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Patients' Knowledge and Attitude Regarding Dental Implants

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ABSTRACT

Introduction: The more informed a patient about a treatment, the better the obtained outcome. The aim of this study was to evaluate the knowledge and attitude of the patients regarding dental implants and determine the sources of information and also the accuracy of received information.

Methods: In this cross-sectional study, 246 participants who had referred to the Department of Dentistry in Shahid Sadoughi University of Medical Sciences, Yazd, Iran from July 2018 to February 2019, with the age of at least 20 years, were randomly selected. A researcher-made questionnaire including demographic characteristics and questions related to participants' knowledge and attitude regarding dental implants was used. Mean (SD), Frequency (Percentage) were used for description. Independent sample t-test, one way ANOVA test were used for data analysis. Data were analyzed by SPSS software Version 23 and p -value less than 0.05 was considered as statistically significant.

Results: The mean score of the participants' knowledge on dental implants was 8.08 ± 2.12 out of 12. The primary main source of patients for getting information was friends and acquaintances (32.9%), followed by dentists (26.8%). The level of knowledge was higher in younger (p= 0.001) and educated ones (p= 0.001) and in those who had insurance coverage (p= 0.012). The main reason for not choosing implant treatment in 58.9% of participants was high costs. There was no relationship between gender (p =0.55) and monthly income of patients (p= 0.09) with their level of knowledge.

Conclusion: The results revealed that knowledge level of the participants about durability of implants, was low; Therefore, it seems necessary to improve the level of information of participants and to correct their information sources.

Keywords*:* Dental Implants, knowledge, Attitude, Dentistry.

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Introduction

Teeth are lost for a variety of reasons, including trauma, major caries, or gum disease. Depending on the number or location of missing teeth or the severity of tooth decay, different treatments can be used, including removable, fixed, or implant-based prostheses (1). A dental implant is a titanium fixture that is implanted surgically within a jawbone and a prosthesis is fixed on this base after bone formation (2). Implant-based dentures can be either fixed or removable.

Today, implant use is increasing due to the factors such as 1)Increasing the life expectancy of individuals in society, 2) age-related tooth loss, 3)Consequences of failure of fixed prostheses, 4) anatomic consequences of tooth loss, 5) poor performance of removable dentures, 6) the psychological consequences of tooth loss, 7) the predictable long-term outcomes of implant-based dentures, 8) the benefits of implant-based dentures, and 9) increased public knowledge(3). However, most people have little information about dental implants and their information is sometimes incorrect. A study in Austria showed that 96% of the study population thought that the implant could be used for the rest of their lives, which would reveal misinformation or incomplete information. (4).

In 2016, a study in Kerman reported that 76.7% of the patients referring to Kerman Dental Clinic had heard about the implant and dentists were the main source of information for them (5). The main reasons for not choosing implant as a treatment option was lack of accurate knowledge (40.7%) and high cost (31.5%). In this late study, people's general knowledge of implants as a replacement for the missing tooth was evaluated as average (5).

Without access to the right resources, patients are usually faced with misleading and confusing information provided by the media and non-specialists. Providing patients with accurate and adequate information about dental implants helps them having reasonable expectations which is proportional to what they actually receive and not to have a false image on the subject (6). Therefore, due to the importance of knowledge and attitude of patients about dental implants and their effects on treatment steps and processes, we conducted a study to evaluate the knowledge and attitude of the patients referring to Yazd Dental School regarding dental implants in 2018.

Methods

In this analytical cross-sectional study, 246 individuals who had referred to Periodontics Department of Dental faculty of Shahid Sadoughi University of Medical Sciences, Yazd, Iran from July 2018 to February 2019, with the age of at least 20 years, were randomly selected and entered into the study. Initially, all study objectives were fully explained to the participants. Exclusion criteria were considered as reluctance to complete the questionnaire in the study and incomplete response to the questions.

Then they were asked to complete a researcher-made questionnaire including demographic information as well as knowledge and attitude questions. The validity of the questionnaire was verified by 10 specialists in periodontology department. Its reliability was also confirmed by conducting a pilot study (n = 15) revealing a Cronbach's alpha index of 0.7. The

The questionnaire consisted of 18 questions and three parts: 1. The first part addressed questions on demographic characteristics, including age, sex, education, occupation, income, and insurance status of the individual, 2. The second part comprised 6 questions pertinent to people's knowledge of the useful life of the implant in the mouth, the potential risks of dental implant treatment, the placement of implant, and the types of implant-based treatments, and 3. The third part included 12 questions concerning the attitudes of the participants.

