



Dental Implants Therapy: A Cross-Sectional Study of Patients' Knowledge and Awareness

Rana AL Amri^{1*} and Samah Saker^{2*}

¹Intern at School of Dentistry, Taibah University, Madinah, Saudi Arabia.

²Department of Fixed Prosthodontics, Faculty of Dentistry, Mansoura University, Mansoura, Egypt.

Authors' contributions

This work was carried out in collaboration between both authors. Author RAA designed the study, performed the statistical analysis and wrote the first draft of the manuscript. Author SS wrote the manuscript, revised and edited the final draft of the manuscript. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/BJMMR/2017/30449

Editor(s):

(1) Ibrahim El-Sayed M. El-Hakim, Ain Shams University, Egypt and Riyadh College of Dentistry and Pharmacy, Riyadh, Saudi Arabia.

Reviewers:

(1) María Prados-Privado, Rey Juan Carlos University, Spain.

(2) G. Subraya Bhat, Manipal University, India.

(3) Lauritano Dorina, University of Milan-Bicocca, Italy.

Complete Peer review History: <http://www.sciencedomain.org/review-history/17500>

Original Research Article

Received 10th November 2016
Accepted 6th January 2017
Published 11th January 2017

ABSTRACT

Aim: This cross sectional study aimed to assess knowledge and attitude among partially dentate patients visiting dental clinic regarding to dental implant as a modality of treatment.

Methodology: A total of 114 adult dental patients (52 men, 62 women; age range 18-80 years) were recruited for this study. Printed standardized self explanatory questionnaire were handed to the patients during their dental visits and informed consent was taken from all participants. Data collected using validated and reliable self- explanatory questionnaire were analyzed using simple descriptive and analytical analysis.

Results: Patients' awareness about dental implant among 114 participants showed that 36.6% of the study sample were aware about complete denture as alternatives treatment when compared to fixed partial denture, while 28.1% (54.5%) of the participants were well informed about the dental implant, most of them were in the age group (21-40) years. Dentists followed by the media and friends were the main sources of dental information. High cost was the main factor prevented 32.5% of the participant from selecting the dental implant when needed.

*Corresponding author: E-mail: ranasaad23@hotmail.com, samah_saker@hotmail.com;

Conclusion: Knowledge about dental implant therapy should be improved through different educational channels.

Keywords: Dental implant; awareness; alternatives treatment; knowledge.

1. INTRODUCTION

Tooth loss is the result of complex interaction of factors, of which the remaining coronal structure after caries removal, periodontal condition or tooth fracture as a result of trauma may only be the triggering factors, rather than the one single reason for tooth loss. It is reported that tooth loss vary by age, gender, race, education, income and by geographic region [1].

Cultural factors, individual's attitudes, care availability and accessibility, care cost, and credence about perceived need for dental care and importance of maintaining the dentition interplay in the decisions of whether or when to extract a tooth [2].

In terms of the replacement of missing teeth the options available include the use of fixed partial dentures, conventional, adhesive bridges and removable partial dentures each with their advantages and disadvantages [3]. With the revolution in the field of adhesive dentistry and implantology, treatment modalities are increased and varied for the partially edentulous patient but have also made treatment planning to some extent more costly [4].

Some researchers have focused on the degree of patient satisfaction after oral rehabilitation with different types of dental prosthesis, they reported that aesthetics /phonetic or chewing function were excellent (above 80% satisfied) by patients rehabilitated with either implant supported single tooth restoration or fixed partial dentures [5,6].

A study conducted by Esfandiari et al. [7] who focused on the preferences of edentulous patient for implant overdentures, concluded that the patient's ability to pay a sum of money have increased up to three times higher compared with a traditional conventional treatment options with a removable prosthesis.

From this perspective, several types of research have been conducting in different countries to study the patients' awareness about dental implants. Some studies [8,11] reported that the level of awareness of ranges from 23.24% to

79% while others reported that the high cost was the main reason in preventing patients from selecting implants in 86.5% of the cases combined with fear of surgery and the longer treatment time in 68.6% and 71% of the cases, respectively [12].

It is important to realize if the patients have enough information and if what they realize reflects the facts. Studying what the patients really informed about dental implants, adds to coincide the expectations of consumer with what can really be achieved and to prohibit negative image results from miscommunications [13].

So this cross-sectional study was conducted to addresses the level of patient information about implants in the population of Medina, Saudi Arabia and studied the effect of patients' education level, age and socioeconomic state on their selection.

