban and 9.8% metropolitan.

YEARS OF PRACTICE:

17.7% were students,73.8% had less than 5 years of practice, and 8.5% had 5-10 years of experience.

TYPE OF DENTAL PRACTICE:

7.7% students,66.5% general dentists.9.8% prosthodontists,2.4% periodontists,3.7% oral and maxillofacial surgeons.

EDUCATION AND KNOWLEDGE ON DENTAL IMPLANTS:

56.7% had no specific implant-related education, Knowledge levels varied: very limited (31.7%), limited (20.1%), moderate (40.9%), and extensive

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(6.7%).

PERCEPTION OF DENTAL IMPLANTS:

57.3% agreed that implants are a long-lasting solution for replacing missing teeth.

FACTORS FOR IMPLANT SUCCESS:

Factors contributing to long-term success included bone quality, patient compliance, surgeon's skill, material quality, and post-operative care.

IMPLANT PLACEMENT AND TECHNOLOGY USE:

61.6% had not placed implants in the last year, 59.1% used digital X-rays, 7.9% intraoral scanners, and 7.3% CAD/CAM systems, Impact of technology: improved diagnosis (5.56%), increased efficiency (10.32%), enhanced patient communication (51.59%), reduced errors (22.22%), and improved patient satisfaction (10.33%).

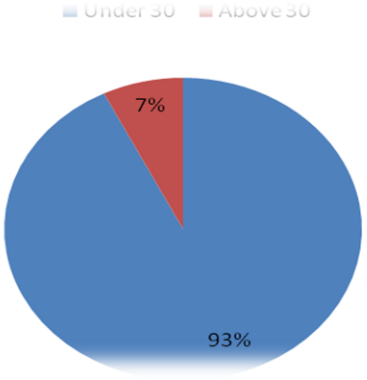

Table-1. Age Distribution Of Study Subjects

	N	Percentage
Female	98	59.8
Male	66	40.2

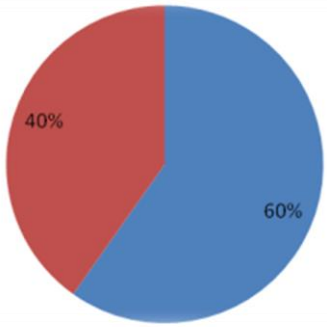

Table_2. Gender Distribution Of Study Subjects

	N	Percentage
Rural	26	15.9
Urban	122	74.4
Metro	16	9.8

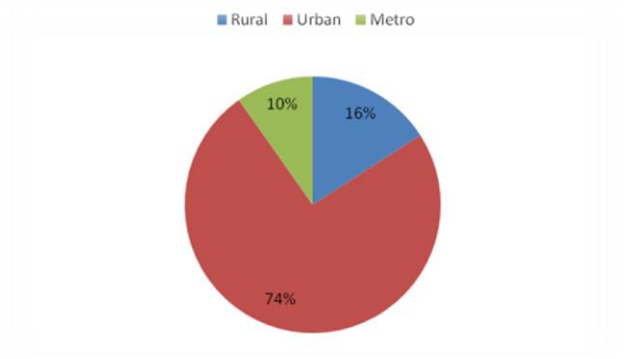

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Table -3. Area Of Working

	N	Percentage
Student	29	17.7
Less than 5 years	121	73.8
5- 10 years	14	8.5

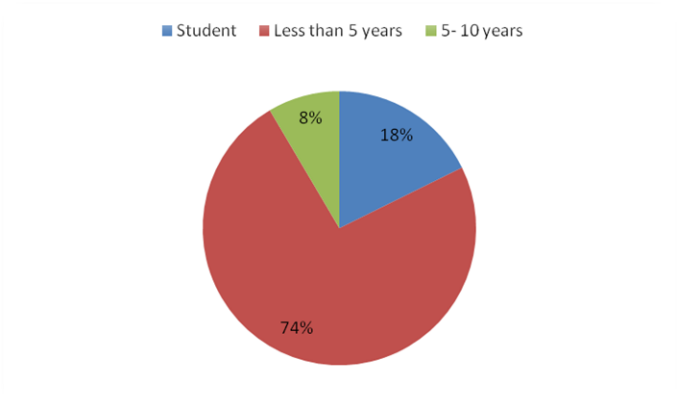

Table-4 Years Of Practice As A Dentist

	N	**Percentage**
Student	29	17.7
General Dentist	109	66.5
Prosthodontics	16	9.8
Periodontist	4	2.4
Oral and Maxillofacial Surgery	6	3.7