The questionnaires were given to the participants and they had an average of about 10 minutes to fill out the questionnaire during the time they were in the waiting room for their dental appointment.

Ethical considerations

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The research was also approved by the Ethics Committee of Shahid Sadoughi University of Medical Sciences, Yazd, Iran (Code: IR.SSU.REC.1397.021). At the end of the study, a brochure prepared by the researchers containing all the correct information about the dental implants that were asked about in the questionnaire was given to the patients.

Statistical analysis

Mean (SD), Frequency (Percentage) were used for description. Independent sample t-test, and one way ANOVA test were used for data analysis. Data were analyzed by SPSS. software Version 23 and p -value less than 0.05 was considered as statistically significant.

Results

A total of 246 participants completed the questionnaires, 7 of them were excluded from the study due to lack of full response and were replaced with 7 new ones.

In this study, most of the participants were female (56.5%) and in the age group of 39-30 years (50.8%) with postgraduate education (28.5%). Demographic characteristics distribution is mentioned in Table1 I.

The results of the present study demonstrated no significant relationship between gender and the mean score of knowledge but people in the age group of 30-39 years showed a higher level than the other groups. The results also revealed that people's knowledge increased by education, while income had no effect on their knowledge. Patients with insurance coverage and those without insurance had not statistically different knowledge scores. Patients with a history of implant treatment on their own or one of their relatives had a higher level of knowledge than those without this criteria (Table 2). Tables 3 and 4 provide information on participants' knowledge and attitude towards the implants, respectively. The first reason (29.3%) mentioned by patients for choosing implant treatment was its longevity.This is while (57.3%) of the participants, in response to the useful lifespan of the implant, chose the "I do not know" option. The most important reason for avoiding more than half of patients (58.9%) from this treatment was its high cost. A total of 73.6% of patients were inclined to have implant treatment by a specialist dentist with the priority of a periodontist. The most probable reason for the failure of implant treatment in the eyes of patients (40.7%) was the improper body material of the implant.

The most answers selected in questions about possible disadvantages of choosing this treatment, correct location of implants' placement in the mouth, implant body material, different types of implant-based treatments and possible complications after treatment and health cares needed for dental implant were "I Don't Know".

Table 1. Demographic characteristics of the study participants

Variables		N	%
Gender	Men	107	43.5
	Women	139	56.5
Age (year)	20-29	62	25.2
	30-39	125	50.8
	>=40	59	24
Education level	Illiterate	12	4.9
	High school	51	20.7
	Diploma	30	12.2
	Associate degree	70	28.5
	Bachelor	54	22
	Bachelor & higher	29	11.7
Occupation	Unemployed	15	6.1
	Housewife	93	37.8
	University student	50	20.3

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Variables		N	%
	Employee	36	14.6
	Free-lance Job	52	21.2
Income	< 10 million Rials	98	39.8
	10-20 million Rials	52	21.1
	20-30 million Rials	33	13.4
	>30 million Rials	63	25.7
Insurance	No	45	18.3
	Yes	201	81.7

Table 2. Comparison of the mean score of knowledge based on the variables studied

Variable		Score of knowledge	p
Gender , Mean±SD	Men	7.99±2.06	0.55*
	Women	8.15±18.2	
Age (year), Mean±SD	20-29	7.98±2.11	<0.001*
	30-39	8.66±2.28	
	40≤	6.97±1.11	
Education level, Mean±SD	Illiterate	5.67±1.87	<0.001**
	High school	7.69±1.82	
	Diploma	8.3±2.13	
	Associate degree	8.13±2.08	
	Bachelor	8.59±2.12	
	Bachelor and higher	8.48±2.18	
Monthly income, Mean±SD	< 10 million Rials	8.39±2.38	0.09**
	10-20 million Rials	7.88±2.13	
	20-30 million Rials	8.39±1.76	
	> 30 million Rials	7.6±1.77	
Insurance coverage, Mean±SD	Yes	7.13±1.82	0.06*
	No	6.98± 2.06	
Any history of implant treatment on oneself or the relatives, Mean±SD	Yes	8.6±2.28	<0.001*
	No	7.23±1.49	

* Independent sample t-test, ** One way ANOVA.