2. METHODOLOGY

This study was an observational analytical cross-sectional study among adult dental patients attended dental clinics at Taibah University and Ohud Hospital in Medina, Saudi Arabia from JAN to APR, 2016. Eligible patients had been as a minimum 18 years of age and with no previous dental implant. The study was approved by The Research Ethics Committee (TCD-REC) of College of Dentistry, Taibah University.

114 patients were recruited for this study. The sample was non-probability convenient sample due to the availability [14]. Printed standardized self explanatory questionnaire was handed to the patients during their dental visits and informed consent was taken from all participants. A closed-ended questionnaire with (10) items in (3) sections was conducted to assess the patient's awareness and knowledge about dental implants as a treatment modality for teeth replacement.

Section 1 have 2 items to assess the knowledge of the patients about alternatives for replacing the missing teeth, section 2 have 7 items to assess the information level, its sources and subjective view of the dental patients about

dental implants and section 3 have 1 item to assess the factors preventing the patient from choosing dental implant as a treatment modality. Demographic data, socioeconomic status and level of education were assessed.

Questionnaires were prepared in English and transfer to the Arabic language for better understanding. (The questionnaire was adapted from a previous study conducted by Tepper G, et al. [12], Tomruk C, et al. [11] and Kohli S, et al. [9] and the item number 10 in section 3 add to questionnaire to explore the factors that may prevent the patient from choosing a dental implant.

2.1 Statistical Analysis

Data collected using validated and reliable self-explanatory questionnaire were analyzed using simple descriptive and analytical analysis using "SPSS for Windows" (Version 20, SPSS Inc., USA). Chi-square tests have been used for data analysis at a level of significance of $P \leq 0.05$.

3. RESULTS

114 patients were recruited in this study of which 45.6% were males and 54.4% were females (Table 1).

Regarding the patients' awareness about alternatives options for replacing missing teeth, 19.3% of participants were very well informed about alternatives for replacing missing teeth, while 11.4% were very well informed about the dental implant while near than half patients

(49.1%) were poorly informed about the dental implant (Fig. 1).

The level of general knowledge about dental implants presented that 38.6% of the sample thought that the dental implant is placed in the jawbone, 11.4% thought that it is placed in the gums, while 47.4% of the sample did not know where the dental implants are placed.

Table 1. Summarizes the demographic data of the participating patients

Factor		No.	
Gender	M	52	45.6%
	F	62	54.4%
Age	18-20 years	21	18.4%
	21-40 years	51	44.7%
	41-60 years	28	24.6%
	61-80 years	14	12.3%
	Up to university and above	22	19.3%
Education level	Under Secondary school	20	17.5%
	Secondary school	26	22.8%
	High school	46	40.4%
	Up to university and above	22	19.3%
Income	Low	20	17.5%
	Medium	62	54.4%
	High	10	8.8%
	No answer	22	19.3%

Regarding to the participants knowledge about the survival rate of dental implants, the results showed that; 48.2 did not know, 14% reported up to 5 years, 21.1% up to 10 years, 21.1% reported up to 10 years, 5.3% reported up to 20 years while 11.4% reported for a lifetime.

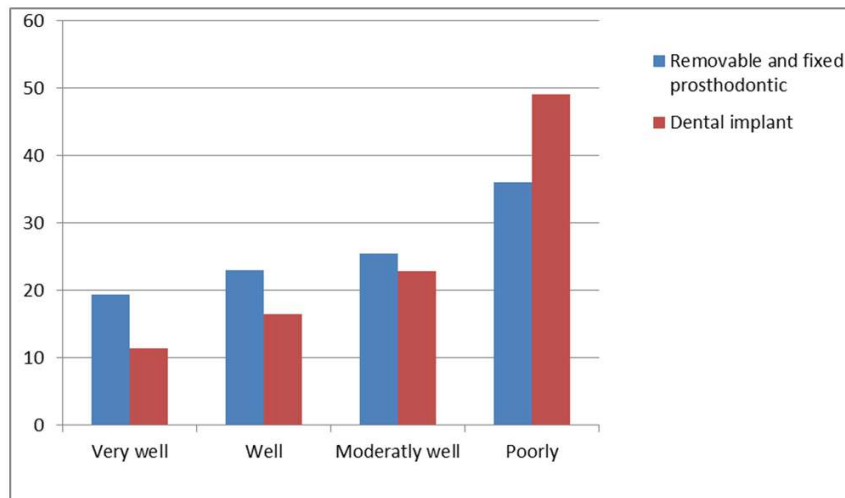


Fig. 1. The participants' information level about modalities of teeth replacements

53.3% of participants did not know about the special care and oral hygiene of implant, 5.3% thought that dental implant cleaned like natural teeth, 5.3% thought that dental implant needs less care than natural teeth and 36% believed that dental implant need more care than natural teeth.

