

# Awareness to consequences of teeth missing and prosthodontics treatment options among people of Aseer region, Saudi Arabia

Mohammed D. Alshehri<sup>1</sup>, Wafa M. Alqahtani<sup>2</sup>, Eman M. Asiri<sup>3</sup>, Maha N. Asiri<sup>2</sup>

<sup>1</sup>BDS-MDS, Specialist in Prosthodontics, Head of Prosthodontics Department, Aseer Specialized Dental Center, MOH, <sup>2</sup>General Practitioner, Ministry of Health, <sup>3</sup>General Practitioner, Private Practice, Abha, KSA

## ABSTRACT

**Background:** Good teeth play a significant role in keeping a healthy personality and a decent quality of life. Loss of tooth is listed among the top hundred health condition affecting the world population, resulting not only in aesthetic and functional damage but also has negative social impact thus affecting the overall quality of life. It has been estimated to cause 7.6 million disability adjusted life years (DALY). Tooth loss has negative consequences on oral health as it may cause drifting of adjacent teeth or over eruption of opposing teeth, further loss of adjacent tooth and temporomandibular diseases (TMDs). **Methods:** This cross sectional study was performed in the clinics of Aseer Dental Centre and King Khalid University during the period from February 2020 to April 2020. In the current study, we kept a 95% level of confidence, precision error of 5%, and we anticipated the awareness among targeted population to be 85%. The sample size for our study was 200. Patients attending the Prosthodontic department for any dental consultation with a prosthetically unrestored partial edentulous areas in oral cavity were the target population. **Results:** Out of total 200 patients 50% of them were male while 50% of them were female. Mean Age  $\pm$  S.D = 57.8  $\pm$  22.5. We have observed that demographical variables have significant relationship regarding teeth awareness and treatment. **Conclusion:** Although tooth loss has a high prevalence, the common causes found were dental caries and losing of teeth. As both these conditions can be prevented, repeated awareness campaign should be carried out in order to increase the awareness regarding oral hygiene..

**Keywords:** Disorder, extraction, teeth, temporomandibular

## Introduction

Good teeth play a significant role in keeping a healthy personality and a decent quality of life. Loss of tooth is listed among the top hundred health condition affecting the world population, resulting not only in aesthetic and functional damage but also has negative social impact thus affecting the overall quality of life.<sup>[1,2]</sup> It has been estimated to cause 7.6 million

disability-adjusted life years (DALY).<sup>[3]</sup> Tooth loss has negative consequences on oral health as it may cause drifting of adjacent teeth or over eruption of opposing teeth, further loss of adjacent tooth and temporomandibular diseases (TMDs). It is in this view that restoring the existing edentulous spaces becomes necessary. Prosthetic dentistry provides aesthetic and functional well-being to the patients by restoring the missing tooth. Various prosthodontic options such as fixed or removable partial dentures, implant supported prostheses have been commonly used to tooth restoration. Of recently, implants are considered as best option as they provide a long-term benefit with fewer complications.<sup>[4,5]</sup>

**Address for correspondence:** Dr. Mohammed D. Alshehri, BDS-MDS, Specialist in Prosthodontics, Head of Prosthodontics Department Aseer Specialized Dental Center, MOH, KSA.  
E-mail: malshehri70@moh.gov.sa

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Although the use of dental implants has increased world-wide, the choice of prosthetic option depends upon multiple factors. Although socioeconomic factors play a very prominent role, demographic features like age, gender, location and education status also affects their choice. A few studies have reported that factors like education, knowledge, attitude and financial status play a vital role in making a decision towards restoring lost tooth. In a research conducted in the Kingdom of Saudi Arabia, Atieh *et al.*, reported the prevalence of tooth loss to be around 40% with the first molar being the first to be lost (57.1%).<sup>[6]</sup> Hence with such a high prevalence, it is necessary to have a baseline information regarding the perception, knowledge and attitude of the general population towards tooth loss and its restoration.