Table 3. Frequency of study participants' answers to knowledge questions about dental implants

Items	levels	N	%
How long will the implant's useful life span be?	Less than 10 years	20	8.1
	Between 10-20 years	39	15.9
	More than 20 years	11	4.5
	Lifetime	35	14.2
	I do not know	141	57.3
What can be the disadvantages of dental implant treatment?	Adverse side effects	21	8.5
	Damage to the jaw bone	34	13.8
	Damage to adjacent teeth	15	6.1
	It works for a limited time	12	4.9
	Infection after insertion	38	15.4
	I do not know	126	51.2
Where are implants placed in the oral cavity?	Gum	41	16.7
	Jawbone	81	32.9

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Items	levels	N	%
	In the adjacent teeth	9	3.7
	I do not know	115	46.7
What is the material used for body of implant?	Copper	7	2.8
	Lead	10	4.1
	Titanium	51	20.7
	Tin	5	2
	I do not know	173	70.3
Which of the following are the types of implant-based treatments?	Fixed	31	12.6
	Removable	13	5.3
	Both	59	24
	I do not know	143	58.1
Which of the following complications may be occurs due to implant treatment?	Sensitivity to its metal	30	12.2
	Infection	45	18.3
	Malignancy	18	7.3
	I do not know	153	62.2

Table 4. Frequency of participant responses to dental implant attitude questions

Items	levels	N	%
Have you ever heard about dental implants?	Yes	153	2.62
	No	93	8.37
What is your source of getting information about dental implants?	Friends and relatives	81	32.9
	Dentist	66	26.8
	Society	39	15.9
	Media and internet	60	24.4
How much do you know about dental implants?	Excellent	9	3.7
	Good	30	12.2
	Medium	72	29.3
	Poor	35	14.2
	I do not know	100	40.7
What is the difference between the effectiveness of fixed dentures and dental implants?	dentures are better than implant	18	7.3
	Implants are better than dentures	94	38.2
	Both are similar	24	9.8
	I do not know	110	44.7
Would you like to receive implant treatment if needed?	Yes	167	67.9
	No	79	32.1
What can be your main reason for choosing implant therapy?	Esthetic	41	16.7
	No damage to adjacent teeth	45	18.3
	It's long life	72	29.3
	I do not know	88	35.8
What is your main reason for avoiding implant treatment?	Fear of surgery	16	6.5
	high cost	145	58.9
	Uncertainty about its lifelong permanence	9	3.7
	Probable side effects	11	4.5
	I do not know	65	26.4
Who would you like to perform dental implant treatment for you?	General Dentist	24	9.8
	Gum specialist (periodontist)	106	43.1
	Maxillofacial surgeon	75	30.5

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Items	levels	N	%
What do you think is the most important cause for failure in implant therapy?	Your trusted dentist, regardless of his/her academic degree	41	16.7
	Poor oral hygiene	58	23.8
	Poor dentist performance	61	24.8
	Bone weakness	27	11
	Implant type	100	40.7
How is dental implant health care?	Like natural teeth	62	25.2
	It doesn't require as much cleaning as a natural tooth	18	7.3
	Requiring more care than natural teeth	70	28.5
	I do not know	96	39
Do You want to know more about implants?	Yes	211	85.8
	No	35	14.2
If yes, who do you trust to get more information?	Friends and acquaintances	32	13
	Dentist	160	65
	Internet	23	9.3
	None	31	12.6

Discussion

In this study results displayed no significant knowledge difference in terms of gender. People younger than 40 were more aware of people older than 40. In the study of Saha et al in India, the age group of 20-40 years had a better knowledge than the age group of ≥40 (7). Further, the results of Kohli et al. study in Malaysia distinguished that 54.5% of the patients who had heard about the implant having a mean age of 21-40 years (8). In the study of Amri et al., most people who had some information about the implant were in the age group of 20-40 years (9).Perhaps the desire to change and use modern therapies and consequently to benefit from the convenience and quality of newer dental treatments in the young generation of society, could justify the higher knowledge of the younger age groups.

Our findings identified that illiterate people are less aware than educated individuals. Studies in Malaysia and India have also reported similar results (7, 8). The reason may be attributed to this fact that educated people are more likely to be in more cultured social groups. The statistical analysis of which revealed no relationship between knowledge of dental implant and income of the participants; this may be due to the selection of the relatively close income intervals. In contrast, Tomruk et al. in Turkey demonstrated that people with higher income levels are more aware of dental implants (10).

