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Awareness, attitudes, need and demand on replacement of missing teeth among a group of partially dentate patients attending a University Dental Clinic

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Keywords:
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Upper and Lower Jaw

ABSTRACT

Objective: This questionnaire based study aimed to determine the most common method of replacing missing teeth by patients attending University Dental Clinics in Sebha (Libya). **Materials and Methods:** (Questionnaire) A total of 80 patients attending University Dental Clinics in Sebha were participated in this study. A self-administered questionnaire was distributed to 80 patients. Data were analyzed. Criteria included age of 20 years and above with one or more missing teeth except for third molars. **Results:** A response from 80 participants were obtained 22 (27%) male and 58 (73%) female. Female patients preferred to replace their missing teeth with dental implant were more than male (73%) vs (27%) respectively. Age group (40-60) 65% was more significantly preferred dental implant than age (20-60) 35%. Anterior region was more replaced than the posterior respectively (62%) vs (38%). Male (40- 80) years (40%) preferred more to replace their missing teeth with dental implant than the patients aged (20-40) years (18%). Patients (40-60) years (47%) were more than patients aged (60-80) (27%) & (20-40) (26%). For final restoration, crowns (68%) were more likely to be employed than bridges (32%) in male patients. Moreover, crowns (69%) were more employed than bridges (31%) in female patients. No significant difference between zirconium and porcelain (56%) and (55%) respectively in male patients. In contrast, there were significant difference between zirconium and porcelain in female patients (77%) versus (23%) respectively. **Conclusion:** Implant were found to be most widely employed in female patients. More female patients were employed crowns and bridges than male patients. Patients aged (60-80) year were the most common requested to have dental implant. Most of patients preferred to have implant in upper jaw when compared to the lower jaw. Zirconium more commonly employed than porcelain.

الوعي والمو اقف والحاجة والطلب على استبدال الأسنان المفقودة بين مجموعة من مرضى الذين يحضرون إلى عيادة طب الأسنان

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1قسم جراحة الفم والوجه والفكين ، كلية طب الأسنان ، جامعة سبها ، ليبيا
2 قسم جراحة الفم والوجه والفكين ، كلية طب الأسنان ، جامعة سبها ، ليبيا
3قسم مواد طب الأسنان ، جامعة سبها ، ليبيا
4 قسم العلوم قبل السريرية ، جامعة قطر ، كلية طب الأسنان ، قطر

الكلمات المفتاحية:
الزركونيوم
البورسلين
زراعة الأسنان
الفك العلوي والسفلي

الملخص

هدفت هذه الدراسة القائمة على الاستبيان إلى تحديد الطريقة الأكثر شيوعاً لاستبدال الأسنان المفقودة من قبل المرضى الذين يحضرون إلى عيادات الأسنان الجامعية وقد شارك في هذه الدراسة ما مجموعه 80 مريضاً الاستنتاج: اوجد أن الزرع يستخدم على نطاق واسع في المرضى الإناث. تم استخدام التيجان والجسور للمرضى أكثر من المرضى الذكور. كان المرضى الذين تتراوح أعمارهم بين (60-80) عامًا هم الأكثر شيوعًا الذين يطلبون زراعة الأسنان. يفضل معظم المرضى زراعة الفك العلوي بالمقارنة مع الفك السفلي. استخدام الزركونيوم أكثر شيوعًا من الخزف

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Introduction

The teeth play numerous functional and aesthetic roles as essential daily activities from the most basic functions like eating and speaking to subtler functions related to good appearance (1) The periodontal ligament attaches the outer layer of the tooth root to the neighboring bone. This bone named the alveolar bone which supports the teeth of the maxilla and mandible (2). One of the more dramatic findings in the medical sciences in the twentieth century has been the realization that tooth loss is not a predictable consequence of aging, but the result of trauma or dental diseases (3). At the present time, in clinical dentistry tooth loss continues to be the main issue and has established important attention in everyday dental practice (4). History of dental implants to the era of the Pharaohs where they excelled in implant dentistry from animal or carved from dentine, and the attempts of many ancient civilizations like the Chinese, Assyrian and Babylonian. Either in our modern, Green Field 1913 was the first mention and describe the process of dental implants in scientific references. In 1951 began the research and studies by Swedish Professor (Brane Mark), where he reached the final results in 1982, when proved the validity of titanium metal interaction with tissues, it has been observed that implants are bone on metal or so-called Osseointegration (Essonite Gration).

The vast majority of patients may loss tooth or teeth or all of his/her natural teeth.

