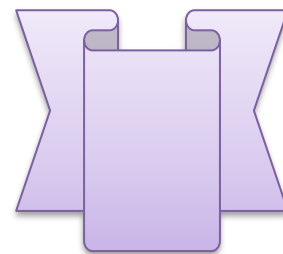
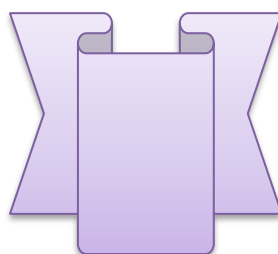
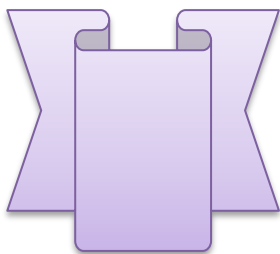
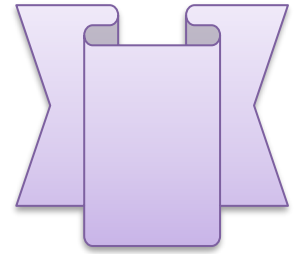
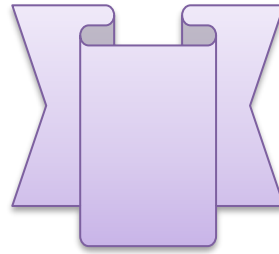
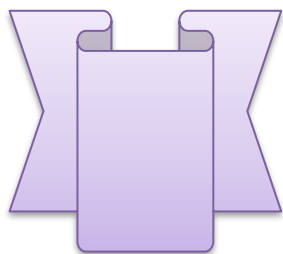
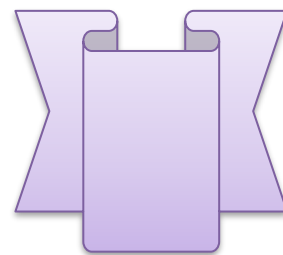
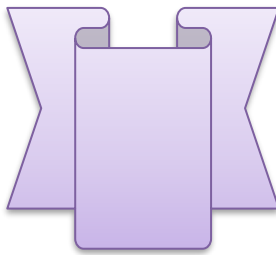
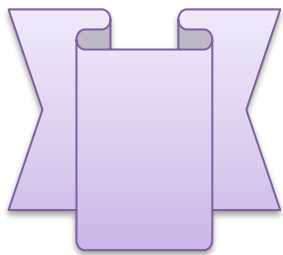


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Original Article

Libyan Patient's Awareness and Attitude Towards Dental Implants

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ABSTRACT

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Background: There are many options to replace missing teeth, but a lot of people choose dental implants. It is important to know if patients know about dental implants in order to plan healthcare and marketing services.

Aim of the work: To assess how much Libyan patients know about using implants as a way to replace a missing tooth, we also wanted to know what information they had about replacing missing teeth in general and where they learned it from.

Patients and Methods: A questionnaire survey was conducted to collect information from 400 people who went to different dental clinics and hospitals in Libya. We gathered information about the patients' traits, their knowledge on using implants for missing teeth, and where they found out about other ways to replace teeth.

Results: Out of 500 patients, 400 patients said "yes" to joining this study. A high percentage [80.2%] were aware of dental implants, with dentists being the primary source of information. The main barriers to considering implants were cost [78.8%] and perceived treatment time [19.8%]. Participants had varying estimations of the functional lifespan of implants, with the majority [37.5%] estimating it to be less than 10 years. A majority [80.2%] indicated their willingness to proceed with restoring missing teeth using dental implants. Almost half of the participants had heard about successful implant experiences from their friends. Participants had diverse views on the importance of functional outcomes and the qualifications of dentists providing implant treatment.

Conclusion: A lot of patients feel that dental implants are expensive, so insurance companies and health authorities should find ways to make them more affordable. Dentists are very important as they help with replacing missing teeth by educating patients about dental implants and explaining why they are good options.

Keywords: Dental; Implants; Awareness; Attitude.