Dentists were the most important driving force for patient knowledge about options of teeth replacement followed by the media and friends. The high cost was the main factor prevented 32.5% of the participant from selecting the dental implant when needed.

Chi-square test showed significant difference ($P < .05$) in term of awareness and knowledge about dental implant between highly and poorly educated patients (Table 2) while there was no significant difference between males and females ($P > .05$) (Table 3).

Table 2. Chi-square test for comparison between patient awareness about dental implant based of education level

Level of education	No.	%	p-value
High level	72	63.2%	
Low level	42	36.8%	.001

Table 3. Chi-square test for comparison between patient awareness about dental implant based on gender

Gender	No.	%	p-value
Male	52	45.6%	
Female	62	54.4%	.866

4. DISCUSSION

In Saudi Arabia, insufficient information on the attitudes of dental patients towards tooth replacement exists. Subsequently, the current study was an attempt to find out about the patients attitudes towards the teeth replacement option by using dental implant as a treatment modality at the university school of dentistry, Madina.

Among the 114 participated in the present study, 62.3% (21-40 year age) of participants were well informed about dental implant as a treatment modality for teeth replacement. This can be attributed to the increased interest of dental patients towards the advancements in medical and dental technology [9].

The results of the present study were supported by the findings of Kohli et al. [9] who reported that the 21-40 year age group (54.5%) and with the education of university level or higher (62.3%) were more informed about dental implants than other subjects under study. Additionally, Chowdhary et al. [15] stated that patients with high level of education were well informed about dental implants. In the contrary, the finding of our study was contradicted by the study conducted by Berge, et al. [16] who reported that age group of 45 y and above were more informed about dental implant.

In the present study, awareness regarding dental implant among 114 participants represented that only, 28.1% of participants were well informed about dental implant compared to the results Suprakash, et al. [8] who reported that 33.3% of participants were informed about dental implant.

Many studies [5,15,17,18,21] reported that, dentists were the main source of patient's information's about dental implant. This finding is in contrary to the finding of Al-Johany S, et al. [10] a survey in Riyadh, Saudi Arabia, who reported that, relatives and friends were the main source of information about dental implants for (31.5%) followed by dentists for (28.3%).

In the current study, 53.3% of participants were not informed about special care and oral hygiene of dental implant. This results were supported by the finding of Faramarzi M, et al. [19] who reported that, 33% of patients believed that dental implant need more care, 25.3% of them think that it need an equal care to natural tooth and 5% believed that dental implants need less care and hygiene than natural teeth. While Al-Johany S, et al. [10] concluded that, 34.3% of patients believed that dental implants should be cleaned similar to natural teeth, 61.6% said it needs more care than natural teeth, while 3.3% said it needs less care than natural teeth.

When participants were asked about their knowledge about the survival rate of dental implants, 48.2% did not know, 14% said up to 5 years, this finding is contrary to that reported by Satpathy A, et al. [17] stating around 60% of the patients expected the life span to be within 5 years. Faramarzi M, et al. [19], showed that 6% of the patients believed durability of less than 10 years and only 12% of the patients believed 10-20 years for durability. Around 28% of Japanese subjects believed their implants would last forever [20].

32.5% of participants reported that, the high cost is the main factor preventing them from selection of dental implant as a teeth replacement modality. This finding was supported by Al-Johany S, et al. [10] who reported that, the high costs was the main limiting factor for dental patient to select dental implant. In contrary a study conducted by Awooda, et al. [22] showed that lack of information was the main cause in 97,37% participants.

5. LIMITATION

Small sample size was the main limitation of this study. Additionally, study place needs to be more widely distributed all over Saudi Arabia dental centers.