In the present study, people who had a history of implant treatment on their own or one of their relatives showed higher knowledge compared with others thus being consistent with the results of Al-Johani et al. in Saudi Arabia, in which, contact with people under treatment with dental implants had been introduced as an important source of information (11). This appears to reflect the fact that individuals rely more on their personal experience or on patients undergoing implant treatment than other sources of information. On the other hand, having easier access to relatives so as to ask numerous questions about the matter is a point that should not be overlooked.

In our study, the main source of knowledge about dental implant was friends and acquaintances followed by dentists. Awooda et al. in Sudan also reported that the main source of information about dental implants was friends and acquaintances and dentists respectively (12) but Fakheran et al. in Kerman obtained different results as dentists were the main source of knowledge acquisition, illustrating the more prominent role of dentists

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even in the early stages of gaining information in that region (5).

In the present study, about 67% of participants were unaware of the exact location of implants' placement, the jawbone, which is one of the simplest questions asked. This finding was worth pondering compared to the study by Al-Johani about 9 years before the time of our study in Saudi Arabia, in which about half of the patients selected "jawbone" as the right option (11).

The results of our study displayed that more than half of the subjects identified the high cost of dental implant treatment as the first reason for not choosing this type of treatment. In Al-Johani et al. and Jha et al. studies, the high cost of implant treatment was also the main reason for not choosing implant as replacement for missing teeth (11, 13). Sahaet al in India also discerned financial problem as the main reason for patients not choosing dental implants and 21.7% of the participants expressed fear of the "word" surgery utilized in this procedure (7)which is not consistent with the small proportion of people who cited fear in our study as the reason for avoiding implant treatment. Therefore, the overall perspective in the field of implant therapy maintains medical costs as being highly critical for patients.

In the present study, 28.5% of the participants supposed that implants need more oral hygiene care in comparison with natural teeth, 25.2% of the patients believed in similar care for both and 7.3% identified less needed oral health care for implants. Unfortunately, about 40% of the patients knew nothing about this, indicating a significant lack of knowledge. The results of the Satpathy et al. study in India also revealed that 23.24% of people believed in the implant requiring more health care than natural teeth, 37.49% considered both as similar and 39.29% mistakenly mentioned less need for health care than teeth(14). In Fakheran et al study, the option of less care than natural teeth was selected by 10% and 16.1% had no idea about this subject(5). So in this regard, the attitude level appears to be higher than our study. As you know, the adhesion of connective tissue to implants is weaker than natural teeth, and implants are more prone to inflammation-induced damage (15), so our patients should not assume that if replaced natural teeth with implants, they can reduce the level of oral hygiene.

In general, the differences reported by these and other studies can be due to the differences in the communities studied, how the participants were selected, as well as the sample size. This discrepancy may also be emanated from appropriate performance of the health authorities in providing proper knowledge for their populations.

The result showed that a large proportion of patients avoid using this treatment due to its high cost. Therefore, the need for dental insurance coverage or at least supplemental insurance for dental services appears to make patients opt for the best (in this study, over 80% of the patients had insurance coverage but it didn't include dental treatments). Moreover, providing patients with information on the cost of implant treatment being lower than that of the private sector in university centers or the possibility of paying in several installments can bring patients closer to implant treatment.

Due to the conduct of this study in a fully governmental educational center, the number of patients who met the criteria for entering the study within the sampling time period, may have been less compared to the studies conducted in the private sector or in a multi-centered manner. An attempt was made to collect almost all the questions used in the previous similar studies, found in the search, in one study which is considered as the strength of the present study.

Conclusion

In general, the results revealed that knowledge level of the participants about durability of implants, possible negative points of choosing this treatment, location of placement, body material, types of implant-based treatments, probable complications after treatment and oral hygiene cares needed for dental implant was low; hence, there is a need for raising the level of information and correction of community knowledge resources.

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Conflict of interest

None declared.

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Author Contribution

All authors contributed to article preparation equally. All authors read and approved the final manuscript. The present article was extracted from the dissertation of doctorate in the Faculty of Dentistry, Shahid Sadoughi University of Medical Sciences and was approved by ethics committee. (IR.SSU.REC.1397.021).

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