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INTRODUCTION

Tooth loss occurs when individuals lose their teeth. This can be caused by cavities, gum disease, facial injuries, ineffective dental treatments, or occasionally as a consequence of medical procedures. The loss of teeth can evoke feelings of profound sadness, and it is recognized as a significant issue that necessitates substantial changes in one's social and mental well-being. According to the World Health Organization, people who have lost their teeth are considered physically impaired since they have lost a vital component of their body [1].

Individuals who do not have teeth often encounter difficulties when it comes to chewing food, speaking articulately, and feeling insecure about their appearance. These challenges can also lead to discomfort in social situations. Previously, individuals with missing teeth had various options available, such as removable partial dentures, fixed partial dentures [bridges], or complete dentures in cases of total tooth loss. Artificial teeth provide different methods to assist those who have lost some or all of their natural teeth [2].

Currently, a significant number of individuals opt for dental implants as a solution for replacing their missing teeth. Dentists highly favor dental implants. Consequently, it is crucial to assess the level of awareness and preference for dental implants among residents in rapidly expanding cities [3]. The aim of this survey is to determine the extent of patients' knowledge regarding dental implants.

PATIENTS AND METHODS

Study design: A questionnaire survey was conducted on a random sample of people in Libya concerning dental implants, which are artificial teeth that can be inserted into the mouth.

Tools: We utilized both paper and online questionnaires consisting of multiple questions. The study was conducted in the year 2023, where participants were randomly selected to take part in the survey. Surveys were created in English and Arabic to ensure ease of completion and comprehension for individuals. Numerous hospitals located in different cities across Libya, which had dental departments, as well as private dental clinics, were included in our study. Surveys were administered to patients during

their regular visits to the dentist. All study participants were provided with information regarding the research objectives and aims. Individuals unwilling to adhere to the study's guidelines were not allowed to participate.

A pilot study was conducted among a sample of 25 patients, with fifteen literate patients completing the questionnaire through self-administration, and ten illiterate patients being interviewed. A structured questionnaire was used for ensuring comprehensibility and reliability. However, it's important to note that these 25 questionnaires were not included in the final study.

Ethical Considerations: This study was conducted in accordance with the guidelines of the Declaration of Helsinki and its later revised ethical standards. Each study participant involved in this study provided written informed consent. No specific ethical approval was required for this survey-based study in compliance with local ethics committee regulations.

RESULTS

Out of 500 people, 400 individuals expressed positive interest in participating in this study. The positive response rate was 80%. The remaining individuals did not complete the survey, and their incomplete information was excluded from the survey results.

Most of the individuals who experienced tooth problems were between 30 and 50 years old, comprising half of the cases. Patients < 30 years old accounted for 37.5% of the total, while there were 12.5% of cases over 50 years old. Males constituted 80.2% of the cases, whereas females made up 19.8%. Regarding education, 0.8% of the surveyed individuals had a high school education or lower and 0% had no education. In terms of occupation, the largest group comprised employees [37.5%] and 25% of cases were farmers, as illustrated in table [1].

Regarding dental implants, 87.5% of the cases involved previous tooth extraction, with extraction due to tooth decay serving as the main cause in 85.7% of those cases. In 85.7% of all cases, the extraction occurred within the past 0-5 years. Moreover, 85.7% of the cases included in the study necessitated a replacement tooth subsequent to the extraction, and, in most instances [85.7%], these replacement teeth were in the form of implants. Dental experts gathered

data from 80.2% of the cases studied, encompassing 78.8% of the participants. A common belief among many individuals is that dental implants are exceedingly expensive, leading them to opt against getting implants as a substitute for their missing teeth. They perceive implants to cost between 1,000 and 5,000 dollars and require more specialized care compared to natural teeth. Furthermore, opinions vary regarding the longevity of implants, with some asserting that they last less than 10 years, while others believe they endure for over 25 years, and some fall somewhere in between, lasting 11-20 years or 21-25 years. Ultimately, 50% of people opt for dental implants due to the belief that they enhance their overall appearance.

