

Knowledge and Perception about Dental Implants among Undergraduate Dental Students in Saudi Arabia-A Questionnaire-Based Study

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Abstract

Implant dentistry has evolved into the mainstream of restorative and rehabilitation procedures worldwide. There are mainly two phases of the dental implant; a surgical phase and a prosthodontic phase. For centuries, there were ways to replace the crown but not the root but root replacement is now possible. Endosseous dental implants are alternative tooth roots and implant-supported prostheses are considered the best substitute for missing teeth. The purpose of this study will be to assess the Self-reported status of knowledge and perception of undergraduates on Dental Implants in Saudi Arabia. Dental undergraduate students in Saudi Arabia. Nonprobability Convenient sampling method will be employed. The study subject's voluntary participation and confidentiality will be ensured. Cross-sectional close-ended mailed Questionnaire-based survey on Dental undergraduates in Saudi Arabia. A sample size of 600 will be considered for analysis. Descriptive statistics of frequency distribution and percentages were calculated for the categorical variables. Chi-square and Fisher's exact tests were applied to determine the association between the characteristics of the study participants across knowledge and perception towards dental implants. Knowledge and perception about dental implants among undergraduate dental students differed in different academic years & gender. Items on advantages of implant placement, implant success, the longevity of dental implants, oral hygiene, and maintenance of dental implants, cost, and acceptability were found to be associated with academic year with an increase in undergraduate training.

Keywords: Knowledge, Perception, Dental implants, Undergraduate dental students, Saudi Arabia

INTRODUCTION

Dental implants have emerged as a very predictable treatment for missing teeth [1]. The goal of modern dentistry is to restore normal contour, function, aesthetics, speech, comfort, and health regardless of atrophy, disease, or injury of the stomatognathic system [2]. Awareness about dental implants is increasing among the general public and more patients are seeking information about dental implants [3]. It is therefore useful to gauge the level of information about dental implants among dental students. All undergraduate dental students require basic knowledge about dental implant therapy so that they can educate and guide patients to undergo implant therapy whenever appropriate [2]. This study was carried out to determine the level of information about dental implants among dental students and interns in grades 4th to 6th year. Thus, to identify whether or not the curriculum, teaching materials, and methods are required to be revised [4]. This KAP survey will provide baseline data and identify gaps that may facilitate understanding and further action to plan, implement and evaluate practice toward Dental Implant knowledge among Dental undergraduate students in Saudi

Arabia [5]. The purpose of this study will be to assess the Self-reported status of knowledge and perception of undergraduates on Dental Implants in Saudi Arabia. This study's objective was to evaluate undergraduate dental students' knowledge and perception of dental implants through a pre-tested and validated questionnaire.

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MATERIALS AND METHODS

This Research study Protocol was submitted for ethical committee clearance/exemption from Riyadh Elm University. The presented study was conducted in Saudi Arabia. Dental undergraduate students in Saudi Arabia. Nonprobability Convenient sampling method will be employed. The study subject's voluntary participation and confidentiality will be ensured. Cross-sectional close-ended mailed Questionnaire-based survey on Dental undergraduates in Saudi Arabia. A sample size of 300 was considered for analysis. After obtaining approval from The Institutional Review Board, Riyadh Elm University on June 23, 2022. The questionnaire for the present study was developed from the previous study⁶.and the validity of the questionnaire was done by the pilot study. Dental undergraduates from various colleges inside Saudi Arabia will be the sampling frame. Undergraduates willing to participate voluntarily will be included in this study ensuring confidentiality. The online questionnaire will be distributed electronically using a link generated by Google Docs format. Dental undergraduates of 1st year, 2nd. and 3rd years studying the basic subjects will be excluded. Data will be entered and analyzed using Statistical Package for Social Sciences (SPSS), IBM SPSS Statistics for Windows, version 25.0. Armonk. NY; IBM Corp. A descriptive analysis of data will be followed by inferential statistics. Chi-square and Fisher's exact tests will be used for the comparison of categorical data. A p-value of ≤ 0.05 at 95% CI will be considered statistically significant.

