

Medical Science

25(118), December, 2021

To Cite:

Gowdar I, Alqhtani M, Alhijab F, Almutairi M, Alhwsawi A, Alhumaidan A, Alzahrani K, Alhaddad A. Knowledge and attitude regarding prosthodontic rehabilitation and factors affecting the patients visiting among Saudi Arabian population: A cross-sectional study. *Medical Science*, 2021, 25(118), 3303-3309

Author Affiliation:

¹Faculty, Department of Preventive Dental Sciences, Prince Sattam bin Abdul Aziz University, Al-Kharj, Saudi Arabia

²BDS, Prince Sattam bin Abdul Aziz University, Al-Kharj, Saudi Arabia

³BDS, PGD in Endo, Ministry of Health, Saudi Arabia

⁴Assistant Professor and Consultant of Prosthodontics, Oral and Maxillofacial Prosthodontics Department, King Abdul-Aziz University, Faculty of Dentistry, Jeddah, Saudi Arabia

Corresponding author

Abdulrahman Jafar Alhaddad
Assistant Professor and Consultant of Prosthodontics, Oral and Maxillofacial Prosthodontics Department, King Abdul-Aziz University, Faculty of Dentistry, Jeddah, Saudi Arabia
Email: aalhaddad@kau.edu.sa

Peer-Review History

Received: 08 November 2021

Reviewed & Revised: 09/November/2021 to 05/December/2021

Accepted: 06 December 2021

Published: December 2021

Peer-review Method

External peer-review was done through double-blind method.

Knowledge and attitude regarding prosthodontic rehabilitation and factors affecting the patients visiting among Saudi Arabian population: A cross-sectional study

Inderjit Gowdar¹, Mohammed Alqhtani², Faisal Alhijab², Mohammed Almutairi², Abdullah Alhwsawi², Abdulaziz Alhumaidan², Khames Alzahrani³, Abdulrahman Alhaddad⁴✉

ABSTRACT

Background: Oral diseases will have an impact on one's health and quality of life. One of the reasons individuals' visit the dentist is because they are completely or partially edentulous. Mastication, communication, facial support, and esthetics are all affected when teeth are lost. Aside from these issues, tooth loss causes patients to experience psychological stress and inhibits social contact. The purpose of this study was to assess awareness and attitude about replacing missing teeth among adult population in a university hospital at Saudi Arabia. **Materials and Methods:** A cross-sectional study survey of 625 participants was conducted in Saudi Arabia from January 2020 to October 2021 by using an online questionnaire. The survey was distributed using social media and Google forms. Patients' personal information, such as age, sex, and education, are included in the questionnaire, as well as information on their awareness and knowledge of missing teeth and desired treatment alternatives. The findings were calculated using descriptive statistics. **Results:** A total of 80.5% of study subjects have stated that they were aware about replacement of missing tooth. 55.4% of participants think missing tooth replacement is necessary for functional aspect. 57.9% knows about removable partial denture, 68.2% know about fixed partial denture and 80.8% know about implants. **Conclusion:** The increase in awareness about the various treatment options can be due to the changes in the socioeconomic background and literacy rate among the population. This can be utilized to implement modern technologies for the success of patient's satisfaction.

Keywords: Missing Tooth, Partial Denture, Implants, Tooth Replacement



© 2021 Discovery Scientific Society. This work is licensed under a Creative Commons Attribution 4.0 International License.

1. INTRODUCTION

Loss of tooth in an individual results in psychological trauma, social and physical impairment all of which decreases the quality of life (Atieh, 2008). Gerritsen et al., (2010) found out there is inverse relationship between the unrestored or missing teeth and the social relationship and self-confidence. To gain oral function, appearance and confidence, restoring teeth is essential (Battistuzzi et al., 1987). The reasons for tooth loss can be either dental caries, periodontal disease, dental trauma or any other reason but that will affect daily activities like eating, speaking etc. (Bashir, 2019; Kaur et al., 2014).