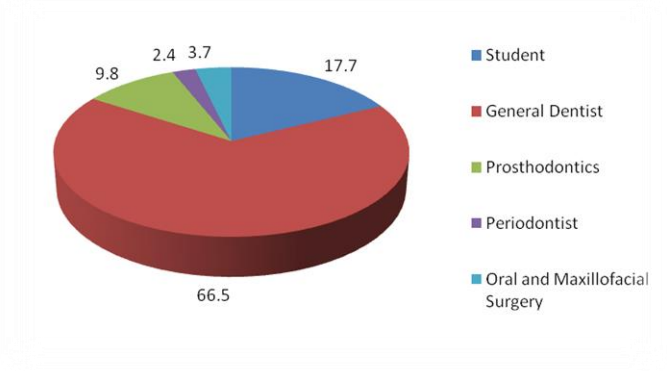

Table-5. Type Of Dental Practice

	N	Percentage
No	93	56.7
Yes	71	43.3

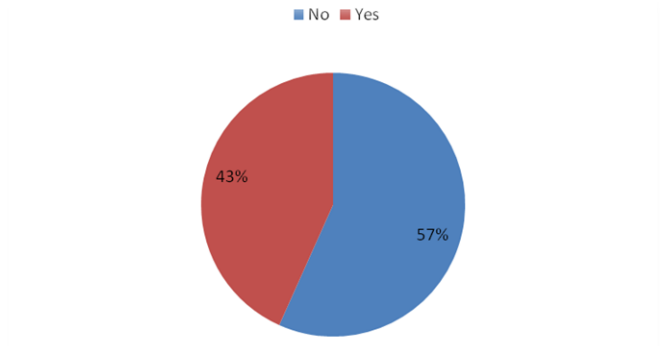

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Table-6 Specific Education Or Training Related To Dental Implantology

	N	Percentage
Very limited	52	31.7
Limited	33	20.1
Moderate	67	40.9
Extensive	11	6.7

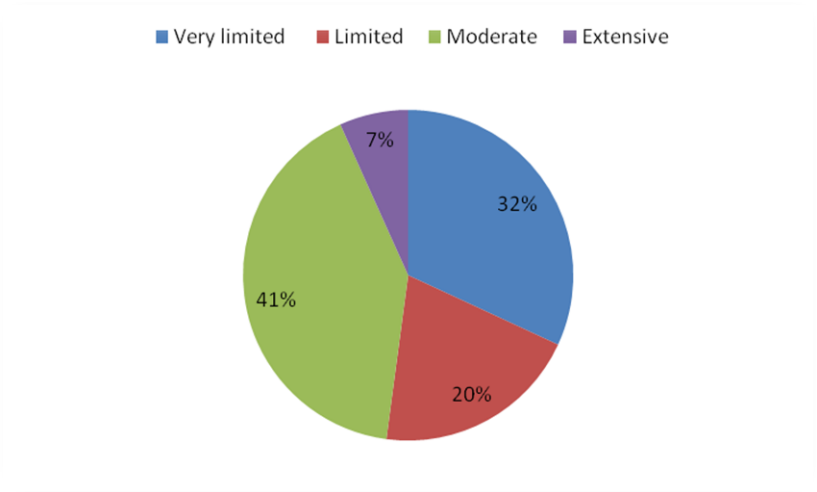

Table-7 Knowledge Of Dental Implantology

	N	Percentage
Strongly Disagree	0	0
Disagree	3	1.8
Neutral	37	22.6
Agree	94	57.3
Strongly Agree	30	18.3