Medical professionals owe it to patients to be knowledgeable about oral health and to integrate oral health services into their daily practice. Smiles for Life will facilitate.

Therefore, this study was conducted to assess the cognizance of patients regarding lost teeth and the various prosthodontic option available for its restoration in Aseer region of the Kingdom of Saudi Arabia.

## Methodology

This study have cross sectional study design was performed in the clinics of Aseer Dental Centre and King Khaled University during the period from February 2020 to April 2020. For the seek of calculating the appropriate sample size, software named G\* power 3.0 software was used. Reviewing the literature of similar works, sample sizes ranged between 170 and 280. In the current study, we kept a 95% level of confidence, precision error of 5%, and we anticipated the awareness among targeted population to be 85%. The sample size for our study was 200. Patients attending the Prosthodontic department for any dental consultation with a prosthetically unrestored partial edentulous areas in oral cavity were the target population. They were randomly selected. Exclusion criteria included non-cooperative patients along with those with history of fixed or removable prostheses, and reduced or impaired cognitive intelligence. Informed consent was taken from the participants. Details demographic details such as age, gender and educational status were recorded. The educational status of patients was assessed as illiteracy, primary, secondary or higher education. An oral cavity examination was done for every patient and number and location of missing teeth were recorded.

A pre-validated structured questionnaire comprised of 14 closed end questions including multiple choices questions and yes/no questions was used as a tool in current study. The first part of the questionnaire consisted of 4 questions regarding the demographics' data including gender, age, education level, and income. The second part of the questionnaire consisted of 5 questions assessing the awareness of the patients about prosthodontics' treatment options. The third part of the questionnaire consisted of 5 questions assessing the knowledge of the patients of consequences of non-replaced missing teeth.

The questionnaire was used as template for the investigators to gather the needed information's from patient during the examination and interview (i.e., the questionnaire was not given to patient to answer, it was used as tool for examiner to gather the information from patients). The intention of this interview was to assess the awareness and knowledge of the patient towards the effects of missing teeth and availability of different treatment options for its restoration. Their responses regarding the drifting, TMD and over-crowding or loss of teeth was recorded as "Yes", "No" or "Don't know". Further queries were done regarding the modalities of restoration such as fixed or removable partial dentures and implant supported prostheses were done in case of an affirmative response. All the responses were duly recorded. The obtained data was then coded, entered and statistically analysed using SPSS version 20.0. Descriptive statistics, like mean and median, were calculated for age. Frequencies and percentages were calculated for all other variables. A Chi-square test was used to identify significance with  $P$  value  $\leq 0.05$  as significant. Ethical approval was obtained from Aseer central hospital. Ethical approval was obtained from Aseer central hospital on Feb-2019.

## Results

Out of total 200 patients 50% of them were male while 50% of them were female. Mean Age  $\pm$  S.D =  $57.8 \pm 22.5$ . In Table 1 we have compared demographical variables with variable of interests. As Table 1 depicted the comparison of demographic variables with different items i.e., Are you aware of treatment options available for missing teeth, Are you aware of the consequences of missing teeth, Did you have any difficulty in mastication, Did you face any problem in speech, Did you notice any change in your bite or teeth alignment, Did you have any TMJ pain or disorder, Reason for extraction of a tooth (teeth), Do you think you need to replace a missing tooth (teeth) we have observed significance difference with age, education and income while with gender we did not observe significance differences [Table 1]. Majority of the respondents replied that carries are the reasons to replace the teeth.

In response of the question what are the reasons for not replacing a missing tooth (teeth), (if lost for more than three months)? 47.0 per replied due to financial reasons while 27.5% did not aware about it necessity [Figure 1].