Whatever the reasons for tooth loss, teeth can be replaced. Prosthetic dentistry deals with replacement of missing tooth there by improve aesthetic and restores functional well-being. The main protagonist of prosthodontics is to rehabilitate esthetic, phonetic and function of patients. Many treatment modalities are available for restoring a missing tooth (Akeel, 2003; Bashir, 2019; Leles et al., 2011; Shekhawat et al., 2016). Either fixed, removable restoration or the most recent favorable option for most practitioner to place an implant prostheses which lasts longer with associated minimal complications (Gupta et al., 2018; Jain et al., 2013; Rahman, 2016). Treatment of each case depend on many factors, (Bashir, 2019; Gupta et al., 2018; Jain et al., 2013; Mukatash et al., 2010; Rahman, 2016) such as age, gender, health condition of the patient and the socio-economical factor that plays a main role in the treatment options (Peltzer et al., 2014).

According to Atieh *et al.*, (2008) the first molar is the most tooth to be lost (57.1%) in the kingdom of Saudi Arabia. With a high prevalence of tooth loss, it becomes necessary to evaluate patient's awareness and attitude towards treatment options for missing tooth hence the present study was designed.

2. METHODOLOGY

Present study assessed awareness and attitude about replacement of missing tooth among above 18 years at Riyadh, Saudi Arabia from January 2020 to October 2021. A total of 625 participants were included and ethical approval was approved by Review Board Committee of Prince Sattam Bin Abdul-Aziz University, faculty of Dentistry. This study has done online survey where the questionnaire was sent through all communications tools using the Google forms. The participants who participated in this study were 18 years and above among citizen of the capital city of Saudi Arabia. A consent form was done by each participant. The questioner wrote in Arabic and English language to make it easier for all level of educations. Subjects were asked to fill the questionnaire and resend without discussing with anyone.

Sample size

Sample size was estimated using the formula

$$n = N/1+Ne^2$$

n = sample size

N = total population = 300000

e = margin of error was kept at 4%

$$n = 300000/1+300000 \times 0.04 \times 0.04$$

$$n = 300000/481$$

n = 623 samples which was rounded to 625

Questionnaire

An unidentified questionnaire will be filled by the participants without any information. Personal information collected was gender, age, educational status and income. Educational level options were; diploma, bachelor and higher education level. Treatment options for missing teeth like RPD, FPD and implants related questions were included.

Validation of questionnaire

The questioner wrote in the beginning in Arabic language then translated to English language and test both versions and their translation to assure that both having the same meaning and understanding. Questionnaires were sent to the participants through communications toolssuch as emails, social networking applications starting by abrief of the study and consent form. Descriptive statistics were computed and chi square test with 95% confidence interval and p value less than 0.05 was considered as statistically significant.

3. RESULTS

Table 1 depicts study subjects demographic characteristics. There were a total of 284 males and 341 females and Majority of the subjects were belonging to 36-45 years of age group (33%). 65.1% of the subjects were graduates. 33.4% of the study subjects were having a family income of 10000 -20000 SAR.

Table 1 Demographic characteristics of study population

verbal's		Frequency	Percent
Gender	Male	284	45.4
	Female	341	54.6
Age group	18-25	160	25.6
	26-35	134	21.4
	36-45	206	33.0
	46 and above	125	20.0
Education	Up to diploma	126	28.2
	Graduate	407	65.1
	Post graduate	42	6.7
Income level	< 5000	193	30.9
	5000 -10000	188	30.1
	10000 - 20000	209	33.4
	> 20000	35	5.4

Table 2 shows awareness of study subjects about missing tooth replacement and various options available. 80.5% of study subjects have stated that they were aware about replacement of missing tooth. 55.4% of subjects think missing tooth replacement is necessary for functional aspect. 47.8% of study participants have told they know the options available for replacement of missing tooth whereas 52.2% have told they are not aware of the options. 57.9% know about removable partial denture, 68.2% know about fixed partial denture and 80.8% know about implants. 30.2% of study participants are aware about the waiting period in dental implants. 36.6% are aware of cost of dental implants. Major source of information about tooth replacement is by dentists (36%). 77.3% of study participants think that implant is more comfortable for replacing a tooth (Figure 1).