All the people were curious to know more about dental implants. Half of them believed that the implants are attached to teeth, 37.5% thought they are attached to gums, and 12.5% believed they are attached to the jawbone.

Additionally, 80.2% of people plan to replace missing teeth with dental implants. Regarding paying attention, 51.2% didn't pay attention to scary things, but 48.8% did. Out of those who paid attention, 77% experienced success, 2.5% did not, and 20.5% had a mixed outcome. Approximately 37.5% of people have heard about the effects of dental implants on overall health. However, around 50% have not heard about it, and 12.5% are unsure [table 4].

12.5% of people think that having a successful result from a backed prosthesis is extremely important, while 50% consider it important, and 37.5% do not think it is very important. Additionally, 37.5% believe that dentists who provide implant treatment are more qualified than those who do not, while 50% think it requires expertise. Lastly, 12.5% of people are unsure or do not have knowledge about this matter.

Table [1]: Distribution of the studied cases according to demographic data [n = 400]

Demographic data		No.	%
Age [years]	Below 30 years	150 [37.5]	
	30-50 years	200 [50]	
	> 50 years	50 [12.5]	
	Min. – Max.	26.0 – 31.0	
	Mean ± SD.	28.38 ± 1.13	
	Median [IQR]	28.0 [28.0 – 29.0]	
Sex	Male	321	80.2
	Female	79	19.8
Educational level	High school or below	3	0.8
	Diploma holder	1	0.2
	Bachelor's degree	315	78.8
	Master's degree	79	19.8
	PHD	2	0.4
Occupation	Employee	150	37.5
	House wife	79	19.8
	Worker	69	17.3
	Farmer	100	25
	Others	2	0.4

Table [2]: History regarding dental implants

		No.	%
1. Do you have any history of extraction?	A. Yes	350	87.5
	B. No	50	12.5
	C. Don't Remember	0	0.0
2. If yes, what was the reason for extraction/loss of tooth?	A. Tooth decay	300	85.7
	B. Gum disease	30	8.5
	C. Accident/trauma	20	5.7
	D. If other, specify:	0	0.0
3. When did you get the tooth extracted?	A. 0-5 years	300	85.7
	B. 6-10 years	30	8.5
	C. 12-15 years	20	5.7
	D. >15 years	0	0.0

Table [3]: Knowledge regarding dental implants

		No.	%
4. Do you want to replace the missing tooth?	A. Yes	300	85.7
	B. No	50	14.3
5. What replacement do you need in the extracted tooth region?	A. Removable Partial Dentures [RPD]	0	0.0
	B. fixed partial denture [FP]	0	0.0
	C. Implants	300	85.7
	D. Don't know	50	14.3
6. Have you ever heard anything related to implants?	A. Yes	321	80.2
	B. No	79	19.8
7. What were your first source of information about implants?	A. Dentist	315	78.8
	B. Relatives & friends	79	19.8
	C. Family doctor/ physician	2	0.4
	D. Television/ radio	3	0.8
	E. Internet	1	0.2
	F. Newspaper/ magazine/ pamphlets	1	0.2
	G. Multimedia	1	0.2
8. What are the reasons for not taking dental implant as a treatment option for replacing missing teeth?	A. Very expensive treatment	315	78.8
	B. Takes long time	79	19.8
	C. Fear/anxiety	2	0.4
	D. Needs surgery	1	0.2
	E. Lack of information about Implants	3	0.8
9. According to you, what do you estimate as the functional life of implants?	A. <10 years	150	37.5
	B. 11-20 years	79	19.8
	C. 21-25 years	69	17.3
	D. >25 years	100	25
	E. No idea	2	0.4
10. Up to which amount are you prepared to pay as an additional payment for implant?	A. 1000	79	19.8
	B. 1,000-5,000	315	78.8
	C. >5,000	5	1.4
	D. Varies from brand to brand [Commercial availability of implant]	0	0.0
11. What do you anticipate oral hygiene for the care of implants as compared with natural teeth?	A. More than natural teeth	315	78.8
	B. Less than natural teeth	79	19.8
	C. Similar to natural teeth	5	1.4
	D. Can't say	0	0.0
12. What are you expecting after getting treatment with implant as an option of missing teeth?	A. Long lasting	150	37.5
	B. Better esthetics	200	50
	C. Less maintenance	50	12.5