RESULTS AND DISCUSSION

Descriptive statistics of frequency distribution and percentages were calculated for the categorical variables. Chi-square and Fisher's exact tests were applied to determine the association between the characteristics of the study participants across knowledge and perception towards dental implants. A p-value of <0.05 was considered significant for

all the statistical tests. All the data were analyzed using Statistical Package for Social Sciences (IBM-SPSS version 25, Armonk, NY, USA).

The study included 305 participants, 55.4% of them were females and 44.6% were males. The mean of age was 23.24 ± 1.77 . 35.7% of participants were 4th academic year of BDS students (**Table 1**).

Table 1. Characteristics of the study participants

Variables	N	%	
Gender:	Female	169	55.4%
	Male	136	44.6%
	Total	305	100.0%
Address:	North	52	17.0%
	South	112	36.7%
	East	30	9.8%
	West	40	13.1%
	Central	71	23.3%
	Total	305	100.0%
Academic year of BDS students:	4th Year	109	35.7%
	5th Year	62	20.3%
	6th Year	44	14.4%
	Internship	90	29.5%
	Total	305	100.0%
Age (Mean \pm SD) year	23.24 \pm 1.77		

Table 2 Shows the Knowledge of the dental implants among study participants. 48.5% they Moderately Well heard about Dental Implants. 54.4% of study participants chose 5000-10000 SAR when asking about cost of procuring a Dental Implant from an Implant company.

Table 2. Knowledge of the dental implants among study participants (N=305)

Variables	n	%	
1) How well-informed are you about Dental Implants?	Very well	29	9.5%
	Well	70	23.0%
	Moderately Well	148	48.5%
	Poorly	52	17.0%
	Not at all	6	2.0%
2) What do you think is the main advantage of Dental Implants as compared to other Tooth-replacement modalities?	Aesthetics; looks nicer	32	10.5%
	More conservative	105	34.4%
	Longevity; lasts longer	159	52.1%
	Do not know	9	3.0%
3) What do you think is the most important factor for Implant success?	Case selection	146	47.9%
	Implant type and material	25	8.2%
	Patient compliance	37	12.1%

	Surgical technique	20	6.6%
	Experience of operator	62	20.3%
	Do not know	15	4.9%
	2–5 years	13	4.3%
	5–10 years	41	13.4%
	10–20 years	126	41.3%
	Lifetime	67	22.0%
	Do not know	58	19.0%
4) What do you tell your patient is the longevity of Dental Implants?	No, are cleaned like natural teeth	57	18.7%
	Yes, need more care than natural teeth	214	70.2%
5) Do you feel that Dental Implants require additional oral hygiene maintenance and care by the patient and dentist?	No, needless care than natural teeth	17	5.6%
	Do not know	17	5.6%
	Very easy	20	6.6%
6) On a scale of 1-10, how difficult do you feel is it to place implants as compared to other dental procedures?	Average	178	58.4%
	Very difficult	107	35.1%
	5000- 10000 SAR	166	54.4%
7) What is the cost of procuring a Dental Implant from an Implant company?	10000- 15000 SAR	51	16.7%
	20000-25000 SAR	19	6.2%
	Don't know	69	22.6%
	200,000- 300,000 SAR	65	21.3%
8) How much do you feel is the initial set-up cost required to incorporate Implant into practice?	400,000-500,000 SAR	50	16.4%
	1,000,000 SAR and above	20	6.6%
	Don't know	170	55.7%
	Yes, implants are here to stay	184	60.3%
9) Do you think that Dental Implants are an acceptable solution for missing teeth in Saudi Arabia?	No, economic feasibility will limit their usage	92	30.2%
	No, too invasive for patient acceptance	18	5.9%
	No, other reasons	11	3.6%

Figure 1, shows the demonstration on of the placement of Implants by the faculties. 25.9% of the participant yes, and 74.1%; no.