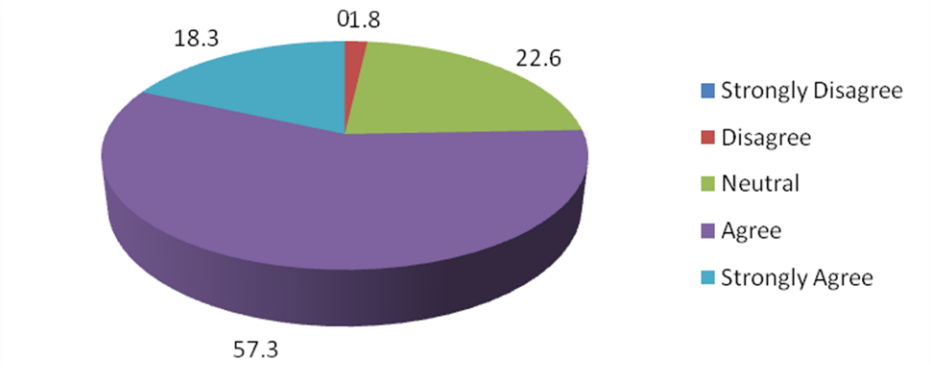

Table-8. Dental Implants Are A Long-Lasting Solution For Replacing Missing Teeth

Bone Quality
Patient Compliance
Surgeon's Skill
Material Quality
Post-Operative Care

Table-9. Factors Contributing To The Long-Term Success Of Dental Implants

	N	**Percentage**
None	101	61.6
0-5	40	24.4
5-10 or more	23	14

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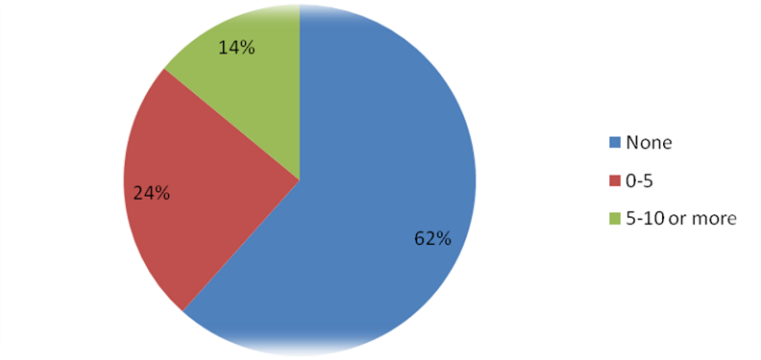

Table-10 Number Of Dental Implants Placed In Last 1 Year

	N	Percentage
None	38	23.2
Digital X-rays	97	59.1
Intraoral scanner	13	7.9
CAD/CAM Systems	12	7.3
Laser Dentistry 3D Printing	2	1.2
Digital Shade Matching	2	1.2

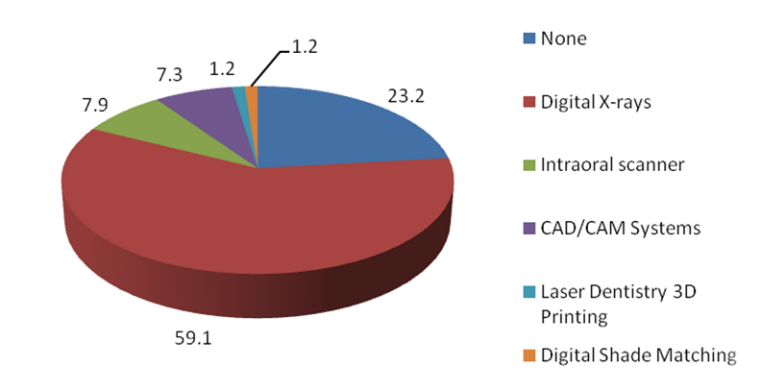

Table-11 Use Of Dental Technology Or Tools In The Practice

	N	Percentage
Improved Diagnosis and Treatment Planning	7	5.56%
Increased Efficiency	13	10.32%
Enhanced Patient Communication	65	51.59%
Reduced Errors	28	22.22%
Improved Patient Satisfaction	13	10.33%