There are several treatment methods to replace the missing teeth by means of fixed prosthesis or removable prosthesis.

A number of helpful innovations have advanced the replacement of missing tooth or teeth in recent years. One such advance is that missing teeth can be replaced by using an artificial root formed from different metal which have bio compatibility with bone tissue such as titanium. This replacement known as dental implants (5).

At the present time the dental implant becomes the most commonly employed method to replace missing tooth or teeth and considered to be the best solution.

According to recent studies the success of implant rate is about 96-98%where only 2-3% of implant operations fail. Osseointegrated dental implants represent a highly predictable and common therapy for rehabilitation of the incomplete dentition in recent years (6). The success rates for Dental implants are significantly higher; however, there is a lack of longitudinal data with at least 5 years of follow-up (7).

OBJECTIVE OF RESEARCH

- To give a knowledge for public about the importance of replacing missing teeth to avoid complication.
- To give an idea about the importance of preserving the surrounding tissue.
- To give importance of recent development in field of implant dentistry.
- Importance of research
- Importance of this research is to have information about this method of replacement missed teeth,
- Material used
- Also to proof that the implant able to take the place of missing natural tooth, in term of function, esthetic.
- Also to determine that implants are more stable than other replacement such fixed and removed prosthesis.

Problem of research

Recent studies have confirmed the findings of many researchers that, both functional and psychological compromises as well as positional changes are following tooth loss if unrestored (8).

Represent that some patient unable to tolerate artificial prosthesis.

Due to physiological or psychological conditions some patient contraindicated for bridge or denture constriction

2. Material and methods

A questionnaire data, Self-administered questionnaire was distributed to the patients to collect information relating to demography, position of teeth upper or lower, final restoration crown or bridge, in addition to material used zirconium or porcelain**.**

Patients seeking dental management in the University Dental Clinics in Sebha City (Libya) were recruited for the study.

The present study was designed as a short-term study and conducted at the University Dental Clinics in Sebha City, Fezzan State, South Libya.

The study sample was conducted amongst the patients who attended the University Dental Clinics for refers or received various dental treatment including loss tooth or multiple teeth.

Inclusion criteria: includes patients who have tooth or teeth loss and aged from 20 years old and above.

Exclusion criteria: any patient who have loss of third molars alone (considered as complete dentition) and patients who have teeth extraction for orthodontic reasons (treatment objectives).

Informed Consent Form

All patients were informed of his or her right to refuse participation or to withdraw from the study at any moment.

3. Results

Altogether 80 participants, 22 (27 %) were males while 58 (73%) were females.

Research technique

Grouping: the total number of 80 sample was divided into two group.

Group (1)

Age	Gender	Position
(20-40)	Male	Anterior
(40-60)	Female	Posterior

Group (2)

Type of implant	Position of implant	Final restoration
Porcelain	Upper jaw	Crown
Zirconium	Lower jaw	Bridge

Statistical analysis

Table (1): revealed total of sample size (80) patients 22 (27%) male patients and 58 (73%) female patients were participated in this study.

Gender	Number	Percentage
Male	22	27%
Female	58	73%
Total	80	100%

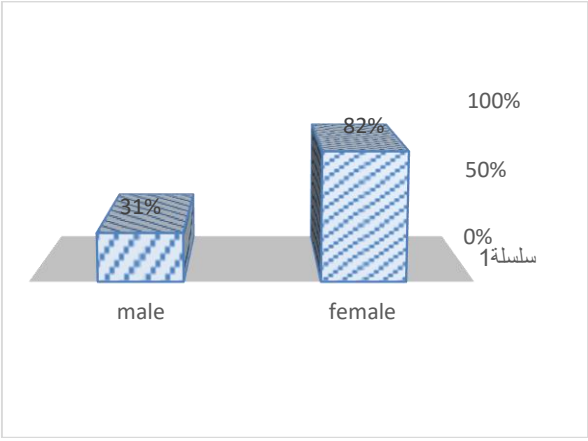

Figure 1: shows that female patients preferred to replace their missing teeth with dental implant more than the male (82%) versus (31%) respectively.

Table 2: Shows number of patients with percentages those participated in this study according to their age group.

