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Original Research Article

Knowledge and awareness among undergraduate dental students on implant-supported treatment options for completely edentulous patients: A questionnaire-based survey

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ABSTRACT

Statement of problem: Lack of knowledge of implants and implant-supported treatment options can lead to a decrease in the successful treatment for a particular condition.

Purpose: To assess the knowledge and awareness among undergraduate dental students on implant-supported treatment options for completely edentulous patients.

Materials and Methods: A Questionnaire-based survey consisting of 10 questions was conducted among 106 undergraduate dental students across India.

Results: 60% of the undergraduate dental students knew about implant-supported prosthesis and 40% responded negatively. 33.3% of the undergraduate dental students knew the types of implant-supported prosthesis whereas 66.7% didn't know. 64.7% of undergraduate dental students were aware of various treatment options for completely edentulous patients and 34.3% were unaware. 80% of the undergraduate dental students didn't know the indications for implant-supported prosthesis and 20% reported adequate bone dimension as the indication. 82.9% of undergraduate dental students reported the least knowledge and awareness of implantology among them and 97.1% of undergraduate dental students reported the need for basic implantology theoretical and practical knowledge in the curriculum.

Conclusion: The undergraduate dental students are aware of only removable complete denture treatment options for completely edentulous arches and the level of knowledge about implantology treatment options is the lowest. Thus, making it essential to implement the theoretical and practical knowledge of basic implantology among undergraduate dental students during educational courses.

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1. Introduction

Complete edentulism is the state of absence of teeth in the oral cavity.^{1,2} The prevalence of edentulism in India as reported in the study conducted by Rafee was 16.3% among 50 years old patients.³ Edentulism is an irreversible condition that imparts difficulties to patients affecting the normal habitat.⁴ Loss of teeth affects the masticatory efficiency, appearance, phonetics, and self-

confidence of the patient thus degrading the patient's life quality.⁵ To gain what is lost requires different approaches to rehabilitation. A conventional acrylic complete denture is the easiest, most affordable treatment option but it is removable, has palatal coverage, has difficulty in phonetics, and increased bulk causes discomfort to the patient.⁶ Dental implantology includes the placement of alloplastic material into the jaws to provide support and rehabilitate the lost structure.⁷ Implant-supported prosthesis either removable or fixed approach enhances retention, reduces bulk and

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increases comfort to the patient.⁸ Advancements in implant materials, design and techniques for removable as well as fixed approaches for prosthetic rehabilitation of missing teeth are predictable successful treatments.⁹ Knowledge of all the approaches is of utmost importance among clinicians to achieve long-term success. To make the undergraduate students aware of implantology this study was carried out.

The purpose of this survey was to evaluate the level of knowledge and awareness among undergraduate dental students on implant-supported treatment options for completely edentulous patients. The information gathered from this survey will aid in understanding the level of knowledge and awareness among dental students and implementing the same. It will act as a reference to impart basic implantology theoretical and practical knowledge in the education plan. It will aid the students to understand, learn and plan the best treatment for each patient.

2. Materials and Methods

2.1. Selection of study population

The present study was a questionnaire-based survey conducted among dental students across India from September 2023 to November 2023. The written consent was obtained from all the participants.

2.2. Selection criteria

Inclusion criteria included all undergraduate dental students of any age and gender attached to any dental institute across the country who were willing to participate and excluded those who were unwilling to participate in the study.

2.3. Study method

Based on the selection criteria the online survey questionnaire form was circulated among the undergraduate dental institutes across India. The survey comprised an online questionnaire consisting of 10 questions, 5 open-ended and 5 close-ended questions structured on Google form as shown in [Table 1]. The validation of the questionnaire was done by experts from the field and any modifications suggested were implicated. The questionnaire was circulated among 106 participants as determined by the sample size calculation formula $n = 4pq/L2$ for two months and the filled data was gathered, recorded in a Google Excel sheet and analysed.¹⁰

3. Results

A total of 106 responses were collected from the participants across India. A total of 100% responses for all 10 questions were recorded. 60% of the undergraduate dental students knew about implant-supported prosthesis and 40% responded negatively [Figure 1]. Only 33.3% of the undergraduate dental students knew the types

of implant-supported prosthesis whereas 66.7% didn't know [Figure 2]. 64.7% of undergraduate dental students were aware of various treatment options for completely edentulous patients and 34.3% were unaware [Figure 3]. 80% of the undergraduate dental students didn't know the indications for implant-supported prosthesis and 20% reported adequate bone dimension as the indication. Only 2.9% of undergraduate dental students answered implant-supported overdenture as a different treatment option for removable implant-supported prosthesis. 62.9% of undergraduate dental students were aware of implant-supported overdenture, 8.6% were aware of all-on-four, 11.4% were aware of all-on-six, 51.4% were aware of the implant-fixed prosthesis, 17.1% were aware of zygomatic implants, 5.7% were aware of basal implants and 8.6% were aware of pterygoid implants. 17.1% of undergraduate dental students reported for RVG and IOPA, 22.9% reported for OPG and 42.9% reported CBCT as the diagnostic aid for implant-supported prosthesis [Figure 4]. Among 90% of undergraduate dental students have treated completely edentulous patients with acrylic removable complete dentures. 82.9% of undergraduate dental students reported the least knowledge and awareness of Implantology among them and 97.1% of undergraduate dental students reported the need for basic implantology theoretical and practical knowledge in the curriculum.

