



Evaluation of Patients' Awareness Levels Regarding Implant And Implant-Supported Prosthesis Who were Admitted to Bezmialem Vakıf University Faculty of Dentistry

Bezmialem Vakıf Üniversitesi Diş Hekimliği Fakültesine Başvuran Hastaların İmplant ve İmplant-Destekli Protezler ile İlgili Bilinç Seviyelerinin Değerlendirilmesi

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ABSTRACT

Objective: The aim of this study was to investigate the knowledge level of the totally or partially edentulous patients who were admitted to the Dentistry Faculty of Bezmialem Vakıf University and to investigate the factors affecting their ideas when choosing this treatment.

Methods: To measure the knowledge level of the patients who were admitted to Faculty of Dentistry and to determine the factors affecting the decision-making processes, a survey was planned. A total of 250 participants were included in the survey.

Results: While 57.3% of the participants knew that implant treatment was an alternative treatment, 13.3% of them stated that they had no idea, 29.3% had no opinion at all. When we asked the level of knowledge of the patients about the implant, 16% found it to be quite inadequate and 22% found it very adequate. Of the patients 40.6% stated that they acquired the information from the physician, when they were asked where the information about the implant was obtained. The other sources were friends and family in 24.6%, social media in 16%, internet in 14%, and other sources in 4.6%. While 49.3% of patients preferred implant treatment, they chose the option of being expensive as the biggest factor causing them to think negatively.

ÖZ

Amaç: Bu anket çalışmasında Bezmialem Vakıf Üniversitesi Diş Hekimliği Fakültesi'ne başvuran total ve parsiyel dişsiz hastaların implant hakkındaki bilgi düzeyleri ve bu tedaviyi tercih ederken fikirlerini etkileyen unsurların incelenmesi amaçlanmıştır.

Yöntemler: Diş hekimliği fakültesine başvuran hastaların implant ve implant tedavisi hakkındaki bilgi düzeylerini ölçmek ve karar verme süreçlerini etkileyen faktörleri belirlemek amacıyla anket yoluyla araştırma düzeni planlanmıştır. Ankete toplam 250 katılımcı eklenmiştir.

Bulgular: Katılımcıların %57,3'ü implant tedavisinin alternatif bir tedavi olduğu bilincine sahipken, %13,3'ü kısmen fikir sahibi, %29,3'ü hiç fikirlerinin olmadığını belirtmiştir. Hastaların implant ile ilgili bilgi düzeylerini sorduğumuzda %16'sı oldukça yetersiz bulurken, %22'si çok yeterli bulmuştur. Katılımcıların implant ile ilgili bilgiyi nereden edindikleri sorulduğunda hastaların %40,6'sı hekimden bilgiyi edindiğini belirtirken, %24,6'sı arkadaş ve aile, %16'sı sosyal medya, %14'ü internet, %4,6'sı diğer seçeneğini seçmiştir. Hastaların %49,3'ü implant tedavisini tercih ederken negatif düşüncelerine sebep olan en büyük etmen olarak pahalı olması seçeneğini seçmiştir.

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Conclusion: As a result of the questionnaire, it was concluded that the knowledge level of the patients about implant treatment and the physician were insufficient in the transfer of this information. Further studies should be increased in order to raise awareness among patients.

Keywords: Implant, implant-supported denture, dental treatment, total edentulous jaw, partial edentulous jaw, awareness level

Sonuç: Anket sonucunda hastaların implant tedavisi hakkındaki bilgi seviyesinin ve implant tedavisi aşamalarının aktarımında hekimin yetersiz kaldığı sonucu çıkmıştır. Hastaların bu konuda daha çok bilinçlenmesi için çalışmaların artırılması gerekmektedir.

Anahtar Sözcükler: İmplant, implant-destekli protez, dental tedavi, total dişsiz çene, parsiyel dişsiz çene, bilinç düzeyi

Introduction

Today, implant therapy, which has become rapidly popular among dentists and patients, has begun to replace many alternative treatment methods (bridges, removable prostheses, etc.) (1-6). The first known implants were made by the Egyptians with gold wire around 2,500 BC (7). With the developing technology and industry over time, significant developments have taken place especially in the last 100 years. Implant material, which has undergone various modifications over the years, has begun to be produced in many different types and sizes (8). In addition, implant-supported prosthetic restorations have been diversified and developed with the widespread use of implant treatment (9). This difference is determined by many factors depending on the physician and especially the patient.