Age	Number	Percentage
(20-40)	12	15%
(40-60)	16	20%
(60-80)	52	65%

Total	80	100%

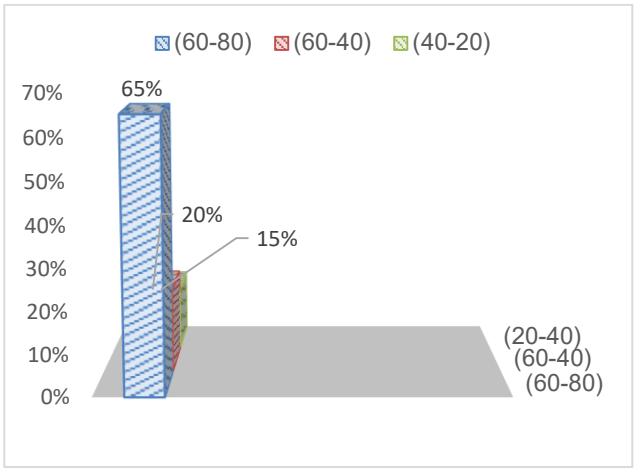

Figure 2: shows the differences in the percentage of patients age who participated in the study. Age group (60-80) 65% was more significantly preferred to have dental implant than the patients age (20-40) 15% & (40-60) 20%.

Table (3): Shows the number of patients with percentages of dental implant position in the jaw anterior or posterior.

Position	number	Percentage
Anterior teeth	50	62%
Posterior teeth	30	38%
Total	80	100

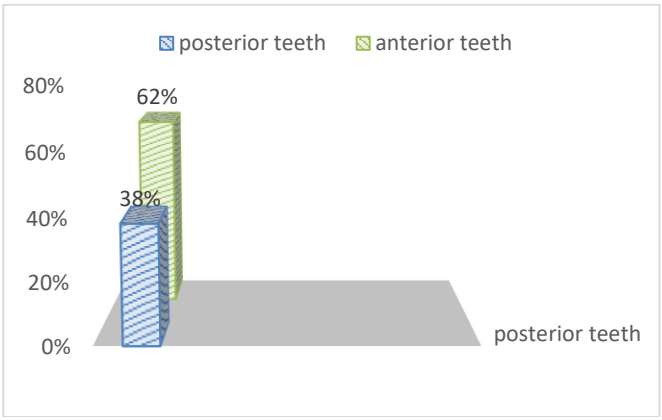

Figure 3: According to positions of dental implant in the jaw, anterior region was more commonly employed than the posterior region respectively (62%) versus (38%).

Table (4): Shows number of patients with percentages according to the final restoration

Final restoration	Number	Percentage
Crown	60	75%
Bridge	20	25%
Total	80	100%

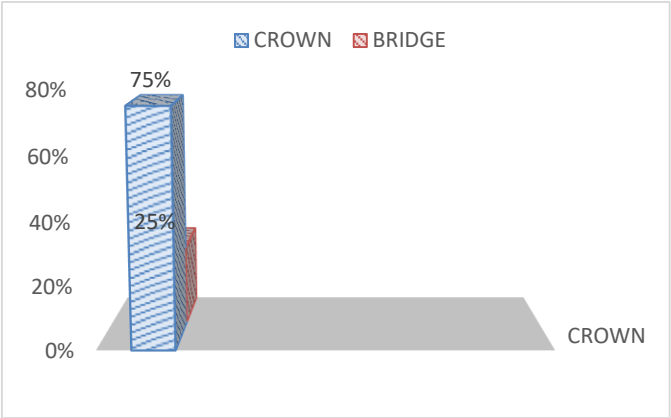

Figure 4: shows final restoration after dental implant placement, crown was more dramatically employed than bridge (75%) versus (25%) respectively.

Table (5): Shows numbers of final restoration type after implant placement (Zirconium or Porcelain).

Name material	Number	Percentage
Zirconium	50	63%
Porcelain	30	37%
Total	80	100%

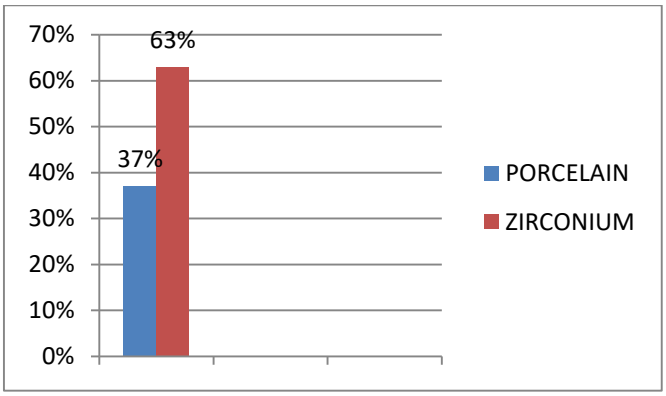

Figure 5: shows type of final restoration, Zirconium (63%) more significantly preferred than porcelain (37%).