Table 1: Questionnaire for survey

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1. Do you know what are Implant-supported prosthesis? Yes or No
 2. Do you know what are the types of Implant supported prosthesis? Yes or No
 3. Are you aware of various treatment options for completely edentulous patients? Yes or No
 4. What are the indications for Implant supported prosthesis for completely edentulous patient?
 5. What are the different treatment options for removable implant-supported prosthesis? Kindly mention.
 6. Kindly tick the below given terms you are aware of.
Implant-supported Overdenture All-on -four All-on-six
Implant fixed prosthesis Zygomatic implants Basal implants Pterygoid implants
 7. What are the diagnostic needs for Implant-supported prosthesis? IOPA RVG CBCT OPG
 8. What treatment have you given or observed for the completely edentulous patients? Kindly mention
 9. Grade the level of knowledge and awareness on Implantology within you on a scale of 1 to 10 (1 graded as least and 10 graded as high)
 10. Grade the need of Basic Implantology theoretical and practical knowledge in the curriculum on a scale of 1 to 5 (1 graded as not needed and 5 graded as must needed)
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4. Discussion

Replacement of missing teeth to rehabilitate the lost structure, lost function and lost esthetic is a crucial

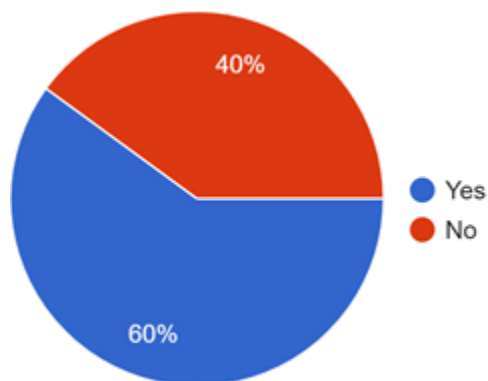


Figure 1: Responses for question “Do you know what are Implant-supported prosthesis?”

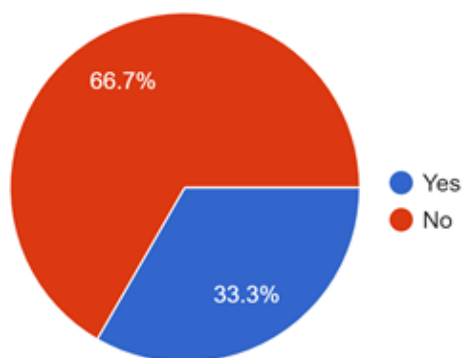


Figure 2: Responses for question “Do you know what are the types of Implant-supported prosthesis?”

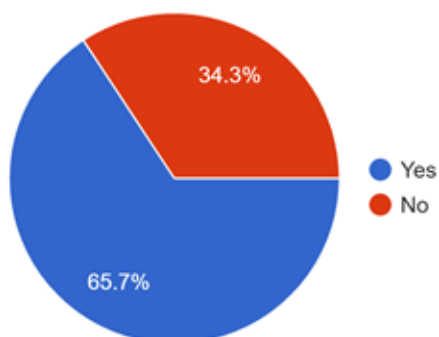


Figure 3: Responses for question “Are you aware of various treatment options for completely edentulous patients?”

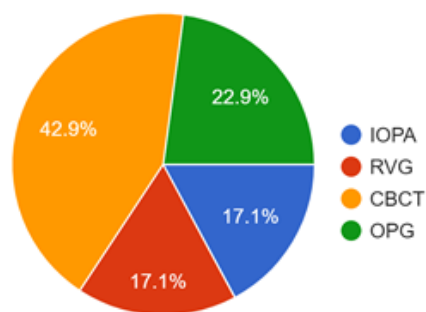


Figure 4: Responses for question “What are the diagnostic needs for Implant supported prosthesis?”

