



EVALUATION OF KNOWLEDGE AND ATTITUDE OF DENTAL PATIENTS PERTAINING TO THE USAGE OF DENTAL IMPLANTS AS A TREATMENT MODALITY TO REPLACE MISSING TEETH: A SURVEY-BASED STUDY

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Abstract

Aim: The purpose of this study was to compare the level of knowledge, attitude, and information resource on the use of dental implants as a treatment alternative to the routine procedures carried out to replace missing teeth. **Methodology:** A descriptive cross-sectional study of adult dental patients who visited various hospitals and dental clinics for obtaining dental implants were included in this study. The amount of knowledge, data feed, and attitude towards opting for dental implants as a treatment modality were assessed using standardized self-explanatory questionnaires distributed among patients when they visited the dental clinics. This survey includes 200 randomly selected patients. **Results:** Amid 200 respondents that participated in study, 89% (180) of respondents had heard about implants, with 43.5% (89) being female and 45.5% (91) being male. Only 11% (20) did not have heard about implants before. The major source of information were friends and family 31% (62) followed by dentist 29.5% (59).

1. Introduction

Dental implants have revolutionized various aspects of restorative dentistry by providing a sustainable and cosmetically pleasing tooth replacement option (1). According to global data from the World Health Organization (WHO), dental implant procedures have been steadily increasing, with an estimated 10-15% annual growth rate over the past decade (2). In 2020 alone, approximately 10 million dental implant procedures were performed worldwide (3). The demand for dental implants varies across different demographic groups, influenced by factors such as age, socio-economic status, and geographic location (4). Higher prevalence rates are observed in older adults and individuals from high-income countries with better access to dental care (5).

A dental implant is a surgically inserted artificial root that supports a complete denture or replaces a single or multiple prosthesis (6). It is the choicest treatment option for replacing one or more lost teeth (7). It was initially used to treat edentulous patients by improving denture functional efficiency and stability along with retention. It has recently gained widespread acceptance in comparison to traditional treatments (1). According to Annibali et al. (8), the most common whys and wherefores for selecting implant treatment remained recovering missing teeth (35.5%), upon dentist's advice (33.3%). Rehabilitation with implants increases satisfaction with restoring masticatory function (9). Psychological attitudes toward implant prosthesis were assessed by Grogono et al., and it was discovered that compared to traditional treatment techniques, implant prosthesis satisfaction was noticeably higher. According to 88% of respondents, their confidence has increased (10). Numerous investigations have been carried out to demonstrate patients' familiarity with implants. Zimmer et al., conducted research which made conclusion that respondents had good knowledge and an overall favorable opinion regarding oral implant therapy (11). According to a study done in Saudi Arabia by Johany et al., it was found that 66.4% patients knew regarding dental implants, 31.5% of patients got their information primarily from friends and family (12). In a different study by Faramarzi et al., 60% of the respondents had awareness and dental specialists were most common reason of such data feed (42%) (13). 68.5% of people had information regarding dental implants, friends and family accounted for 38.2% of implant knowledge (14). Therefore, in comparison to other traditional treatment methods, the current study sought to monitor understanding rate, the data feed, and attitude towards application of dental implants as a therapy.

To the best of author's knowledge, there is very less data available regarding patient's knowledge and perception about dental implants in Pakistan therefore this survey had been designed to assess patient's knowledge, informational sources, and attitudes towards opting for dental implants as replacement to restore missing teeth in comparison to former traditional treatment methods in vicinity of Karachi, Pakistan.

2. Methodology

A self-explanatory survey form comprising of 15 questions was drawn up with the goal to monitor the level of knowledge, source of information, and attitude of dental patients in terms of utilizing dental implants in order to replace lost teeth, which showed consistency with former researches led by Kohli et al, to evaluate knowledge level and attitude from patients towards implants. The questionnaires were distributed in the various dental clinics of teaching hospitals in Karachi. Those patients were handed-over questionnaire forms who visited dental OPDs to opt for dental implants. Inclusion criteria included patients with age above 20 years and up to 80 years, those who were opting for dental implants for the first time to replace missing teeth. Exclusion criteria included the patients who refused to participate in the research.

2.1 Survey Tool

A self-explanatory closed-ended survey form with 15 questions in four sections was given out to the patients. Demographic information, socioeconomic status, and degree of education were evaluated. The questionnaire was produced bilingually (in English and Urdu) to correlate to the reading as well

as understanding levels of patients with varying levels of education. It took around 10-12 minutes to answer all of the questions.

Face validity was used to validate the current questionnaire by professionals holding experience and having understanding about the topic. It was thoroughly assessed by them whether the questions properly apprehended the topic of investigation. Second, a statistician had reviewed the questionnaire to set sights on frequent mistakes including double-barreled, unclear, and misleading questions.

2.2 Study Design, Setting & Duration

This research employed descriptive cross-sectional design led among dental patients who showed up in various dental clinics of teaching hospitals in Karachi. Data was assembled from January-2024 to March-2024.

