



## Public Awareness and Perception of Dental Implants in Randomly Selected Sample in Kuwait

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### Abstract

**Background:** The growing success of dental implants has made this treatment mode increasingly more popular for the replacement of missing teeth. The aim of this study was to assess public awareness and determine patient's expectations concerning dental implants through requisite information on treatment mode, prior to presenting for professional consultation on dental implant, as a treatment option.

**Materials and Methods:** In a cross-sectional survey, 527 adult participants were interviewed, through random selection from attendance at public places. A structured questionnaire, with multiple-choice questions, was used to obtain the participants' level of knowledge on dental implants, including the source of information on which they based this knowledge, their reasons to accept or reject dental implant treatment, as well as their understanding of the procedures involved.

**Results:** In all, (96.4%) of participants had heard of dental implants, and (79.2%) were willing to learn more about dental implants. Almost, two-third (64.9%) of the respondents thought dental implant to be the healthiest treatment mode for missing teeth. Maximum (33.9%) participants gathered dental implants information through media, followed by friends or social gatherings (24%), dental clinics (23.3%), and family (18.8%). Significantly more females than males, and more Kuwaitis than non-Kuwaitis expressed, 'Good looking', the reason for acceptance for dental implants ( $p < 0.05$ ).

**Conclusion:** This study revealed a high level of awareness among public, but lack of knowledge on procedural aspects. The study also revealed the need for specialists in this field to spread awareness and relevant information concerning dental implants among the general public.

**Keywords:** Dental implants; Public awareness; Acceptance; Information sources

### Introduction

Dental implant is increasingly becoming a widely accepted treatment approach in dentistry for the replacement of missing teeth. The success and good prognosis of this treatment has made it very popular among the dentists, offering implant-supported rehabilitation to patients having lost teeth, or those with severely compromised bone structure [1-5]. Though oral reconstruction has been going on since late 1950s with the intra-oral use of titanium implants, the public perception of this mode of treatment has largely remained unmeasured, despite reported improvements in patients treated with implant-supported prosthesis. Several studies from different countries do report the level of patients' understanding and awareness concerning oral implants [6-13]. However, in Kuwait, dental implant treatment is relatively a new field, hence, public perception of this treatment has never been studied. Being a novel approach, and a surgical intervention, public invariably remains apprehensive of the associated complications, despite the potential benefits of this treatment regimen in tooth-restoration, improving patients aesthetics, self-confidence and quality of life.

From clinicians' experiences in Kuwait, the suggested option of dental implant for replacing missing tooth is often met with reluctance among patients, fearful of surgical outcomes. The basis of our study is inherent in this widespread hesitancy and fear syndrome among the public, making it imperative to probe the extent of public perception and awareness concerning the dental implant treatment in Kuwait. The study is first of its kind, and expected to generate baseline data for mapping a strategy for orienting and educating the public on the positive implications of this field of dentistry in Kuwait, in addition to contributing to existing knowledge in the field from this part of the world.

Vast literature exists in the field of dental implants, covering various aspects of this treatment approach, including treatment planning, surgical placement, survival rate, success rate, patient-satisfaction concerning the treatment outcome, etc. [14-21]. Yet, few studies have reportedly been attempted on the patients' perception of the surgical procedures associated with dental implant placement. The aim of this study was to assess public awareness, determine patients' expectations, and enhance their understanding of procedural implications through requisite information about dental implants, prior to presenting for professional consultation on dental implant as a treatment option [22,23].

### Materials and Methods

A cross-sectional survey, among 527 participants was conducted in the general public through personal interviews utilizing a structured questionnaire with multiple-choice questions, during a period of four months - Oct 2014 to Jan 2015. The targeted subjects were randomly selected from attendance at local malls, supermarket and food convention open for the general public. The questionnaire included personal data, level of education, and a brief dental history. The questions were intended to solicit the level of participants' knowledge

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concerning dental implants, and the source of information on which they based this knowledge. All the four interviewers in the survey had dental background, and the questionnaire was both in Arabic and English, used as per the subject language preference.