Table 2 Awareness about missing tooth replacement and various options available

Question	Response	Frequency	Percent
Can missing tooth be replaced?	Yes	503	80.5
	No	122	19.5
Why missing teeth has to be replaced?	Functional	346	55.4
	Esthetic	246	37.8
	Others	43	6.8
Do you know the different treatment options available for missing teeth?	Yes	299	47.8
	No	326	52.2
Do you know about removable partial dentures?	Yes	362	57.9
	No	263	42.1
Do you know about fixed partial dentures?	Yes	426	68.2
	No	199	31.8
Are you aware of dental implants	Yes	505	80.8
	No	120	19.2
Are you aware of the waiting period in dental implant treatment	Yes	189	30.2
	No	436	69.8

Are you aware of the cost incurred for removable, fixed tooth supported or implant tooth	Yes	229	36.6
	No	396	63.4
Which of the following do you think is more comfortable for treating missing tooth	Removable partial denture	3	0.5
	Fixed partial denture	139	22.2
	Implants	483	77.3

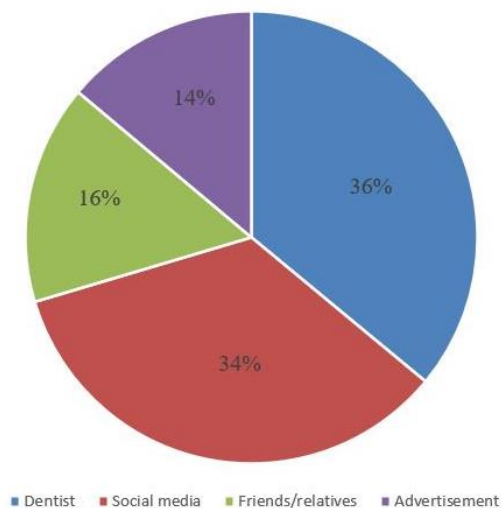


Figure 1 Source of Information about various tooth replacement options

Table 3 showed that there was no statistical significant difference among gender, different age groups, between their education level & source of Income for the awareness about replacing the missing tooth. For the reason why missing tooth has to be replaced, graduates felt it is necessary mainly for functional purpose followed by esthetics & this difference was statistically significant (Table 4).

Table 3 Comparison of demographic factors and awareness about replacement of missing tooth

Demographic factor		Do you know the missing tooth can be replaced?		Total	
		Yes	No		
Gender	Males	222 (78.2)	62 (21.8)	284	$\chi^2 = 1.77$ p = 0.189 NS
	Females	281 (82.4)	60 (17.6)	341	
Age	18-25 years	140 (87.5)	20 (12.5)	160	$\chi^2 = 14.73$ p = 0.002 NS
	26-35 years	94 (70.1)	40 (29.9)	134	
	36 – 45 years	165 (80.1)	21 (19.9)	206	
	> 46 years	104 (83.2)	41 (16.8)	125	
Education	Up to diploma	148 (84.1)	28 (15.9)	176	$\chi^2 = 2.27$ p = 0.320 NS
	Graduate	323 (79.4)	84 (20.6)	407	
	Post graduate	32 (76.2)	10 (23.8)	42	
Income	18-25 years	162 (83.9)	31 (16.1)	193	$\chi^2 = 6.39$ p = 0.097 NS
	26-35 years	143 (76.1)	45 (23.9)	188	
	36 – 45 years	173 (82.8)	36 (17.2)	209	
	> 46 years	25 (71.4)	10 (28.6)	35	

Table 4 Comparison of demographic factors and why do you think missing tooth replacement is necessary