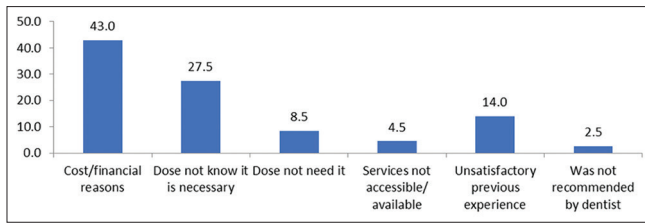
Figure 2 depicted the age and gender distribution, 50% of them were male while 50% of them were female. Mean Age  $\pm$  S.D =  $57.8 \pm 22.5$ .

## Discussion

This study was carried out with an intention to gain knowledge regarding the knowledge and awareness of patients regarding the adversities of tooth loss and restoration options available. The awareness regarding availability of different treatment options was found to be 87% which was slightly lower than that reported by Hussain *et al.* and Jayasinghe *et al.* They had reported a that

**Table 1: Comparison between demographic variables and awareness regarding teeth problems and other teeth related issues**

	Are you aware of treatment options available for missing teeth		Are you aware of the consequences of missing teeth		Did you have any difficulty in mastication		Did you face any problem in speech		Did you notice any change in your bite or teeth alignment		Did you have any TMJ pain or disorder		Reason for extraction of a tooth (teeth)		Do you think you need to replace a missing tooth (teeth)						
	No	Yes	No	Yes	No	Yes	No	Yes	Don't	Yes	Don't	No	Yes	Caries	Malposition	Periodontal (Mobility)	Trauma	Don't Know	No	Yes	
Age (in years)																					
15-30	13	40	22	31	27	27	51	2	4	19	30	1	30	22	40	6	4	3	2	7	44
31-45	3	54	27	30	16	41	48	9	10	14	33	7	33	17	52	2	2	1	2	0	55
46-60	8	61	36	33	9	59	54	15	11	9	49	13	32	24	55	1	13	0	2	8	59
Above 60	2	19	18	3	0	21	8	13	7	1	13	7	1	13	7	0	13	1	2	4	15
P	0.022		0.004		0.0001		0.0001		0.005		0.0001		0.0001		0.0001		0.0001				0.048
Gender																					
Female	18	82	50	50	28	72	85	15	12	22	66	12	52	36	81	4	13	2	4	7	89
Male	8	92	53	47	24	76	76	24	20	21	59	16	44	40	73	5	19	3	4	12	84
P	0.028		0.389		0.434		0.146		0.29		0.45		0.45		0.604		0.604				0.482
Education																					
Illiteracy	7	93	41	59	29	72	86	14	14	24	62	12	56	32	79	6	11	4	1	4	95
Primary	6	18	19	5	0	23	15	9	10	1	13	8	5	11	9	0	15	0	4	5	15
Secondary	5	12	12	5	2	15	13	4	3	3	11	2	7	8	15	0	1	1	1	3	13
Higher	8	51	31	28	21	38	47	12	5	15	39	6	28	25	51	3	5	0	2	7	50
Education																					
P	0.024		0.002		0.001		0.133		0.01		0.024		0.024		0.0001		0.0001				0.001
Income																					
High (>15000 SR.)	1	30	8	23	8	23	27	4	6	7	18	3	19	9	25	1	5	0	0	0	31
Low (<5000 SR.)	15	55	47	23	16	54	50	20	15	17	38	11	27	32	50	2	16	2	7	11	52
Med (5000-15000 SR.)	10	89	48	51	28	71	84	15	11	19	69	14	50	35	79	6	11	3	1	8	90
P	0.021		0.0001		0.827		0.139		0.27		0.281		0.281		0.427		0.427				0.001