2.3 Ethical Approval:

Ethical approval was issued by Institutional Review Board (IRB). Following an explanation of the study's objectives, selected patients were invited to participate willingly. Participants provided informed written consent before being a part of this research, the responses obtained were kept confidential.

2.4 Population and sampling

Two hundred participants (Female: 100, Male: 100) who met inclusion criteria for the research duration were observed. The participants were carefully chosen using purposive sampling technique. The survey forms were handed-over to patients who intended to opt for dental implants. The purpose of the study was made clear to all respondents.

The total sample size was 200 participants. Sample size was calculated by using OpenEpi online software, prevalence of respondents heard about dental implant 91.5% (15) a sample size of 187 achieves, margin of error 4%, with a significance level (alpha) of 0.05.

2.5 Statistical Analysis:

Statistical package for Social Sciences (SPSS) Version 26 was used to compile and analyze data. Frequency and percentage were computed for qualitative variables. To evaluate association of categorical data, Chi-square test was used utilizing contingency tables. In order to determine proportion level of variables among surveyed patients, frequency tables were used. The level of significance was set at $P = 0.05$.

3. Analysis

3.1 Demographic Results:

Demographic Variable	
GENDER (Male/ Female)	Male: 50%, Female: 50%
AGE (Years)	20 and above: 70%, 60 and above: 30%

3.2 Participants knowledge regarding implants:

	Male, <i>n</i> (%)	Female, <i>n</i> (%)	Total, <i>n</i> (%)	Significance
YES	91 (45.5) %	89 (43.5) %	180 (89)	$X^2 = 0.058$
NO	9 (5)	11 (6)	20 (11)	$P = 0.600$

3.3 Patient questionnaire to evaluate knowledge and attitude regarding implants:

	Male, n (%)	Female, n (%)	Total, n (%)	Significance
What do you expect as oral hygiene for care of implants compared with natural teeth?				
Similar	13 (13)	41 (41)	54 (27)	
More	22 (22)	19 (19)	41 (20.5)	$X^2 = 18.781$
Less	16 (16)	10 (10)	26 (13)	$P \leq 0.001$
No Idea	49 (49)	30 (30)	79 (39.5)	
What do you estimate as functional life of implants compared with natural teeth (Years)?				
<10	08 (8)	10 (10)	18 (9)	
10- 20	27 (27)	25 (25)	52 (26)	$X^2 = 21.986$
>25	57 (57)	43 (43)	100 (50)	$P \leq 0.001$
No Idea	08 (8)	22 (22)	30 (15)	
How important for you is the functional outcome of implant supported prosthesis?				
Not very important	8 (8)	14 (14)	22 (27)	
Important	18 (18)	17 (17)	35 (20.5)	$X^2 = 15.270$
Very important	44 (44)	49 (49)	93 (46.5)	$P = 0.227$
No Idea	30 (30)	20 (20)	50 (39.5)	
Have you ever heard from your friends regarding their experiences about dental implants?				
Yes	74 (44)	61 (41)	135 (67.5)	$X^2 = 0.767$
No	26 (22)	39 (19)	65 (32.5)	$P = 0.335$
If yes, what was the rate of success?				
Successful	75 (75)	68 (68)	138 (69)	
Partially successful	14 (14)	20 (20)	34 (17)	$X^2 = 13.700$
Not successful	11 (11)	12 (12)	23 (11.5)	$P = 0.009$
Have you ever heard about effects of dental implants on systematic health?				
Yes	10 (10)	12 (12)	22 (11)	
No	74 (74)	69 (69)	143 (71.5)	$X^2 = 4.765$
No Idea	16 (16)	19 (19)	35 (17.5)	$P = 0.002$
Are the effects of implant treatments important in comparison with common or traditional treatments?				
Not very important	13 (13)	10 (10)	54 (27)	
Important	16 (16)	30 (30)	41 (20.5)	$X^2 = 6.681$
Very important	49 (49)	41 (41)	26 (13)	$P = 0.331$
No Idea	22 (22)	19 (19)	79 (39.5)	

3.4 Source of Information

	Male, n (%)	Female, n (%)	Total, n (%)
What was the main source of information regarding implants?			
Friends & Family	30 (30)	32 (32)	62 (31)
Internet	27 (27)	28 (28)	55 (27.5)
Television	08 (8)	06 (6)	14 (07)
News Paper	02 (2)	01 (1)	03 (1.5)
Dentist	30 (30)	29 (29)	59 (29.5)
No Idea	03 (3)	04 (4)	07 (3.5)

4. Results

4.1 - Demographic Data: Two hundred patients happened to be surveyed for the duration of three months. Amongst those 200 subjects, 50% subjects were female and 50% subjects were male, the age of patients (70%) was 20 and above and 60 and above (30%). [Table 3.1]

4.2 – Patient’s knowledge: The survey found that 89% (180) of respondents had heard about implants, with 43.5% (89) being female and 45.5% (91) being male. Only 11% (20) did not have heard regarding implants previously. A substantial difference is noted among females v/s males ($P = 0.600$) [Table 3.2].