Demographic factor		why do you think missing tooth replacement is necessary			Total	
		Functional	Esthetic	Other		
Gender	Males	158 (55.6)	110 (38.7)	16 (5.6)	284	$\chi^2 = 1.31$ p = 0.159 NS
	Females	188 (55.1)	126 (37.0)	27 (7.9)	341	
Age	18-25 years	96 (60.0)	52 (32.5)	12 (7.5)	160	$\chi^2 = 6.53$ p = 0.366 NS
	26-35 years	70 (52.2)	59 (44.0)	5 (3.7)	134	
	36 – 45 years	115 (55.8)	76 (36.9)	15 (7.3)	206	
	> 46 years	65 (52.0)	49 (39.2)	11 (8.8)	125	
Education	Up to diploma	79 (44.9)	88 (50.0)	9 (5.1)	176	$\chi^2 = 19.98$ p = 0.001 S
	Graduate	239 (58.7)	134 (32.9)	34 (8.4)	407	
	Post graduate	28 (66.7)	14 (33.3)	0 (0)	42	
Income	18-25 years	101 (52.3)	80 (41.5)	12 (6.2)	193	$\chi^2 = 14.73$ p = 0.097 NS
	26-35 years	100 (53.2)	71 (37.8)	17 (9.0)	188	
	36 – 45 years	122 (58.4)	74 (35.4)	130 (6.2)	209	
	> 46 years	23 (65.7)	11 (31.4)	1 (2.9)	35	

Whereas, regarding the awareness about the availability of different options to replace the teeth there was no statistical significant difference between gender, age, education & source of Income (Table 5). Table 6 depicted awareness regarding implants was more among females & they felt it is more comfortable compared to Removable /Fixed partial dentures.

Table 5 Comparison of demographic factors and different options available for tooth replacement

Demographic factor		Awareness about different options available for tooth replacement		Total	
		Yes	No		
Gender	Males	124 (43.7)	160 (56.3)	284	$\chi^2 = 3.64$ p = 0.06 NS
	Females	175 (51.3)	166 (48.7)	341	
Age	18-25 years	81 (50.6)	79 (32.5)	160	$\chi^2 = 5.55$ p = 0.135 NS
	26-35 years	57 (42.5)	77 (57.5)	134	
	36 – 45 years	92 (44.7)	114 (55.3)	206	
	> 46 years	69 (55.2)	56 (44.8)	125	
Education	Up to diploma	92 (52.3)	84 (47.7)	176	$\chi^2 = 4.95$ p = 0.08 NS
	Graduate	193 (47.4)	214 (52.6)	407	
	Post graduate	14 (33.3)	28 (66.7)	42	
Income	18-25 years	105 (54.4)	88 (45.6)	193	$\chi^2 = 6.17$ p = 0.103 NS
	26-35 years	89 (47.3)	99 (52.7)	188	
	36 – 45 years	92 (44.0)	117 (56.0)	209	
	> 46 years	13 (37.1)	22 (62.9)	35	

Table 6 Comparison of demographic factors and thee option they think is more comfortable for replacing a tooth

Demographic factor		why do you think missing tooth replacement is necessary			Total	
		Removable	Fixed	Implant		
Gender	Males	2 (0.7)	50 (17.6)	232 (81.7)	284	$\chi^2 = 1.31$ p = 0.032 S
	Females	1 (0.3)	89 (26.1)	251 (73.6)	341	
Age	18-25 years	1 (0.6)	26 (16.3)	133 (83.1)	160	$\chi^2 = 5.33$ p = 0.501
	26-35 years	1 (0.7)	32 (23.9)	101 (75.4)	134	