treatment for the gain of a patient’s morale, comfort and confidence. Removable heat cure acrylic conventional complete denture is always an easy, quick, basic, affordable treatment option for complete edentulism. However, the authors reported that rehabilitation with removable conventional complete denture can be compromised in severely resorbed ridge cases, soft tissue hypergrowth, and patients with highly professional needs.¹¹ To overcome these limitations implant-supported prosthesis either removable or fixed can aid in retention, enhanced comfort, patient satisfaction and stimuli for bone formation. Many authors reported the success rate of implant-supported overdentures over the conventional complete denture.¹² Many authors reported long-term successful rehabilitation of completely edentulous maxillary and mandibular arches with all-on-four, all-on-six implant-fixed prosthesis and severely resorbed maxillary arches with zygomatic implants, pterygoid implants and mandibular arches with basal implant followed by implant fixed prosthesis.^{13–15} Implementation of a proper treatment plan for completely edentulous arches by the learning students and clinicians comes with the knowledge and awareness about the different treatment options available. Implementing knowledge at the correct time is critically important, so this survey was conducted to evaluate knowledge and awareness among undergraduate dental students on implant-supported treatment options for completely edentulous patients. The results obtained from this survey state that among 100% of undergraduate students on average only 17.1% were aware of the implant-supported prosthesis. and 97.1% of students demanded knowledge of basic implantology to be implemented in the curriculum. Thus, the purpose of the survey was to know the level of knowledge and awareness of implant-supported treatment options among the students that will aid them in mould their brains to treat each case of completely edentulism with the utmost care, awareness, knowledge for the longer successful results along with patient satisfaction.

5. Conclusions

Based on the results obtained from this survey, the following conclusion can be drawn:

The undergraduate dental students are aware of only removable complete denture treatment options for completely edentulous arches and the level of knowledge about implantology treatment options is least. Thus, making it essential to implement the theoretical and practical knowledge of basic implantology among undergraduate dental students during educational courses.

5.1. Clinical significance

The undergraduate dental students who are the upcoming clinicians can think, plan and implement all available treatment options for the completely edentulous arch to provide better care, comfort and satisfaction to the patients by giving the best possible treatment for individual conditions.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Felton DA. Complete edentulism and comorbid diseases: an update. *J Prosthodont.* 2016;25(1):5–20.
2. Cooper LF. The current and future treatment of edentulism. *J Prosthodont.* 2009;18(2):116–22.
3. Al-Rafee MA. The epidemiology of edentulism and the associated factors: A literature Review. *J Fam Med Prim Care.* 2020;9(4):1841–3.
4. Elad S, Horowitz R, Zadik Y. Supportive and palliative care in dentistry and oral medicine. The art and science of palliative medicine. Hong Kong: AME Publishing Company; 2014. p. 385–405.
5. Alrwuili MR, Alwaznah FJ, Ahmed R, Anwar S, Omar FA, Tairan EH, et al. A Detailed Correlation of Oral-Health-Related Quality of Life of Patients Undergoing Fixed Orthodontic Therapy. *Cureus.*

- 2023;15(1):e3385. doi:10.7759/cureus.33854.
6. Jayasinghe RM, Jayasinghe JA, Thilakumara IP. Prosthetic rehabilitation of edentulous mandible: conventional vs. implant supported prostheses. *Sri Lanka Dent. Sri Lanka Dent J.* 2017;47(3):49–58.
7. Polido WD, Vij A, Reti R, Fay S, Hosch GW. Dental implantology. *Oral Board Rev Oral Maxillofac Surg.* 2021;p. 69–93.
8. Thalji G, Bryington M, De Kok I, Cooper LF. Prosthodontic management of implant therapy. *Dent Clin North Am.* 2014;58(1):207–25.
9. Potdukhe SS, Iyer JM, Nadgere JB. Evaluation of implant stability and increase in bone height in indirect sinus lift done with the osseodensification and osteotome technique: A systematic review and meta-analysis. *J Prosthet Dent.* 2023;S0022-3913(23):00278–0. doi:10.1016/j.prosdent.2023.04.021.
10. Patel KA, Patel JR, Patel VV, Duseja S, Raval HJ. Knowledge and awareness of polycaprolactone and its applications as provisional material in prosthodontic practice: A questionnaire-based survey. *J Indian Prosthodont Soc.* 2023;23(1):78–83.
11. Terheyden H, Wüsthoff F. Occlusal rehabilitation in patients with congenitally missing teeth-dental implants, conventional prosthetics, tooth autotransplants, and preservation of deciduous teeth-a systematic review. *Int J Implant Dent.* 2015;1(1):30. doi:10.1186/s40729-015-0025-z.
12. Lee DJ, Saponaro PC. Management of edentulous patients. *Dent Clin North Am.* 2019;63(2):249–61.
13. Lee S, Jeong SM, Chung CH, Fang Y, Choi BH. All-on-6 implant fixed prosthesis restoration with full-digital system on edentulous patient: A case report. *J Korean Acad Prosthodont.* 2021;59:497–507.
14. Gupta A, Felton DA, Jemt T, Koka S. Rehabilitation of edentulism and mortality: a systematic review. *J Prosthodont.* 2019;28(5):526–35.
15. Wyatt CC, Zarb GA. Treatment outcomes of patients with implant-supported fixed partial prostheses. *Int J Oral Maxillofac Implants.* 1998;13(2):204–11.

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