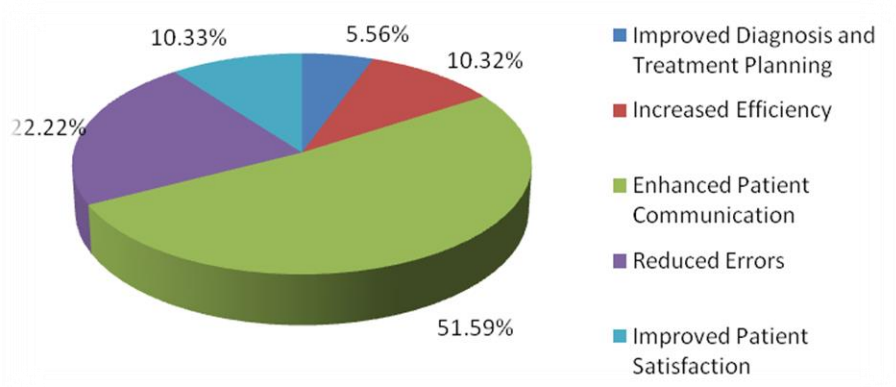

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Table-12 How Has The Use Of Technology Or Tools Impacted Your Dental Practice?

	N	Percentage
Minimal impact	12	9.52%
Low Impact	5	3.97%
Moderate Impact	58	46.03%
High impact	34	26.98%
Significant Impact	17	13.49%

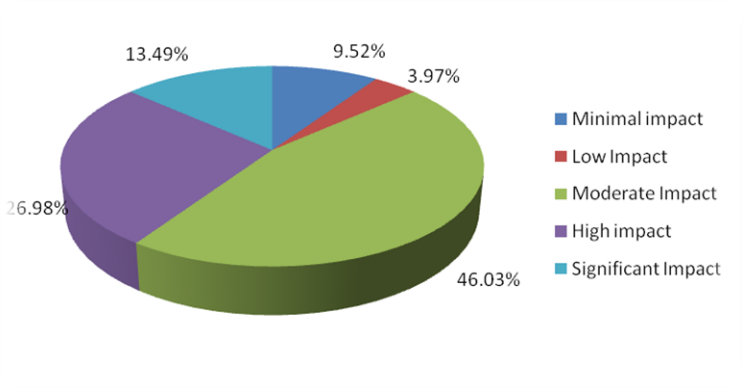

Table-13 Overall Influence Of Technology Or Tools On Your Dental Practice

	N	Percentage
No	68	53.97%
Yes	58	46.03%

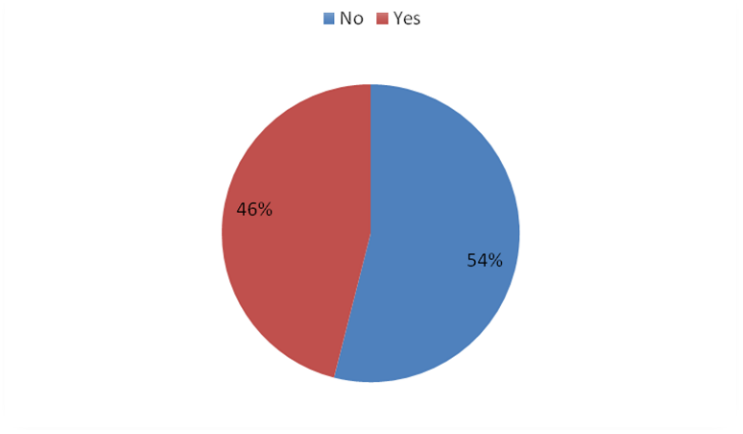

Table-14 Specific Dental Technologies Or Tools Considering Integrating Into Your Practice In The Near Future

		Very limited	Limited	Moderate	Extensive	P value
Age	Under 30	51	33	59	9	0.001 (Sig)
		33.6%	21.7%	38.8%	5.9%	
	Above 30	1	0	8	3	
		8.3%	.0%	66.7%	25.0%	
Gender	Female	36	21	35	6	0.271 (Non-Sig)
		36.7%	21.4%	35.7%	6.1%	
	Male	16	12	32	6	
		24.2%	18.2%	48.5%	9.1%	
Area of Practice	Rural	9	4	13	0	0.070 (Non-Sig)
		34.6%	15.4%	50.0%	.0%	
	Urban	37	27	50	8	
		30.3%	22.1%	41.0%	6.6%	
	Metro	6	2	4	4	
		37.5%	12.5%	25.0%	25.0%	