4.3- Level of knowledge and Attitude regarding dental implants: When it comes to maintaining dental hygiene for implants, 39.5% (79) of respondents had no notion ("no idea") out of which 49% were males and 30% were female. While 41% (205) had documented more care for implants than

natural teeth, 27% (54) considered they were similar, and 13.5% (27) thought they needed lesser care. There was a significant variance observed between females and males ($P < 0.001$) [Table 3.3].

In terms of implant durability, 26% (52) expected them to last between 10-20 years and 09% (16) predicted fewer than 10 years. Table 3.3 shows that 50 % (100) of respondents anticipated a durability of more than 25 years, whereas 15% (30) had no notion.

The majority of respondents 46.5% (93) believed that it was very important parameter of implants to have functional outcome, however, 20.5% (35) thought it was important. 27% (22) respondents thought that it was not very important, and 39.5% (56) had no clue [Table 3.3].

Table 3.3 demonstrates that 67.5% (135) of respondents had personal experiences or heard about them from relatives and 69% (138) of respondents revealed the positive experiences of their acquaintances with implant therapy. No significant variance was found in females compared to males ($P=0.002$). Of the respondents, 71.5% (143) said that there would be no impact of implants on their overall well-being, with 74% (74) being male and 11% (11) female believing the same. The difference between females and males was not significant ($P=0.002$) [Table 3.3].

Knowledge regarding impact of treatment comprising of implants compared to conventional prostheses is quite important, however 39.5% (79) respondent were unaware about it while 13% (29) thought that it was very important to have understanding about the treatment therapy. There was no significant difference ($P = 0.331$) [Table 3.3].

4.4 - Source of Information

The major source of information were friends and family 31% (62), dentist 29.5% (59) were found to be second major source for information to the patients followed by internet resource 27.5% (55). Only 3.5% (7) respondents had no idea regarding various sources of information [Table 3.4].

5. Discussion

This survey found that major source of information were friends and family 31% (62), dentist 29.5% (59) were found to be second major source for information to the patients followed by internet resource 27.5% (55).. This is consistent with studies steered by Awooda et al. [10], Al- Johany et al. (12), and Suwal et al. (17), who stated the major source of data feed being friends and relatives (38.2%, 31.5%, and 30.2%, respectively). According to research by Moosaali, Esfahani (18), Kohli et al. (19), along with Tomrul et al. (20), dentists were the primary sources of information for their respondents (40.7%, 53.6%, and 44.5%, respectively). According to a survey performed in the USA by Zimmer et al. (11), 77% of respondents prioritized media and friends.

According to Tapper et al. (16), Framarzi et al. (13), Alanazi et al. (21), the majority patients (46%, 66%, 33%) believe implants required additional care.

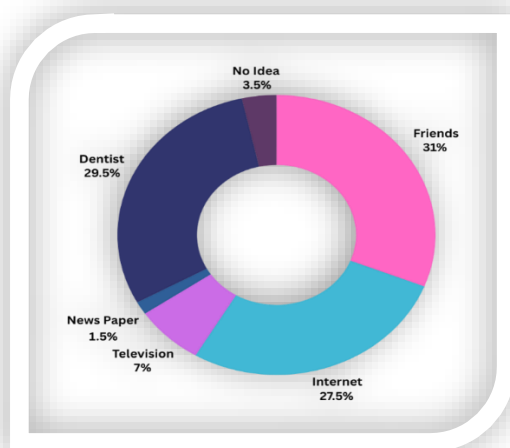


Figure. 1 – Percentage of various sources of information about dental implants as preferred by questioned respondents.

However, according to current research, 41% (205) subjects had documented more care for implants than natural teeth, 27% (54) considered they were similar, and 13.5% (27) thought they needed lesser care. According to Tapper et al. [18], 54% of patients expect dental implants to last 10-20 years on average. In previous studies carried out by Esfahani et al and Faramarzi et al. it was concluded that 37.7% and 70.7% respondents had no idea about durability of dental implants. (18) (13). Present study also investigated that 15% (30) of participants had no notion in terms of implants durability. 37.7% of patients were unaware of implant's durability, indicating the need of adequate knowledge for implant therapy.

Patients choose implants mostly for enhanced function. Faramarzi et al. as well as Zimmer et al. established functionality of implants to be most significant parameter (11) (13). The majority of respondents 46.5% (93) in the present study believed that it was very important parameter of implants to have functional outcome.

6. Conclusion

This survey investigated that majority of respondents had heard regarding dental implants. The study highlighted the need of providing patients with accurate and comprehensive information on dental implants specifically in terms of maintaining oral hygiene, knowledge about implants being a treatment modality in comparison to other prosthetics choices. Greatest part of patients (50%) believed that dental implants would last more than 25 years, therefore, dental practitioners must remain mindful to educate patients about the success ratio and factors for successful outcome of implants prior to their placement. More research is needed with bigger sample sizes to assess the information level of dental patients in various other cities of Pakistan.

Data Availability

The corresponding author can provide the data used to support the study's findings upon request.

Conflicts of Interest

The authors declare no conflict of interest.

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