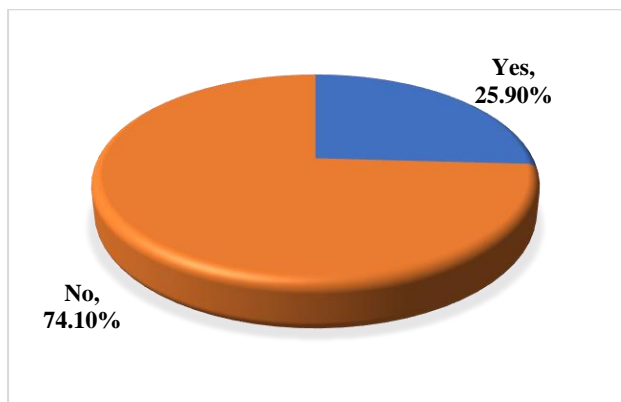


Figure 1. During your BDS training. have you seen a demonstration of the placement of Implants by the faculties

Figure 2, shows the prevalence of Placed Implants under the supervision of Faculty among our participants. 13.8% of the participant yes and %86.2; no.

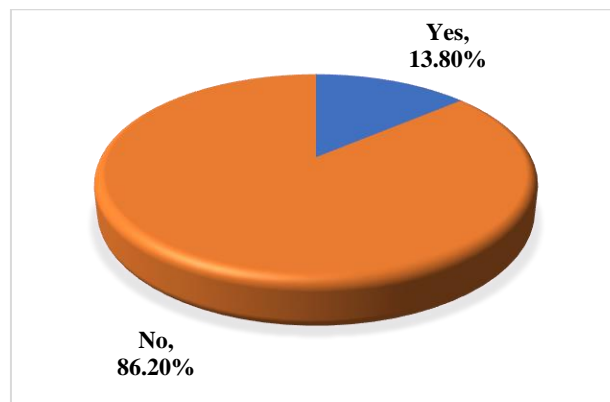


Figure 2. Have you Placed Implants under the supervision of Faculty?

The implant success was found to be significantly associated with the gender of the study participants. While items on advantages of implant placement, implant success, the

longevity of dental implants, oral hygiene, and maintenance of dental implants, cost, and acceptability were found to be associated with the academic year (**Table 3**).

Table 3. Knowledge of dental implants across different gender and academic year (N=305)

Variables	Gender:			Academic year				p	
	Female	Male	p	4 th	5 th	6 th	Internship		
2) What do you think is the main advantage of Dental Implants as compared to other Tooth-replacement modalities?	Aesthetics; looks nicer	7.7%	14.0%	0.095	17.4%	9.7%	2.3%	6.7%	.005
	More conservative	31.4%	38.2%		22.0%	32.3%	45.5%	45.6%	
	Longevity; lasts longer	58.0%	44.9%		56.0%	53.2%	52.3%	46.7%	
	Do not know	3.0%	2.9%		4.6%	4.8%	0.0%	1.1%	
	Case selection	55.6%	38.2%		27.5%	53.2%	75.0%	55.6%	
3) What do you think is the most important factor for Implant success?	Implant type and material	5.9%	11.0%	.020	12.8%	4.8%	4.5%	6.7%	.000
	Patient compliance	8.9%	16.2%		11.9%	11.3%	6.8%	15.6%	
	Surgical technique	7.7%	5.1%		11.0%	6.5%	2.3%	3.3%	
	Experience of operator	18.3%	22.8%		26.6%	21.0%	11.4%	16.7%	
	Do not know	3.6%	6.6%		10.1%	3.2%	0.0%	2.2%	
4) What do you tell your patient is the longevity of Dental Implants?	2-5 years	4.1%	4.4%	.697	6.4%	8.1%	0.0%	1.1%	.007
	5-10 years	12.4%	14.7%		11.0%	16.1%	13.6%	14.4%	
	10-20 years	45.0%	36.8%		32.1%	35.5%	56.8%	48.9%	
	Lifetime	20.1%	24.3%		20.2%	24.2%	18.2%	24.4%	
	Do not know	18.3%	19.9%		30.3%	16.1%	11.4%	11.1%	
5) Do you feel that Dental Implants require additional oral hygiene maintenance and care by the patient and dentist?	No, are cleaned like natural teeth	14.8%	23.5%	.176	25.7%	12.9%	18.2%	14.4%	.035
	Yes, need more care than natural teeth	75.1%	64.0%		56.9%	80.6%	75.0%	76.7%	
	No, needless care than natural teeth	5.3%	5.9%		7.3%	3.2%	2.3%	6.7%	
	Do not know	4.7%	6.6%		10.1%	3.2%	4.5%	2.2%	
6) On a scale of 1-10, how difficult do you feel is it to place implants as compared to other dental procedures?	Very easy	7.1%	5.9%	.076	7.3%	6.5%	6.8%	5.6%	.905
	Average	52.7%	65.4%		55.0%	58.1%	54.5%	64.4%	
	Very difficult	40.2%	28.7%		37.6%	35.5%	38.6%	30.0%	
7) What is the cost of procuring a Dental Implant from an Implant company?	5000- 10000 SAR	56.2%	52.2%	.054	38.5%	51.6%	72.7%	66.7%	.001*
	10000- 15000 SAR	18.9%	14.0%		23.9%	22.6%	9.1%	7.8%	
	20000-25000 SAR	7.7%	4.4%		5.5%	9.7%	4.5%	5.6%	
	Don't know	17.2%	29.4%		32.1%	16.1%	13.6%	20.0%	
8) How much do you feel is the initial set-up cost required to incorporate Implant into practice?	200,000- 300,000 SAR	19.5%	23.5%	.721	15.6%	21.0%	27.3%	25.6%	.289
	400,000-500,000 SAR	16.6%	16.2%		15.6%	21.0%	9.1%	17.8%	
	1,000,000 SAR and above	7.7%	5.1%		10.1%	3.2%	9.1%	3.3%	
	Don't know	56.2%	55.1%		58.7%	54.8%	54.5%	53.3%	
9) Do you think that Dental Implants are an acceptable solution for missing teeth in Saudi Arabia?	Yes, implants are here to stay	55.6%	66.2%	.158	46.8%	58.1%	81.8%	67.8%	.003
	No, economic feasibility will limit their usage	35.5%	23.5%		37.6%	33.9%	13.6%	26.7%	
	No, too invasive for patient acceptance	5.3%	6.6%		11.9%	3.2%	2.3%	2.2%	
	No, other reasons	3.6%	3.7%		3.7%	4.8%	2.3%	3.3%	