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Years of Practice	Student	19	5	4	1	0.001 (Sig)
		65.5%	17.2%	13.8%	3.4%	
	Less than 5 years	33	27	55	6	
		27.3%	22.3%	45.5%	5.0%	
	5-10 years	0	1	8	5	
		.0%	7.1%	57.1%	35.7%	
Specific Education	No	39	19	33	2	0.001 (Sig)

Table-15 Influence Of Age, Gender, Area Of Practice, Years Of Practice On Knowledge Regarding Dental Implants

		No	Yes	P value
Age	Under 30	38	114	0.037 (Sig)
		25.0%	75.0%	
	Above 30	0	12	
		.0%	100.0%	
Gender	Female	33	65	0.001 (Sig)
		33.7%	66.3%	
	Male	5	61	
		7.6%	92.4%	
Area of Practice	Rural	2	24	0.139 (Non-Sig)
		7.7%	92.3%	
	Urban	31	91	
		25.4%	74.6%	
	Metropolitan	5	11	
		31.2%	68.8%	
Year of Study	Student	29	0	0.001 (Sig)
		100.0%	.0%	
	Less than 5 years	9	112	
		7.4%	92.6%	
	5-10 years	0	14	
		.0%	100.0%	
Specific Education	No	28	65	0.012 (Sig)
		30.1%	69.9%	
	Yes	10	61	
		14.1%	85.9%	

Table-16 Influence Of Age, Gender, Area Of Practice, Years Of Practice On Use Of Dental Technology In Practice

	N	Percentage
Under 30	152	92.7
Above 30	12	7.3

DISCUSSION

Patient expectations significantly impact treatment satisfaction. Understanding and measuring patient expectations are essential for successful patient-reported outcomes. Evidence-based medicine emphasizes patient engagement in decision-making.Dental implants, although successful, remain unfamiliar to many patients. Lack of reliable information and perceived novelty can lead to unrealistic expectations. Identifying patient expectations before treatment helps prevent disappointment.

57.3% agreed that implants are a long-lasting solution for replacing missing teeth which is in favor with the systemic review done by Jie Yao et al stated that the STROBE quality of reporting scores of the studies ranged from 13.5 to 18.0.

In our study 1.8% did not agree to statement that implants are a long-lasting solution for replacing missing teeth18.3% strongly agreed to the statement which is in contradict with C Tomasiet al[6] as The percentage of implants reported as lost during the follow-up period varied between 1% and 18%. In clinically well-maintained patients, the loss rate at teeth was lower than that at implant. Bone level changes appeared to be small at teeth as well as at implants in well-maintained patients. Comparisons of the longevity at teeth and dental implants are difficult due to heterogeneity among the studies.

As the technique is evolving day by day in placement

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of dental implants very less percentage of dentist is using latest technology as evaluated, around 23.2% were not using the advanced dental technology in their practice, 59.1% were using Digital X-rays, 7.9% were using Intraoral scanner, 7.3% were using CAD/CAM Systems and 1.2% each were using Laser Dentistry 3D Printing and Digital Shade Matching while Mohammad Ali Saghiri et al[4] stated in their publicationthat implant types identification by x-ray imaging, forensic identification of dental implant, surface types, threaded, non-threaded, software identification, recent technologies, which evaluated different methods in the identification of dental implants and its clinical importance for the dentist and the patient has improved.

Al-Ehaideb et al stated that Dentists may employ AI systems as a supplemental tool to improve the precision of diagnosis, treatment planning, and treatment result prediction. Automated technology can speed up clinical processes and boost physician productivity. Moreover Among our study subjects who were using advanced dental technology in their practice, 5.56% thought that dental technology Improved Diagnosis and Treatment Planning, 10.32% were of view that it improved Efficiency, 51.59% believed that it Enhanced Patient Communication, 22.22% thought that it reduced errors and 10.33% believed that it improved patient satisfaction.
However after reviewing our study, 9.52% had minimal influence, 3.97% had low impact, 46.03% had high impact and 13.49% had significant impact on the dental practice which will be helpful in developing interest in dental practice for advancement in longevity of implant.

CONCLUSION

Balancing patient education, managing expectations, and leveraging technology are indeed crucial for successful implant outcomes. It's heartening to see that dental implants have become a popular choice for replacing missing teeth, but there's room for improvement in knowledge dissemination.

Conflicts of interest: Nil
Financial Support: Nil

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