When determining patient-related factors, it is necessary to evaluate from many aspects. One of these factors is the patient's physical condition. Patient's intra-oral status (condition of alveolar crests, number of missing teeth, condition of gingiva, etc.), extra-oral face circumference and tissue condition (such as facial symmetry, facial type), physiological health status (disorders such as cardiac, diabetic, blood pressure) and physical examination factors (age, gender) are important criteria to be evaluated when planning implant and implant supported prostheses (1). Other factors are psychological, environmental and socioeconomic status. Financial conditions, lifestyles, social environments (friends, family, work) and psychological conditions of the patients also play major roles in deciding the treatment option they want to have (10).

The explanations and directions made by the physician are also effective in the patient's decision. Physician-related factors such as the physician's knowledge, friendliness, ability to explain, and persuasion are effective in guiding the patient. Although the effect of these factors is known when the literature is examined, the number of scientific studies that evaluate these parameters and provide the opportunity to evaluate the level of awareness in patients is very few. Various studies have been conducted to show the of patients about dental implants in different countries (10-17).

In this study, it was aimed to examine the level of knowledge that patients had about implant and implant supported prostheses and the factors that affected them while making a decision. The study was carried out according to the results of the questionnaire presented to 250 patients who were admitted to

Bezmialem Vakıf University (BVU) Dentistry Faculty Hospital to have implants.

The hypothesis of the research was that totally or partially edentulous patients did not have sufficient awareness about implant and implant treatment when they were admitted to BVU Faculty of Dentistry.

Method

This survey study was carried out in a period of 6 months (December 2018-May 2019) in accordance with the Principles of the Declaration of Helsinki. Permission for the study was obtained from the BVU Non-interventional Research Ethics Committee with the decision number 23/301 on 18.12.2018.

In order to measure the knowledge level of the patients who were admitted to BVU Faculty of Dentistry Hospital about the implant and to determine the factors affecting their decision-making processes, a questionnaire was planned (Figure 1, 2). A pilot test was applied to 25 patients to evaluate the effectiveness of the questionnaire. Then the questionnaire was applied to 250 patients. The data were evaluated as descriptive analysis items. Patient preferences were evaluated with Person Chi-square test. For a 5-point Likert-type question, it was calculated that at least 250 questionnaires should be filled in order to determine the theoretical frequency of $1/5=0.20$ with 0.04 error and 95% confidence level.

The survey consisted of 15 questions:

1. Information of the patients about the stages of implant treatment and the materials used
2. Factors that affect patients when deciding on implant treatment
3. Information resources of patients about treatment
4. Patients' awareness of the negative or positive effects of the implant on the bone
5. Whether the patients had sufficient information during the decision-making process for implant treatment and after treatment

The questionnaires were presented to the patients in the Department of Prosthetic Dentistry. Questionnaires were applied to the patients who were in the implantation phase. Patients who did not agree to participate in the survey were excluded from the study.

Statistical Analysis

The obtained data were transferred to digital environment with Excel (Microsoft Corporation). Since the data obtained with Excel and SPSS (IBM Company, V22.0, Chicago, IL, USA) programs did not show homogeneous distribution according to the Kolmogorov-Smirnov test result, the Kruskal-Wallis test was used to determine the intergroup differences, and Dunn's test was

used to determine the within-group differences. The numbers and percentages of the data were determined by descriptive statistics. P<0.05 was considered statistically significant.

Results

Of the participants 31.3% were between the ages of 20-39, 40% were between the ages of 40-54, and 28.6% were between the

IMPLANT AWARENESS SURVEY		 BEZMİALEM <small>VAKIF ÜNİVERSİTESİ</small>	
Gender	FEMALE () MALE ()		
Age			
State of Teeth	Total(full) toothless() Partial (partial) toothless()		

Please mark the appropriate option for the questions below; (Questions from 1 to 5; 1-Quite Inadequate 5- Very Adequate.)