Table (6): Shows the position of dental implant in the jaw (upper or lower).

Jaw	Number	Percentage
Upper jaw	64	80%
Lower jaw	16	20%
Total	80	100%

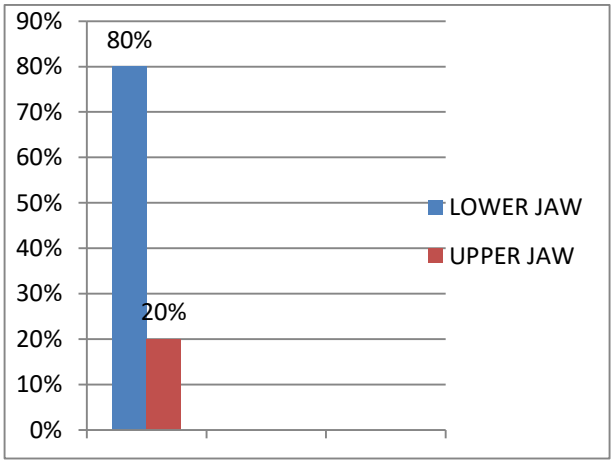

Figure 6: shows that dental implants position was more significantly preferred to insert the upper jaw (64%) than the lower jaw (36%).

Table (7): Shows the preferred position of dental implant in the jaws (anterior or posterior) between gender and their age group.

Gender	Male	percentage	female	Percentage
Age				
(20-40)	4	18%	15	26%
(40-60)	9	40%	27	47%
(60-80)	9	40%	16	27%
Position				
Anterior	8	36%	43	74%
Posterior	14	64%	15	26%

Male patients (40-60) years (40%) preferred more to replace their missing teeth with dental implant than the patients aged (20 to 40) years (18%). While, female patients aged (40-60) years (47%) were preferred to replace their missing teeth with dental implant patients aged (60-80) years (27%) and patients aged (20-40) years (26%).
According to the of position of dental implant in the jaw, male patients preferred posterior dental implant more significantly than the anterior implant (64%) versus (36%) respectively. In contrast, female patients preferred anterior dental implant more than the posterior (74%) versus (26%) respectively.

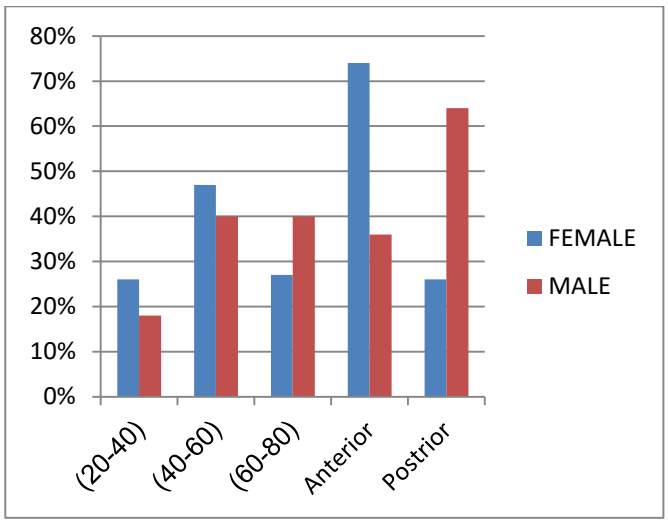

Figure 7: Shows the preferred position of dental implant in the jaws (anterior or posterior) between gender and their age group.

Table 8: shows preferred type of final restoration, type of material, and position of the restoration in the jaws between gender and their age.

Gender	Male	Percentage	Female	Percentage
Final restoration		68%		
Crown	15		40	69%
Bridge	7	32%	18	31%
Name material				
Zirconium	12	56%	45	77%
Porcelain	10	55%	13	23%
Jaw				
Upper	14	63%	38	66%
Lower	8	36%	20	34%

According to the final restoration after implant placement, crowns (68%) were more likely to be employed than bridges (32%) in male patients. In addition, crowns (69%) were more commonly employed than bridges (31%) in female patients.
According to the material used, there were no significant difference between zirconium and porcelain (56%) and (55%) respectively in male patients. In contrast, there were significant difference between zirconium and porcelain in female patients (77%) versus (23%) respectively.
According to implant position in the jaw, the upper implants (63%) were more than the lower one (36%) in male patients. Also, in female patients the upper implants (66%) were more than lower implants (34%).