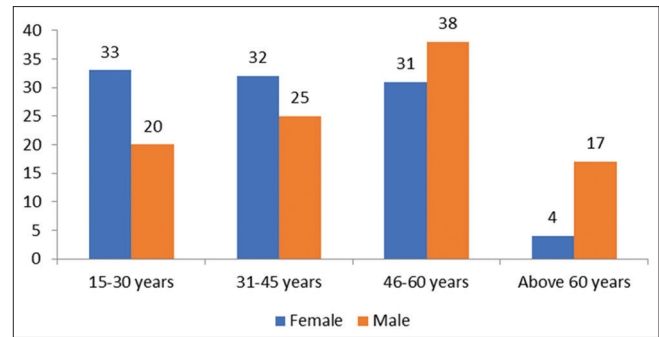


**Figure 1:** Reasons for not replacing a missing teeth

92% and 95% of the patients respectively were well aware of various treatment modalities.<sup>[7,8]</sup> This could probably be because in our study 50% of the patients were illiterate which was much higher than their studies. With respect to the age group, in a study conducted by Abdulrahiman *et al.*, it was reported that the awareness regarding tooth restoration and complication was higher among younger population.<sup>[9]</sup> Similar pattern was observed in our study where maximum awareness was seen between 30 and 60 years. This may be because the younger generation are well informed regarding the advances in dental sciences and also because of aesthetics reasons. As a person grows older, they accept tooth loss as a normal aging process hence explaining the reason why patients above 60 years were least well informed and did not seek missing tooth replacement.

Dental caries was reported as the most common cause for loss of tooth, predominantly seen in younger age group. This was then followed by spontaneous teeth loss mainly reported by patients over 46 years of age. In studies by Al-Ansari *et al.* and Cheng *et al.*, the prevalence of dental caries was reported to be over 40%.<sup>[10,11]</sup> As dental caries is a preventable cause of tooth loss, good awareness campaign aiming to prevent dental caries can help reduce the number of cases. Although loosening of teeth with advancing age may be physiological, poor nutrition, repeated infections and some systemic diseases such as diabetes mellitus and thyroid disorders also causes loosening of teeth.<sup>[12]</sup> Hence, educating these patients to maintain good oral hygiene is essential.

Majority of the patients opined that they had either opted or would opt for tooth restoration but high costs and lack of knowledge treatment were the most common reasons for not restoring the lost tooth. Quaker *et al.* had reported that cost of dental treatment is a major factor that prevented tooth restoration even in developed countries.<sup>[13]</sup> This necessitates the dentist to explain cost, pros and cons of different options available for tooth restoration. Teeth play an important role in digestion by chewing and grinding the food. Hence loss of teeth is bound to have some effect on the process of mastication. As expected, most of the patient complained in difficulty in mastication with elder age group having more difficulties. This could be because older patient could have lost increased number of teeth. As an effect of this difficulty, the patients had to change their chewing site. Apart from mastication, teeth also has a role in speech.<sup>[14]</sup> In our study only a small percentage of older aged patient experience difficulty in speech. This again could be due to increased number of teeth loss with advancing age. About 50% of the patients complained of pain of temporo-mandibular



**Figure 2:** Age and gender Distribution

joint (TMJ). Similar findings were reported by Herdiyani *et al.*<sup>[15]</sup>. Loss of first maxillary premolar is reported to be a common cause for development of TMD in elder age group.<sup>[16]</sup> One positive finding of our study was that patients who had better education had more awareness towards the consequences of tooth loss and various treatment modalities present to restore it. Therefore, good awareness programs can increase their awareness level.

During Pandemic of COVID-19 to ensure that dentists are well informed and aware of best practices and recommended approaches to disease management.<sup>[17,18]</sup>

Dental caries was reported as the most common cause for loss of tooth, predominantly seen in younger age group.

The dentist should provide all the options to the patients explaining the cost, advantages and disadvantages of various treatment options for tooth restoration and explaining the cons of not replacing missing teeth.

## Conclusion

Although tooth loss has a high prevalence, the common causes found were dental caries and loosening of teeth. As both these conditions can be prevented, repeated awareness campaign should be carried out in order to increase the awareness regarding oral hygiene.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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