1. Do you know that there may be implant options as an alternative to traditional treatment options (bridge, crown, dentures)?
 Yes () Partly () No()

2. What treatment do you know about besides implants?
 A) Implant-assisted bridge/total/partial
 B) Total (toothless) prostheses
 C) Partial (toothless) prostheses
 D) Bridges
 E) None of them

3. Do you know enough about implant treatment? ((1-Quite Inadequate 5- Very Adequate.)
 1 () 2 () 3 () 4 () 5 ()

4. Where did you get information about implant treatment?
 A) Social media (Instagram, Youtube; Twitter, Facebook,...)
 B) Friend
 C) Internet
 D) From your physician
 E) Other (.....)

5.

Would you consider having implant treatment if it was recommended again?	YES	NO
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6. What causes you to think negatively about the implant?
 A) Expensive
 B) It's a difficult process
 C) Fear
 D) Not trusting the physician
 E) Long process
 F) Other(.....)

Figure 1. 1st page of the questionnaire

7. Why do you prefer the implant?

- A) Social popularity
- B) Reject to cut healthy teeth
- C) More aesthetic
- D) More robust and long-lasting
- E) Other(.....)

8. Do you know what effect implant placement has on your bone, positive or negative?

Yes () Partly () No()

9. What is the most important option when choosing implant material?

- A) Price
- B) Company Origin (Foreign-Turkish)
- C) Physician's guidance
- D) Impact of the environment (Friend-Neighbor-Relative)
- E) Other(.....)

10. What do you pay the most attention to when choosing the material to be used on the implant?

- A) Aesthetics
- B) Price
- C) Robustness
- D) Physician's choice
- E) Other(.....)

11. Do you know that implant and implant supported prosthesis treatment are performed in cooperation of two different departments as surgical and prosthetics?

Yes () No()

12. Do you know that surgical and prosthesis departments are paid separately in implant and implant supported prosthesis treatment?

Yes() No()

13. What feature of the physician can be effective in your decision making?

- A) Information
- B) Friendliness
- C) Ability to explain
- D) Persistence
- E) Other(.....)

14. Which department was most effective about your request to have implant treatment?

- A) Surgery
- B) Prosthesis (Prosthetic Dental Treatment)
- C) First examination (Radiology)
- D) Periodontology
- E) Other (.....)

15. Is there any difference in your implant knowledge between beginning and present?

Yes() Partially() No()

ages of 55-72. Of the participants 51.3% were female and 48.7% were male (Figure 3). In addition, 83.3% of the patients had partial edentulism, while 16.6% had total edentulism.

The first criterion we evaluated was whether patients knew that implant treatment was an alternative to traditional treatment options (bridge, crown, removable prosthesis). While 57.3% of the participants knew that implant treatment was an alternative treatment, 13.3% had a partial idea and 29.3% stated that they had no idea. No significant difference was found between male and female participants ($p>0.05$).

In our second question, the patients' knowledge of a treatment other than implant treatment was measured. While 52.0% of the participants knew about bridge treatment, 14% stated that they did not know about implant-supported removable prostheses, 13.3% stated that they did not know about total and partial dentures, and 20.7% stated that they did not know about any treatment. No significant difference was found between male and female participants ($p>0.05$).

When we asked about the knowledge level of the patients about the implant, 16% found it quite insufficient, while 22% found it very sufficient. No significant difference was found between male and female participants ($p>0.05$). When we divided the patients into 3 groups; 29.8% of patients aged 20-39 stated that they had a very sufficient level of knowledge, 26.7% of patients aged 40-54 stated that they had insufficient knowledge, and 34.9% of patients aged 55-72 stated that they had an average level of knowledge.

In the 4th question, when the participants were asked where they got the information about the implant, 40.6% of the patients stated that they got the information from the physician, while 24.6% from friends and family, 16% from social media, 14% from internet, and 4.6% from other sources. No significant difference was found between male and female participants ($p>0.05$). According to the question 4, the difference between the mean ages was checked and it was found to be $p=0.019$ in the Kruskal-Wallis test. As a result of Dunn's test, it was observed that there was a difference between groups 1-4 (1= social media, 4= physician) ($p=0.0044$). It was observed that the 1st group had lower mean age than the 4th group.