### Statistical analysis

The data management, analysis and graphical presentation were carried out using the computer software 'Statistical Package for Social Sciences, SPSS version 22.0' (IBM Corp, Armonk, NY, USA). The descriptive statistics has been presented as number and percentage for categorical variables, and mean ± standard deviation (SD) for continuous variable, age. Chi-square or normal Z-test, for comparing two proportions, was applied to find any association or significant difference between categorical variables. The two-tailed probability value 'p' <0.05 was considered statistically significant.

## Results

### Sample demographics

A total of 527 respondents were interviewed, of which 28 had to be excluded on account of incomplete questionnaire. In all, 499 survey participants, giving a response rate of 94.7%, were included for data analysis, comprising 240 (48.1%) males and 259 (51.9%) females (Table 1). Nationality-wise, these included 287 (57.5%) Kuwaitis and the remaining 212 (42.5%) non-Kuwaiti expatriates. Maximum respondents, 248 (49.7%) were in the age group 29-50 years, 196 (39.3%) in the age group (18-28) years, and 55 (11%) were above 50 years. No significant difference was noticed, either in terms of gender or nationality with respect to different age groups. The overall mean age was found to be 35.3 (±11.3 SD) years, ranging between 23 and 58 years. Majority (63.7%) of the respondents were college or university educated, 27.4% had finished their schooling, and only 8.9% had some school education. A significantly higher proportion of elderly respondents, above the age of 50 years, were observed among school educated, in comparison to younger age groups having college or university education (p<0.001).

### Awareness and source of information about dental implants

Of the total 499 respondents, 96.4% had heard of dental implants, with more females (97.7%) than males (95%) being aware of this treatment regimen. In all, 79.2% were willing to learn more about dental implants. Maximum respondents obtained dental implants' information through such media channels as television, radio, newspaper or internet (33.9%), followed by those having heard about this treatment through friends or in social gatherings (24%) (Figure 1). In addition, dental clinics were the source of information for 23.3% respondents, while (18.8%) reportedly heard about dental implants from family members.

### Awareness and knowledge on treatment for a missing tooth

Almost two-third (64.9%) of the respondents thought dental implant to be the healthiest treatment mode for replacement of missing teeth, while 17.7% and 2.2% respectively considered fixed partial denture, and removable partial denture, as the preferred treatment for missing teeth. The remaining, 13.2% did not have any knowledge on this, and 2% thought there was no treatment for missing teeth. When asked, if they would go for surgical placement of dental implant for a missing tooth, 65.7% said 'yes', 18.4% 'no', and 15.9% 'may be'.

### Acceptance or refusal to dental implant treatment

Of the total respondents, 74.6% enlisted their acceptance of the

Sample Demographics	N (%)
<b>Age (years)</b>	
18-28	196 (39.3)
29-50	248 (49.7)
51 and above	55 (11.0)
<b>Gender</b>	
Male	240 (48.1)
Female	259 (51.9)
<b>Nationality Status</b>	
Kuwaiti	287 (57.5)
Non Kuwaiti	212 (42.5)
<b>Education</b>	
Less than High School	44 (8.9)
Finished High School	136 (27.4)
Technical College/Institute Diploma	120 (24.2)
University Student/ Graduate	160 (32.3)
University Higher Education	36 (7.2)

Table 1: Respondents demographic characteristics (N=499).

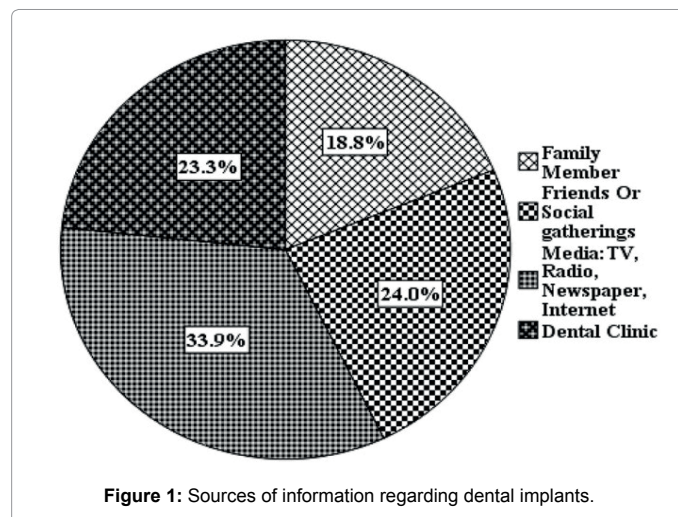


Figure 1: Sources of information regarding dental implants.