6. CONCLUSION

Knowledge about dental implant therapy should be improved through different educational channels.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Bradnock G, White DA, Nuttall NM, Morris AJ, Treasure ET, Pine CM. Adult dental health survey: Dental attitudes and behaviours in 1998 and implications for the future. *Br Dent J.* 2001;190:228-232.
2. Omar R, Tashkandi E, Abdul Jabbar T, Abdullah MA, Akeel RF. Sentiments expressed in relation to tooth loss: A qualitative study among edentulous Saudis. *Int J Prosthodont.* 2003;16:515-20.
3. Henry P. Tooth loss and implant replacement. *Aust Dent J.* 2000;45:150-172.
4. Bartlett D. Implants for life. A critical review of implant-supported restorations. *J Dent.* 2007;35:768-772.
5. Pommer B, Zechner W, Watzak G, Ulm C, Watzek G, Tepper G. Progress and trends in patients' mindset on dental implants. II: implant acceptance, patient-perceived costs and patient satisfaction. *Clin Oral Implants Res.* 2010;22:106-112.
6. Pjetursson BE, Karoussis I, Burgin W, Bragger U, Lang NP. Patients' satisfaction following implant therapy. A 10-year prospective cohort study. *Clin Oral Implants Res.* 2005;16:185-193.
7. Esfandiari S, Lund JP, Penrod JR, Savard A, Thomason JM, Feine JS. Implant overdentures for edentulous elders: Study of patient preference. *Gerodontology.* 2009;26:3-10.
8. Suprakash B, Ahammed ARY, Thareja A, Kandaswamy R, Kumar N, Bhondwe S. knowledge and attitude of patients toward dental implants as an option for replacement of missing teeth. *J Contemp Det Pract.* 2013;14:115-118.
9. Kohli S, Bhatia S, Kaur A, Rathakrishnan T. Patients awareness and attitude towards dental implants. *J Interdis Dent.* 2014;4:76-80.
10. Al-Johany S, Al Zoman H, Al Juhaini M, Al Refeaic M. Dental patients' awareness and knowledge in using dental implants as an option in replacing missing teeth: A survey in Riyadh, Saudi Arabia. *Saudi Dent J.* 2010;22:183-188.
11. Tomruk C, Kayahan Z, Şençift K. Patients' knowledge and awareness of dental implants in a Turkish subpopulation. *J Adv Prosth.* 2014;6:133-137.
12. Tepper G, Haas R, Mailath G, Teller C, Zechner W, Watzak G, et al. Representative marketing-oriented study on implants in the Austrian population. I. Level of information, sources of information and need for patient information. *Clin Oral Implants Res.* 2003;14:621-633.
13. Cronin M, Meaney S, Jepson NJ, Allen PF. A qualitative study of trends in patient preferences for the management of the partially dentate state. *Gerodontology.* 2009;26(2):137-42.
14. Khosya B, Devaraj CG. Awareness of dental implants as a treatment modality among people visiting Mahatma Gandhi Dental College & Hospital, Jaipur. *National Journal of Medical Research.* 2015;5(1): 61-63.
15. Chowdhary R, Mankani N, Chandraker NK. Awareness of dental implants as a treatment choice in urban Indian populations. *Int J of Oral Maxillofacial Implants.* 2010;25:305-8.
16. Berge TI. Public awareness, information source and evaluation of oral implant treatment in Norway. *Clin Oral Implants Res.* 2000;11:401-7.
17. Satpathy A, Porwal A, Bhattacharya A, Sahu P. Patient awareness, acceptance

- and perceived cost of dental implants as a treatment modality for replacement of missing teeth: A survey in Bhubaneswar and Cuttack. *Int J Public Health*. 2011;2(1):1-7.
18. Mukatash GN, Al-Rousan M, Al-Sakarna B. Needs and demands of prosthetic treatment among two groups of individuals. *Indian J Dent Re*. 2010;21:564-7.
 19. Faramarzi M, Shirmohammadi A, Chisazi MT, Kashefimehr A, Farhoodi EO, Mrani A. Patient's knowledge regarding dental implants in Tabriz, Iran. *Avicenna Journal of Dental Research*. 2013;4(1):43-48.
 20. Akagawa Y, Rachi Y, Matsumoto T, Tsuru H. Attitudes of removable denture patients towards dental implants. *J Prosthet Dent*. 1988;60:362-4.
 21. Kumar RC, Pratap KV, Venkateswararao G. Dental implants as an option in replacing missing teeth: A patient awareness survey in Khamman, Andhra Pradesh. *Indian J Dent Sci*. 2011;3:33.
 22. Awooda E, Eltayeb A, Hussein S, et al. Knowledge, attitude and acceptance of dental implants among patients attending Khartoum Dental Teaching Hospital. *J Dent and Medical Sciences*. 2014;13(11): 19-23.