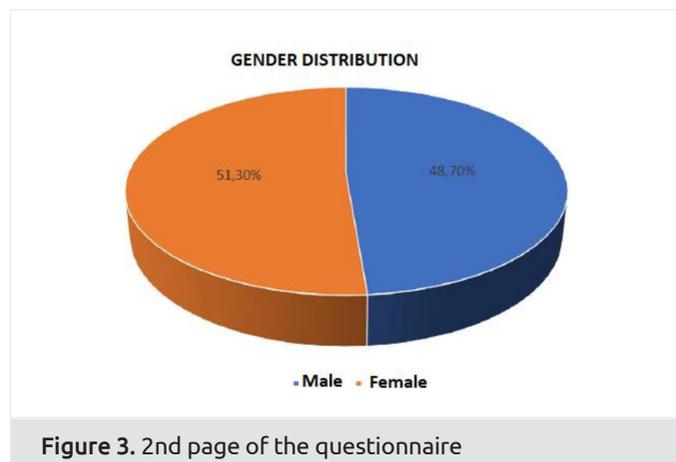


Figure 3. 2nd page of the questionnaire

The patients who participated in the survey were asked whether they would consider having implant treatment if they were offered again. According to the results, 93.3% of them considered having implant treatment if it was recommended and 6.6% of them did not consider. No significant difference was found between male and female participants ($p>0.05$).

According to question 6, in 49.3% of the patients who participated in the survey expensiveness caused them to think negatively, while in 14% long process caused them to think negatively. Other factors that caused them to think negatively were fear in 13.3%, difficulty of the process in 11.3%, not trusting the physician in 8%, and other factors in 4%. No significant difference was found between male and female participants ($p>0.05$).

According to Question 7, when the positive reasons affecting the patients' choice of implant treatment were examined; 56.7% of the patients said that implant treatment was more robust and long-lasting, 27.3% of them said that they did not want to have their healthy teeth cut, 8% said that implant was more aesthetic, 3.3% said that they would choose implant treatment because of social popularity, and 4.4% chose the other reasons. No significant difference was found between male and female participants ($p>0.05$).

The question "Do you have any information about the positive or negative effect of implant placement on your bone?" was posed. Of the patients 60% stated that they had no idea, 19.3% stated that they had partial knowledge, and 20.6% stated that they had no knowledge. No significant difference was found between male and female participants ($p>0.05$).

When the patients were asked about the most important factor when choosing the materials to be used in implant treatment; the most important factor was physician referral in 50% of the patients, price in 27.3%, company origin in 22.0%, and environmental impact in 0.7%. There was no significant difference between male and female participants ($p>0.05$).

When the patients were asked about the most important factor in the material selection of the restoration to be made in the implant treatment; 35.3% chose durability, 30% chose physician's choice, 17.3% chose price, 16% chose aesthetics, and 1.3% chose the others. No significant difference was found between male and female participants ($p>0.05$).

The question "Do you know that implant and implant supported prostheses treatment are performed jointly by two separate departments which are surgery and prosthesis departments?" was asked, and 62% answered "no" and 38% answered "yes". There was no significant difference between male and female participants ($p>0.05$).

The question "Do you know that in implant and implant supported prostheses treatment, you pay to surgery and prosthesis departments separately?" was asked, and 54% answered "no" and 46% answered "yes". There was no significant difference between male and female participants ($p>0.05$).

When the 13th question was asked to the patients, they chose which feature of the physician was important in the decision-making of the patients. While 62% chose knowledge, 18.6% chose ability to explain, 19.6% chose friendliness, 3.3% chose other options, and none of the patients chose persistence. There was no significant difference between male and female patients ($p>0.05$).

In the 14th question, "Which department was effective in your desire to have implant treatment", 45.3% chose surgery department, 18.6% chose prosthetic dental treatment department, 11.3% chose periodontology department, 10.6% chose oral diagnosis department, and 14% chose other options. No significant difference was found between male and female patients ($p>0.05$).

The patients were asked whether there was any difference in terms of their knowledge between the time they were admitted to the faculty of dentistry and the time until the time the questionnaire was conducted. According to the results, 45.3% stated that there was a significant difference, 24% stated that there was a small difference, and 30.6% stated that there was no difference. There was no significant difference between male and female patients ($p>0.05$).