dental implant treatment, 20.8% were not receptive to this treatment mode, and 4.6% did not respond. More females than males (81% vs. 75%) and more Kuwaitis than non-Kuwaitis (80% vs. 76%), showed their willingness for dental implants.

### Perception towards dental implants

**Placement:** Almost two-third of the respondents (64.6%) considered implant placement as a difficult procedure, while remaining 35.4% considered it to be a simple procedure (Table 2). As many as 43.3% respondents considered it to be a very painful procedure at the time of placement, compared to 56.7% who thought it to be comfortable with no pain, but on the contrary, a higher percentage (54.1%) of respondents thought the procedure to be more painful after the implant placement, in comparison to 45.9% who found the procedure comfortable with no pain.

**Procedure:** More than half of the respondents (53.1%) had perceived implant procedure or surgery, as well as considered having a metal screw in the jaw bone as dangerous, compared to remaining 46.9%, who did not regard it as dangerous. A higher percentage (94.3%) was found to consider dental implants successful in replacing missing teeth in the long run, while 89.9% thought the implant placed in jawbone quite comfortable.

Perceptions towards dental implants	N (%)
<b>How difficult, do you think, is dental implant placement?</b>	
Very difficult	106 (21.4)
Somewhat difficult	214 (43.2)
Simple	142 (28.7)
Very simple	33 (6.7)
<b>How painful, do you think, is dental implant placement (at the time of placement)?</b>	
Very painful	68 (13.6)
Somewhat painful	148 (29.7)
Relatively comfortable procedure	120 (24.0)
No pain is involved	163 (32.7)
<b>How painful, do you think is dental implant placement (after the implant is placed)?</b>	
Very painful	102 (20.4)
Somewhat painful	168 (33.7)
Relatively comfortable procedure	155 (31.1)
No pain is involved	74 (14.8)
<b>How dangerous is the implant procedure (the surgery)</b>	
Very dangerous	43 (8.8)
Somewhat dangerous	127 (25.6)
Relatively dangerous	94 (18.9)
Not dangerous	233 (46.9)
<b>How dangerous is it, having a metal screw in your jaw bone?</b>	
Very dangerous	55 (11.1)
Somewhat dangerous	93 (18.7)
Relatively dangerous	116(23.3)
Not dangerous	233 (46.9)
<b>How successful are dental implants in replacing missing teeth in the long run?</b>	
Very successful	205 (41.6)
Somewhat successful	183 (37.1)
Relatively successful	77 (15.6)
Not successful	28 (5.7)
<b>How comfortable do you think living with an implant placed in your jaw bone</b>	
Very comfortable	196 (39.5)
Somewhat comfortable	158 (31.9)
Relatively comfortable	87 (17.5)
Not comfortable	55 (11.1)

Table 2: Respondent's perceptions towards dental implants.

### Reasons to accept or reject dental implant treatment:

Maximum (28.7%) respondents considered dental implant as the best solution, comfortable and a successful treatment for missing teeth (Figure 2). The next most common reason (16.7%) to accept dental implant was its aesthetic value, like the natural teeth, followed by 'better than any surgery or bridge' (13.6%). The other reasons for acceptance were, 'can eat and smile properly' (7.3%), 'last for long duration' (5.7%) and 'can't live with missing teeth' (5.0%). The reasons for rejecting dental implants were mainly, 'afraid of surgeries or doctors' (7.0%), and 'afraid of pain or other conditions like diabetes' (3.5%). The other reasons to reject were, 'bridge is better than implant' and 'don't care for missing teeth' each, mentioned by 2.2% of the respondents. Additional reasons mentioned under the 'Others' category constitute about 8.2% of the total respondents.