Of the total 305 subjects, 136 were males & 169 were females. The majority of the total 48.5% were moderately well-informed about dental implants, found to be less than students of Nepal 54.6%. 5th year respondents perceived to be moderately well-informed about dental implants [6]. The main advantage of dental implants was thought to be their longevity reported in 52.1% of total higher among 4th-year students and 47.9% thought case selection as the most important factor for Implant success reported higher among 56% of females. 72 % felt dental implants require additional oral hygiene maintenance and care by the patient and dentist reported higher in females and 5th year students. This is similar to the Nepal study where 5th year respondents perceived to be moderately well-informed about dental implants. 35 % felt difficulty to place implants as compared to other dental procedures. 60% thought Dental Implants are an acceptable solution for missing teeth in Saudi Arabia higher in 6th year students [7]. During BDS training 26% had seen a demonstration of the placement of Implants by the faculty and 22% had implant restoration. only 14 % of subjects had Placed Implants under the supervision of Faculty higher among 5th year students. 68.5% liked to venture more into Dental Implants in dentistry found to be associated with the gender of the study participants. While the academic year was significantly associated with the placement of implants under faculty supervision. knowledge about dental implants increased with an increase in an academic level. However, among Nepal students even in the late-clinical year a majority of students gave unsatisfactory responses [8].

CONCLUSION

Knowledge and perception about dental implants among undergraduate dental students differed at different academic years & gender. items on advantages of implant placement, implant success, the longevity of dental implants, oral hygiene, and maintenance of dental implants, cost, and acceptability were found to be associated with academic year

with an increase in undergraduate training. A significant gap in knowledge, perception and placement of implants was reported which directs the need for curriculum review, evaluation of teaching materials and methods, consensus workshops drawing solutions to obstacles recommending clear guidelines to upgrade implant dentistry in the undergraduate curriculum.

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CONFLICT OF INTEREST: None

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ETHICS STATEMENT: The research proposal was approved by the Regional Research and Ethics committee of Riyadh Elm University, Riyadh, Kingdom Saudi Arabia.

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