QUESTIONNAIRE

Questionnaire- Arabic language

الاسم : (اختياري) الجنس: (ذكر ___ انثى)				
العمر :	20-18 سنة	40-21 سنة	60-41 سنة	80-61 سنة
مستوى التعليم :	اقل من المرحلة المتوسطة	المرحلة المتوسطة	المرحلة الثانوية	المرحلة الجامعية وما فوق
الدخل الشهري :	منخفض	متوسط	عالي	بدون إجابة
القسم الأول (أسئلة عن بدائل لتعويض الاسنان المفقوده).				
1- ما الذي تعرفه من هذه البدائل لتعويض الاسنان المفقوده ؟	الجسور او التليبيسات.	طقم الاسنان الجزئي القائم على المعدن.	زراعة الاسنان.	طقم كامل.
2- مامقدار معلوماتك حول البدائل لتعويض الاسنان المفقوده ؟	جيد جدا.	جيد.	متوسط.	ضعيف.
القسم الثاني (أسئلة حول مستوى المعلومات عن زراعة الاسنان ومصدرها والاحتياج إلى معلومات و رؤية المريض حول زراعة الاسنان).				
1- مامقدار معلوماتك حول زراعة الاسنان ؟	جيد جدا.	جيد.	متوسط .	ضعيف.
2- ماهوا مصدر معلوماتك حول زراعة الاسنان؟	طبيب الاسنان.	الأصدقاء.	وسائل الاعلام.	الطبيب العام.
3- من إي مصدر تفضل ان تأخذ معلومات حول زراعة الاسنان ؟	طبيب الاسنان.	الأصدقاء.	وسائل الاعلام.	الطبيب العام.
4- اين توضع زراعة السن في الفك ؟	في اللثة.	في عظم الفك.	في او على الاسنان المجاوره.	لا أعلم.
5- ماهي الأسباب التي تعتقد انها تحد من استخدام الزراعة لدعم الجسور او طقم الاسنان ؟	التكلفه العاليه.	قلة المعرفة.	الاحتياج إلى الجراحه.	وقت العلاج الطويل.
6- كم سنة تعتقد تدوم زراعة الاسنان ؟	مايصل إلى 5 سنوات.	مايصل إلى 10 سنوات.	مايصل إلى 20 سنة.	لا أعلم.
7- هل تعتقد ان زراعة الاسنان تحتاج إلى عناية خاصة ونظافة الفم ؟	لا، يتم تنظيفها مثل الاسنان الطبيعیه.	لا، تحتاج إلى عناية أقل من الاسنان الطبيعیه.	نعم، بحاجة الى مزيد من الرعاية من الاسنان الطبيعیه.	لا أعلم.
القسم الثالث:				
ماهو أكثر سبب يمنعك من إختيار زراعة السن في حالة إحتياجك؟	الخوف.	قلة معلوماتي حول الزراعة.	فترة العلاج الطويلة.	انها تحتاج إلى جراحه.
				التكلفه العاليه.

Questionnaire-English language

Demographic Factors

❖ Gender: (Female _ Male)

❖ Age:

- 18 -20 years
- 21-40 years
- 41 -60 years
- 61-80 years
- Above 80 years.

❖ Education:

- Under secondary school
- Secondary school
- High school
- Up to university and above

❖ Net monthly income:

- Low
- Medium
- High
- No answer

Section 1-(Questions on alternatives for replacing teeth)

1- Which of the following alternatives for replacing missing teeth are you aware of?

Crowns–bridgework–adhesive bridges

Metal based dentures

Implants/implant-supported reconstructions

Full dentures

2-How well informed do you feel subjectively about alternatives for replacing teeth?

Very well

Well

Moderately well

Poorly

Section2- (Level of information, sources of information, need for information, subjective views of the dental patients about implant)

1-How well informed do you feel subjectively about implants?

Very well Well Moderately well Poorly

2-what is your sources of information about dental implants?

Dentist Friends Media Medical doctor Other

3-From where would you like to get information about implants?

Dentist Friends Media Medical doctor Other

4-Where in the jaw do you think implants are anchored?

In the gums In the jawbone In/on neighboring teeth Do not know

5-What do you think are the limitations of implant-supported crowns/bridges/dentures?

High costs Lack of knowledge Need of surgery Long treatment time

6- How long do you think an implant lasts?

Up to 5 years Up to 10 years Up to 20 years For a lifetime Do not know

7- Do you think implants need special care and oral hygiene?

No, are cleaned like natural teeth No, need less care than natural teeth Yes, need more care than natural teeth Do not know

Section 3- (what is the most factor preventing you from choosing the implant for replacing your missing teeth if needed)?

fear lack your information about implant long time treatment need surgery high cost

© 2017 AL Amri and Saker; This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

*Peer-review history:
The peer review history for this paper can be accessed here:
<http://sciencedomain.org/review-history/17500>*