Gender-wise, female's acceptance to dental implants was higher in comparison to males, especially the reason cited as 'good looking' (21.2% vs. 11.8%,  $p < 0.034$ ), (Table 3). No significant difference was

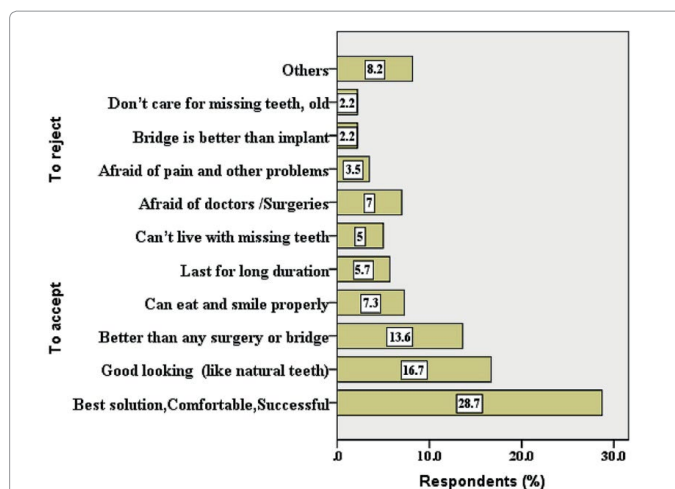


Figure 2: Respondents reasons to accept or to reject dental implant treatment.

found between males and females as regards reasons for rejection. Nationality-wise, more Kuwaitis cited the reason for acceptance as 'Good looking', which was significantly higher than non-Kuwaitis (20.3% vs. 9.5%,  $p < 0.024$ ), while the proportion of non-Kuwaitis was significantly higher than Kuwaitis (36.2% vs. 25%,  $p < 0.017$ ), concerning the reason 'Best solution, comfortable and successful'.

### Discussion

Dental implants appear to be an increasingly successful substitute for the replacement of missing teeth, as reported in several studies worldwide. However, the extent of awareness concerning this procedure in Kuwait has remained undetermined, with no previous studies addressing this aspect from this part of the world. To study implant awareness in different counties, various studies have reported different levels of awareness on dental implants, with maximum being from Austria (79%) and US study (77%), followed by Norway (70%) (Table 4). Though, studies from Jordan (2014) and Kuwait (the present study) have reported the percentages (96%) based on those respondents, who had heard of dental implants. Another Jordan study (2010) reported only 44% of awareness. Studies from India showed variant levels, between 23% and 38%. In Gulf, a study from Saudi Arabia had reported (66%) awareness level.

Our study is seemingly an initial venture concerning this procedure, with the prime objective of gathering preliminary data on popular public response pattern and awareness on dental implants, in an effort to lay a basis for a more advanced and comprehensive study in future that could provide the substance for developing an organized strategy for sensitizing the public to the potential benefits and implications of dental implants as a preferred treatment modality. The need for such an effort is implicit in the analytical findings of our survey, exhibiting a very high level of awareness concerning dental implants among the public, though the source of their information being largely various media channels, family members or social gatherings, as has been reported in other studies by Berge [8], Pommer et al. [10] and Al-Johany et al. [19] rather than through dental professionals, which apparently is a matter of concern. However, in a recent study on Turkish population, Tomruk et al. [13] does report that a large proportion preferred to have the information on dental implants from their dentists. Patients exhibiting increasing interest in opting this treatment regimen, with females exhibiting higher receptivity to dental implants due to its long-lasting, aesthetic and comfort value, a finding that is