	36 – 45 years	1 (0.5)	51 (24.8)	154 (74.8)	206	NS
	> 46 years	0 (0.0)	30 (24.0)	95 (76.0)	125	
Education	Up to diploma	1 (0.6)	46 (26.1)	9 (5.1)	176	$\chi^2 = 3.55$ p = 0.470 NS
	Graduate	2 (0.5)	87 (21.4)	34 (8.4)	407	
	Post graduate	0 (0.0)	06 (14.3)	0 (0)	42	
Income	18-25 years	101 (52.3)	49 (25.4)	143 (74.1)	193	$\chi^2 = 3.45$ p = 0.750 NS
	26-35 years	100 (53.2)	34 (18.1)	153 (81.4)	188	
	36 – 45 years	122 (58.4)	49 (23.4)	159 (76.1)	209	
	> 46 years	23 (65.7)	7 (20.0)	28 (80.0)	35	

4. DISCUSSION

Dental health impact the general health condition including the psychological status of the patients. Loss of tooth creates many problems such as difficulty in chewing, esthetic, speech problems, mental stress and social impact. For these reasons individuals wish to replace their missing tooth. The common treatment options available are removable and fixed prosthesis. The removable prosthesis can be complete, interim and cast partial dentures, whereas crown, bridges, and implants comprise of fixed partial dentures (Akeel, 2003; Bashir, 2019; Carr & DT, 2011; Shekhawat et al., 2016). Various factors influence the decision making of patients in replacing a missing tooth which includes age, cost, time, and fear of treatment (Battistuzzi et al., 1987; Gerritsen et al., 2010; Shekhawat et al., 2016).

Subjects in current study mentioned function is the main reason for replacement of missing tooth which is in contrast to Osterberg et al., (1983) in which esthetic rather than functional factors was the need for replacement of missing teeth. The position of missing tooth is also an important criterion which was not evaluated in this study. This was similar to Hussain et al., (2015) found out; location of the restoring tooth play a major role in the decision of doing the treatment as all the patients prefer to treat the anterior teeth (esthetics) rather than restoring the posterior teeth (function) where esthetic plays major role compared to functional. 80.5% of study participants in the present study were aware that the missing tooth needs to be replaced showing positive attitude which is similar to the study by Akeel (2003) who reported 76.2% of his study sample had positive attitudes regarding replacement of missing tooth in Saudi Arabia. However, when attitude was assessed against the gender and the educational level of the participants, there was no significant difference observed.

Hussain et al., (2015) stated that younger patient looking for implant supported prosthesis than other prosthesis, similar to Abdurahiman et al., (2013) and Schützhold et al., (2014) where age played a significant role but in contrast to the present study regarding education and socio-economic status. We found that females were more interested to replace missing teeth as early as possible which was similar to Hussain et al., (2015). Implant found to be the preferred choice of treatment similar to a study accompanied in Peradeniya, Srilanka and Berge in Norway (Berge, 2000; Pallegedara & Ekanayake, 2005). This may be due to the changes in the socioeconomic background and literacy rate among the population. In some nations, the main foundation of knowledge was through the media, while in others; the specialist practitioner was the main foundation of knowledge which was similar to present study. A communal and ethnical, attitudes and thoughts influence people's receiving the prosthodontics treatment especially in esthetic similar to this study.

5. CONCLUSION

The results observed in our study showed that awareness of patients about different prosthesis like removable, fixed and complete prosthesis is high without difference in age, gender, education and socio-economic awareness was more regarding dental implants especially on bachelor owner and females. Hence, measures should be taken to implement this awareness among all. To achieve this goal, community oral health care providers have a major role to play. Peoples should be made aware of the disadvantages caused due to non-replacement of missing teeth immediately and also about other treatment options. This helps in increasing the awareness and encourages the attitude of patients toward the most advance treatment options available, thereby improving the patients' health and quality of life.

Acknowledgment

We would like to thank all the participants in this study for cooperating in the research by taking part actively and investing their time.

Ethical consideration

Ethical approval was obtained from Research Ethics Committee at Prince Sattam bin Abdul Aziz University with the IRB approval number (2021-982).

Funding

This study has not received any external funding.

Conflict of Interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are presented in the paper.