Discussion

This research was a study examining the knowledge levels of patients, who were admitted to BVU Faculty of Dentistry Hospital in İstanbul, about implant treatment, the reasons for choosing this treatment, and the factors affecting this choice. The study group consisted of faculty members, specialist doctors and patients who were admitted to the Prosthetic Dentistry Clinic due to the ease of access. The age and gender distribution of the participants was randomly selected. According to the result of the research, it was observed that the patients did not have sufficient knowledge about the implant, implant treatment and the stages of this treatment. Hypothesis was accepted.

Implant treatment is an increasingly popular treatment option with a high success rate. Recently, it has become the focus of attention for patients, especially due to the widespread use of social media, television programs and the internet (6). In this study, it was shown that 57.3% of the patients knew dental implants among different options for rehabilitating missing teeth. It was found that more than half of the patients knew that the implant was a treatment applied to replace missing teeth. Tomruk et al. showed that 43.5% of the patients had sufficient knowledge about implant in the implant awareness survey conducted in the student clinic in Istanbul (1). The difference was thought to be due to the fact that the socio-cultural structure of the patients who came to the student clinic where the study was conducted was different from that of the patients who came to the clinic where there were specialists and academic staff. Zimmer et al. (10), Berge (13) and Tepper et al. (14) reported the implant awareness rates in their countries as 77%, 70.1% and 72%, respectively. The differences between these countries (America, Norway and Austria) and Turkey may be due to sample

differences, because we can talk about a social and economic difference between the participants in our study and those in other countries (1). In addition, oral implant technology has been developed recently in Turkey, but this technology has been in use earlier in other countries (1).

As a result of the research, it was revealed that the treatment method that the patients had the most opinion about as a Prosthetic Dental Treatment option, apart from the implant, was the bridge treatment with 52%. The most important reason why patients chose this treatment was that it was done very often in the past to treat partial tooth loss, and because of this situation, they learned about this treatment (18).

When we looked at the implant awareness levels, it was concluded that the patients were not at a sufficient level in this regard. While the knowledge level of young patients about the implant was more sufficient, the awareness level of middle-aged and elderly patients was found to be insufficient. It can be thought that this result is due to the differences in obtaining information due to the more common use of social media and the internet in younger patients (23).

Of the patients 40.6% stated that they learned the information about the implant from their physicians, and 30% of the participants stated that they obtained the information from the internet and social media platforms (Instagram, Youtube, Twitter, Facebook, etc.). Suprakash et al. (19), Ozçakır Tomruk et al. (1), Kaurani and Kaurani (20) and Ünal Erzurumlu et al. (21) stated that the main source of information in their studies was the dentist. Zimmer et al. (10) and Berge (13) reported that the main source of information was the media, emphasizing that the role of dentists was less. The average age of the patients who chose the social media option was 38.5, and those who obtained information from the physician were 53. Despite the widespread use of the internet and social media, the fact that the age group of the patients who had implants was mostly from the elderly patient group might cause the source of information to be different. In our study, similar to the studies of Ozçakır Tomruk et al. (1) and Ünal Erzurumlu et al. (21), it was concluded that the patients obtained information about dental implants and procedures primarily from dentists. In this case, the duty of the physician should be to keep the level of knowledge about the implant high and to convey this information to the patient in a good way.

Of the patients 49.3% considered the expensiveness of the implant treatment as the most important negative aspect of this treatment. Similar results were obtained in similar survey studies (10,14,16,22). Patients should be told about the necessity of increasing their quality of life rather than complaining from the high cost, and the advantages of implant treatment over other treatments should be mentioned.

Of the patients 56.7% stated that the more robust and long-lasting implant treatment was the most important reason for them to prefer this treatment. When we looked at the literature on this subject, no study was found. According to this result, it

can be concluded that the patients think of the implant as their permanent teeth and may think that it should be long-lasting and robust. Other factors, such as aesthetics and not wanting to have healthy teeth cut, remain in the background. It can be concluded that the emphasis on the durability and longevity of this option while explaining the implant treatment to the patients significantly affects the preference of the patients.