Table [4]: Awareness regarding dental implants

		No.	%
13. Would you be interested in knowing more about dental implants?	A. Yes	400	100.0
	B. No	0	0.0
14. Where do you think implants are anchored?	A. Gums	150	37.5
	B. Teeth	200	50
	C. Jawbone	50	12.5
	D. Can't say	0.0	0.0
15. Would you go ahead and restore missing teeth with dental implants?	A. Yes	321	80.2
	B. No	79	19.8
16. Have you ever heard about experiences with implants from your friends?	A. Yes	195	48.8
	B. No	205	51.2
17. If yes, how successful was the implant?	A. Successful	150	77.0
	B. Partially successful	40	20.5
	C. Not successful	5	2.5
18. Have you ever heard about effects of dental implants on systemic health?	A. Yes	150	37.5
	B. No	200	50
	C. Can't say	50	12.5

Table [5]: Attitude regarding dental implants

		No.	%
19. How important for you is the functional outcome of implant supported prosthesis?	A. Not very important	150	37.5
	B. Important	200	50
	C. very important	50	12.5
	D. no idea	0.0	0.0
20. Do you think that the dentist who provides implant treatment is better qualified than his/her colleagues who do not	A. Yes	150	37.5
	B. Need specialist	200	50
	C. Do not know	50	12.5

DISCUSSION

In this study, the majority of the patients, 400 out of 500, had a positive response and participated, indicating that 80% of the process or event occurred. The study consisted of 400 participants with diverse demographic features. The majority of the participants were male [80.2%]. Concerning educational attainment, most participants held a bachelor's degree [78.8%]. In terms of occupation, the largest group comprised employees [37.5%]. A research conducted by **Kohli et al.** [4] revealed that 9% of the individuals in the study had undergone dental implant procedures previously. Furthermore, it was observed that the age group between 21 and 40 exhibited the highest level of knowledge regarding dental implants.

In the research conducted by **Gbadebo et al.** [5], a total of 220 patients ranging in age from 18 to 84 years, with a mean age of 37.6 [± 16.5] years, participated in the study. The ratio of males to females was 1:1.1. The majority of participants [92.5%] were aware that missing teeth could be replaced, whereas a significantly lower proportion [28.9%] were familiar with dental implants as a treatment option [$P < 0.01$]. Dentists were identified as the primary source of information regarding dental implants [68%]. Only 21 individuals [36.8%] who had heard about dental implants possessed knowledge of the associated costs [$P < 0.001$].

Unlike **Arora et al.** [6], this research involved the participation of 4800 out of 5000 patients who provided positive responses. The method utilized resulted in a 96% occurrence rate of the desired reaction. The number of males exceeded that of females. Approximately 49% of all participants were individuals below the age of 30. Also, over a third [38.2%] of the test-takers fell within the 30 to 50-year-old age range. The research also assessed the efficacy of teaching. It was found that 31.6% of the patients had obtained a bachelor's degree, while a mere 2% had completed their education at a lower or assistant level.

In the recent research conducted, 80.2% out of the 400 cases acquired knowledge about dental implants. A majority of the information, accounting for 78.8% of the cases, was provided by dentists. More than three-fourths of the respondents believe that dental implants are expensive, which often deters them from choosing this treatment option for missing teeth replacement. They perceive implants to cost anywhere from 1,000 to 5,000 \$ and require extra care compared to natural teeth. Around one-third of the participants believe that the lifespan of implants is less than 10 years, while a quarter of them hold the belief that it exceeds 25 years. The remaining cases believe that the lifespan could range from 10-20 years or 21-25 years. Notably, half of the cases choose implants due to their ability to enhance appearance.