REFERENCES AND NOTES

- Abdurahiman VT, Khader MA, Jolly SJ. Frequency of partial edentulism and awareness to restore the same: A cross sectional study in the age group of 18–25 years among kerala student population. *J Indian Prosthodont Soc* 2013; 13(4):461-465.
- Akeel R. Attitudes of Saudi male patients toward the replacement of teeth. *J Prosthet Dent* 2003; 90(6):571-577.
- Atieh MA. Tooth loss among Saudi adolescents: social and behavioural risk factors. *Int Dent J* 2008; 58(2):103-108.
- Bashir A. Prosthodontic needs and attitude of the patient towards prosthetic replacement in relation to socioeconomic status among the Kashmiri population. Published online 2019.
- Battistuzzi P, Käyser A, Kanters N. Partial edentulism, prosthetic treatment and oral function in a Dutch population. *J Oral Rehabil* 1987; 14(6):549-555.
- Berge TI. Public awareness, information sources and evaluation of oral implant treatment in Norway. *Clin Oral Implants Res* 2000; 11(5):401-408.
- Carr AB, DT B. McCracken's removable partial prosthodontics 12th ed. St Louis Elsevier Mosby. Published online 2011.
- Gerritsen AE, Allen PF, Witter DJ, Bronkhorst EM, Creugers NHJ. Tooth loss and oral health-related quality of life: a systematic review and meta-analysis. *Health Qual Life Outcomes* 2010; 8(4):126.
- Gupta S, Mantri SS, Bhasin A. Knowledge and attitude towards prosthodontic rehabilitation and utilization of dental services by central India population of Jabalpur city, India. *Ann Med Health Sci Res* 2018; 8(2):12-15.
- Hussain M, Rehman A, Memon MS, Tanveer W, Khan M. Awareness of different treatment options for missing teeth in patient visited at hamdard university dental hospital. *Pakistan Oral Dent J* 2015; 35(2).
- Jain R, Dabral E, Dayakara HR, Asopa V. To study the prevalence of complete edentulousness among rural and urban population of Udaipur district of Rajasthan in relation to age and gender. *Eur J Prosthodont* 2013; 1(1):21.
- Kaur J, Sharma N, Gupt P, Babbar AK. Awareness and preference of needs among dental patients towards artificial prosthesis. *J Dent Her* 2014; 1(2):17.
- Leles CR, Ferreira NP, Vieira AH, Campos ACV, Silva ET. Factors influencing edentulous patients' preferences for prosthodontic treatment. *J Oral Rehabil* 2011; 38(5):333-339.
- Mukatash GN, Al-Rousan M, Al-Sakarna B. Needs and demands of prosthetic treatment among two groups of individuals. *Indian J Dent Res* 2010; 21(4):564.
- Österberg T, Hedegård B, Säter G. Variation in dental health in 70-year-old men and women in Göteborg, Sweden. *Swed Dent J* 1983; 7:29-48.
- Pallegedara C, Ekanayake L. Tooth loss, the wearing of dentures and associated factors in Sri Lankan older individuals. *Gerodontology* 2005; 22(4):193-199.
- Peltzer K, Hewlett S, Yawson AE, et al. Prevalence of loss of all teeth (edentulism) and associated factors in older adults in China, Ghana, India, Mexico, Russia and South Africa. *Int J Environ Res Public Health* 2014; 11(11):11308-11324.
- Rahman MS. Awareness and knowledge of various options for treatment of missing teeth in patients at a speciality dental hospital in Hyderabad, India. *Asian Pac J Heal Sci* 2016; 3:89-93.
- Schützhold S, Holtfreter B, Schiffner U, Hoffmann T, Kocher T, Micheelis W. Clinical factors and self-perceived oral health. *Eur J Oral Sci* 2014; 122(2):134-141.
- Shekhawat KS, Prasanya R, Senthil M, Chauhan A. Replacement of missing teeth among patients—factors determining the attitude. *J Sci Dent* 2016; 6(2):23-29.