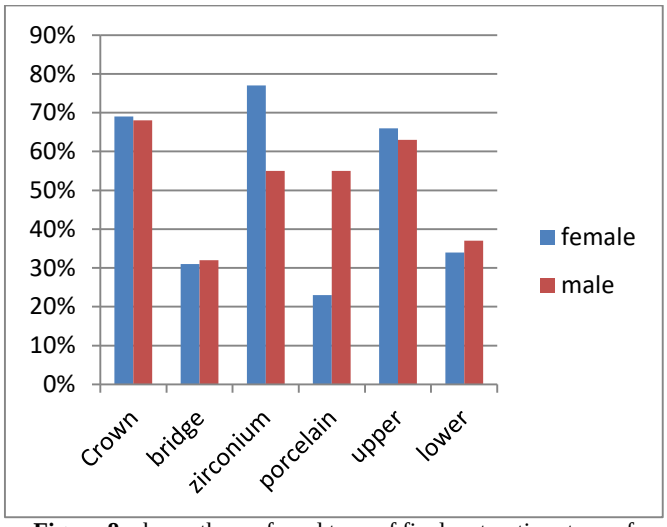

Figure 8: shows the preferred type of final restoration, type of material, and position of the restoration in the jaws between gender and their age.

Discussion

The number of female patients who preferred to replace their missing with dental implant was more than the number of male patients. This may have explained as female concern more effectively about esthetic and general appearance.
Patients aged between (60-80) years preferred to replace their missing teeth with dental implants more than patients aged between (20-60) years, because the vast majority of people lost their natural teeth at that age. The common method and best solution to replace missing teeth amongst this sample is the dental implant for excellent esthetic and function in both anterior and posterior regions.
In this study the preferable final restoration material among the patients was zirconia as material of choice due to it is excellent properties.
At the present time patients are requesting zirconia and porcelain crowns over metal-based crowns because both zirconia and porcelain restorations provide strength and lifelike esthetics. Since the introduction of milled zirconia restorations, patients have been increasingly requesting zirconia as an alternative to porcelain-fused-to-metal restorations.
Fernando Zarone and his colleagues proved that zirconia is one of the most promising restorative materials, because it produces very advantageous mechanical properties and reasonable esthetic (9).
Most dental practices are changing from the conventional Porcelain Fused to Metal restoration and all-ceramic crowns and moving towards the use of zirconia for constructing fixed dental prostheses. Because zirconia crowns and bridges possess excellent esthetics and are virtually indestructible, zirconia is becoming the most popular material for making dental crowns and other restorations. Zirconia-based restorations achieving increased fracture resistance and possesses brilliant clinical performance of implant-supported zirconia-based restorations (10).
Moreover, zirconia possesses excellent biocompatibility, making the crowns and bridges prepared from zirconia extremely safe for clinical use inside the mouth.
A systematic review of studies was conducted to assess the effect of thermal treatment on flexural strength or critical load to failure of porcelain-veneered zirconia. This study concluded that delaying furnace opening at a temperature below the porcelain is recommended for porcelain-veneered restorations, to improve their fracture resistance (11).
In addition, Yuqing and his colleagues assessed the adhesion between commercially available porcelain veneering materials and digital light processing manufactured zirconia. Authors reported that the

adhesion between zirconia and the veneer ceramic can be affected by the brand of the dental porcelain. The zirconia fabricating methods did not affect bonding of the zirconia/porcelain structure (12).
The most recent study reported that laser treatment increased zirconia surface roughness, and also significantly increased shear bond strength (13).

5. Conclusion

In the current study dental implant was the most widely preferable method for replacing missing teeth in female patients.

The number of female patients were more than the number male patients to replace their missing teeth with crown and bridge.

Patients aged between (60-80) years old were the common age group requested to have dental implant to replace their missing teeth.

The vast majority of patients preferred to replace missing teeth with dental implant in upper arch when compared to the lower arch.

According to the type of material used, the zirconium restoration was the most commonly preferred than porcelain restoration.

Suggestion

Based on the findings of this study, the following suggestions are made:

Regular visit to dental clinic for early replacement of missing teeth to maintain the level of the alveolar bone that supports the teeth in the maxilla and mandible.

Open a modern dental implant center at the City Sebha of the study.

Improvement of dental laboratories to provide quality replacement of missing teeth at affordable costs.

Further long-term multicenter studies to assess the patients with missing teeth, replace their teeth with more advanced oral implant material and assist in giving a more accurate plan of the patients' needs across the nation is mandatory.

Attempting to instruct patients that best solution to replace their missing teeth is with dental implant.

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Informed Consent Statement
Applicable

Data Availability Statement
Not applicable

Conflict of Interest
The authors declare no conflict of

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