Reasons to accept or reject dental implant treatment	Male	Female	Kuwaiti	Non Kuwaiti	Total (n=317)
<b>To Accept</b>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>	<b>N (%)</b>
Good looking (like natural teeth)	18 (11.8)	35 (21.2)*	43 (20.3)*	10 (9.5)	53 (16.7)
Best solution, Comfortable, Successful	39 (25.7)	52 (31.5)	53 (25.0)	38 (36.2)*	91 (28.7)
Better than any surgery or bridge	21 (13.8)	22 (13.3)	28 (13.2)	15 (14.3)	43 (13.6)
Can eat and smile properly	16 (10.5)	7 (4.2)	14 (6.6)	9 (8.6)	23 (7.3)
Last for long duration	9 (5.9)	9 (5.5)	15 (7.1)	3 (2.9)	18 (5.7)
Can't live with missing teeth	10 (6.6)	6 (3.6)	10 (4.7)	6 (5.7)	16 (5.0)
<b>To Reject</b>					
Afraid of doctors /Surgeries	12 (7.9)	10 (6.1)	14 (6.6)	8 (7.6)	22 (7.0)
Afraid of pain and other problems	5 (3.3)	6 (3.6)	10 (4.7)	1 (1.0)	11 (3.5)
Bridge is better than implant	3 (2.0)	4 (2.4)	5 (2.4)	2 (1.9)	7 (2.2)
Don't care for missing teeth, old age	3 (2.0)	4 (2.4)	5 (2.4)	2 (1.9)	7 (2.2)
<b>Others</b>	<b>16 (10.5)</b>	<b>10 (6.1)</b>	<b>15 (7.1)</b>	<b>11 (10.5)</b>	<b>26 (8.2)</b>

Note: \*M vs. F (p<0.034) and K vs. NK (p<0.024), (p<0.017)

Table 3: Respondents reasons for dental implant according to gender and nationality.

Country	Awareness (%)
Austria [10]	79.00
Norway [8]	70.10
USA [6]	77.00
Andhra Pradesh, India [9]	23.24
Jaipur, Rajasthan, India [9]	38.00
India [11]	33.30
Malaysia [23]	76.21
Turkey [13]	27.70
Jordan [9]	44.28
Jordan [14]	96.00
Riyadh, Saudi Arabia [19]	66.40
Kuwait*	96.40

Note: \*Present Study

Table 4: Awareness of dental implants in various countries.

widely reported in other studies from around the world. The biggest hurdle to this procedure was apparently the wide spread perception towards surgical intervention and the associated pain, which despite implant surgery being a relatively simple procedure, a high percentage of our subjects interviewed, considered it a relatively difficult surgery. To a large extent, this perception is commonly associated with all types of surgical procedures, and in the context of dental implants, a more proactive role by dental professionals in spreading awareness could go a long way in removing some of the misconceptions currently prevalent among the general public concerning this treatment mode. Our study does reveal an encouraging aspect, with only a small percentage of respondents (5.7%) perceiving dental implant to be unsuccessful in replacing missing teeth in long run, or reporting a feeling of discomfort (11.1%) while living with an implant placed in the jaw bone. To a majority of respondents it appeared a preferred mode of treatment, exhibiting a growing receptivity of the public towards dental implants as an acceptable solution for replacing the missing teeth.

## Conclusion

This study revealed a high level of awareness among public on the potential benefits of dental implants for the replacement of missing teeth, yet there appeared a lack of knowledge on procedural aspects of the treatment. The study is a distinct pointer to lack of system or strategy for organized transmission of information on dental implants and implications of this treatment mode for the awareness of the public, and calls for a more proactive role of dental professionals and

specialists in the field, to sensitize the public on the potential benefits of this treatment through the dissemination of relevant information, rather than the public reliance on media, news reporting, family or social gatherings. There appears a dire need for source information to be relayed through specialists, responsible for this treatment regimen, rather than leaving the public open to unorganized and unauthentic information sources.

Being the first study of its kind, its significance lies in providing basic insight into the general public perception, knowledge and mode of acquiring information on dental implants and related procedures. Despite being a preliminary study, apart from contributing to existing information in the field, our findings tend to open the door for laying a framework for public dissemination of precise information through specialists and dental professionals in the field, for spreading awareness among the general public on the benefits of this treatment mode in Kuwait.

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