Implant treatment has a positive effect on bone resorption compared to other restorative options (8). When the patients were asked whether they had knowledge about the positive and negative effects of implant placement on the bone, 60% stated that they had no idea and 20% stated that they had insufficient knowledge. This showed that patients were not informed about the effect of the implant on bone resorption, which was actually one of the most important advantages of the implant, or that they did not learn about it from sources other than the physician (TV, internet, social environment). More work needs to be done on this topic. Awareness of patients on this issue may make implant treatment more preferable.

Patients are presented with many options when choosing implant material. When the physician's referral and other factors were evaluated among these options, 50% of the patients stated that the doctor's referral was the most important factor. The cost lagged behind the physician's guidance in choosing the patient. This topic has not been explored before. According to the result, the effective speech and persuasion ability of the physician is more important than the cost in the patient's implant material preference. This result also shows that the ethical responsibility of the physician has increased even more.

There are many different options in the selection of the material to be used in the prosthesis over the implant when the prosthetic stage is passed after the surgical stage. According to our results, while the choice of the physician was of great importance when choosing the implant material, the durability and the choice of the physician were very close to each other when choosing the prosthesis material on the implant. When the prosthesis stage is passed, explaining the durability of the implant materials to the patients will make a positive contribution to convincing the patient.

We thought that detailed information about the stages and pricing of implant and implant supported prosthesis treatments were not given to patients in dental clinics such as university hospitals and large outpatient clinics where different treatments were performed in different departments. In our study, the majority of the patients stated that they did not know that implant treatment consisted of two parts as oral and dental surgery and prosthetic dental treatment and that they were not informed about it. Likewise, they stated that they did not know that separate fees were paid for the implant material and the prosthetic restoration on the implant. No research has been found on this topic. According to the result, it is thought that this deficiency is caused by insufficient informing during the oral diagnosis and surgical stage, which is the first stage. Patients complain about this situation and become victims. It is necessary to carry out studies on informing in oral diagnosis and surgery departments.

Patients coming to our hospital are admitted to many departments for various treatments. They are informed about implant treatment in different departments and they are directed to this treatment. When the patients were asked about the department that affected this situation the most, almost one out of every 2 patients stated that they were convinced of implant treatment by Oral and Maxillofacial Surgery. No research has been found on this topic. The effects of the other sections were very close to each other and there was no difference between them ($p>0.05$).

As can be seen from the results of our survey, the physician greatly influences the patient's decisions. When the patients were asked which feature of the physician was effective in their decision making, a large percentage of them (62%) emphasized that the physician's knowledge was very important in their decision making. The conclusion to be drawn from this is that the physician who seems knowledgeable is very effective in the decision making of the patients. Also, it was seen that none of the patients chose the persistence of the physician effecting their decision.

Finally, the patients were asked whether there was a difference in their knowledge about the implant from the time they were first admitted to our hospital to the time we conducted the survey. Of the participants 45% stated that they felt a significant difference in their knowledge.

Study Limitations

In our study, there was a population of patients from social and economic environments that were generally close to each other. For this reason, the answers given were more localized. In order to diversify this, conducting such tests in different countries or cities and in different socio-economic segments may ensure that the results are more accurate and clear. Such studies show that patients have difficulties in obtaining the right information about the treatment to be applied and obtaining this information from the right source. In order to increase awareness on this issue, it is necessary to increase the researches on the subject.

Conclusion

When the data of this research was examined, it was concluded that the patients were not sufficiently informed about the implant treatment and the process of this treatment and that they were not adequately informed by the physicians. As young patients are informed via the internet and social media, older patients cannot benefit from these channels. For middle-aged and older patients, it is very important to be informed by the physician. Physicians need to keep their knowledge fresh on this subject, improve themselves in effective informing, and inform patients accurately about this treatment.

Ethics

Ethics Committee Approval: Our study was approved by the ethics committee of our university (ethics committee file

number: 22/420), and the principles stated in the Declaration of Helsinki were complied with.

Informed Consent: Written and verbal consent was obtained from all patients.

Peer-review: Externally peer reviewed.

Authorship Contributions

Concept: U.D., Ö.Y.Ö, Design: U.D., Ö.Y.Ö, Data Collection or Processing: U.D., Ö.Y.Ö, Analysis or Interpretation: U.D., Ö.Y.Ö, Literature Search: U.D., Ö.Y.Ö, Writing: U.D., Ö.Y.Ö.

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