Kohli et al. [4] suggested that many individuals consider various options for replacing missing teeth, such as full dentures, dentures supported by implants, or partial dentures. Interestingly, 113 people disregarded the given options. About 8% of the respondents considered themselves highly knowledgeable about dental implants. Besides, 14% believed they had a good level of knowledge, 27% felt moderately familiar, and 47% felt poorly informed on the subject. Nearly half of the survey participants expressed confidence in their ability to find information regarding tooth replacement if they were missing any. More than 50% of the respondents preferred consulting dentists for information about dental implants. People also sought information from other sources like friends, family, the internet, magazines, and newspapers. A significant 69.9% of individuals expressed a desire to learn more about dental implants. Among those seeking information, 16% chose to receive it directly from their dentists, while 5% relied on the internet and 2% used other sources. Ultimately, 96% of the individuals who showed support and care were friends and family members.

In a study conducted by **Kaurani and Kaurani** [7], it was found that only 38% of the 200

patients surveyed were aware of dental implants and their potential as a treatment option. This indicates a lack of sufficient knowledge among the general population regarding dental implants. Interestingly, patients predominantly relied on dentists as their primary source of information when considering dental implants as a treatment choice. This highlights the critical role that dentists play in educating individuals and raising awareness about dental health. Conversely, alternative methods of information dissemination, such as magazines and media, did not have a significant impact on increasing people's knowledge about mindfulness.

This new finding differs from previous studies. In the United States, a study conducted by **Zimmer *et al.*** [8] revealed that only 17% [8 individuals] of the participants reported receiving information from dentists. The reason for this disparity could be attributed to the limited access to quality education in developing countries like India compared to developed countries such as the US. This research illustrates the essential role dentists play in educating individuals about the utilization of implants for treatment purposes.

Among the group of individuals informed about implants, a study conducted by **Kaurani and Kaurani** [7] revealed that 56% of them expressed unwillingness to undergo the procedure due to perceived high costs. This finding aligns with previous studies where patients cited treatment expenses as a deterrent [8, 9]. Given the significant treatment costs, the necessity of dental insurance arises as a means to enable greater accessibility and acceptance of this treatment among individuals in India.

Gbadebo *et al.* [5] conducted a study and discovered that the majority of participants [184, 92.5%] were aware of the possibility of replacing missing teeth. Among the participants, 102 individuals [51.3%] were knowledgeable about various methods of replacing missing teeth, while 94 individuals [47.2%] lacked awareness regarding those strategies. Many individuals who were aware of the possibility of replacing missing teeth knew that removable partial dentures were an available option. Additionally, a significantly larger percentage of individuals who were aware of replacement options for lost teeth were unaware that dental implants could be used as an alternative in comparison to removable partial dentures [$P < 0.01$].

Out of 140 participants, 71.1% were unaware of dental implants as a treatment option for replacing missing teeth, while only 28.9% knew about this choice. Among those who were aware of dental implants, 22 individuals [38.6%] agreed that they had sufficient information, 26 individuals [45.6%] stated they lacked enough information, and nine individuals [15.8%] were uncertain. There were only 21 individuals who had knowledge of dental implants and were able to explain what they learned, and out of those, 15 individuals [71.4%] provided accurate information about implant-retained dental prosthesis.

The majority of the members [68%] obtained their dental implant-supported dentures from a dentist, while 23% became aware of it through the media, and 6% learned about it online. Out of the 78 people who did not desire dental implant-supported replacement for their lost tooth/teeth, the majority [46.2%] expressed lack of knowledge about it. Furthermore, seven individuals [9.0%] believed it to be expensive.

This is similar to a study conducted by **Ravi Kumar *et al.*** [10], which discovered that dentists are the primary source of information for many individuals [38.25%]. However, these findings contradict other studies [11, 12] that indicate people predominantly obtain information about dental implants from the media and the Internet. This discrepancy may be attributed to the fact that most people in this location depend on experts such as dentists for information, while internet access may not be readily available or affordable for the average person [13].

There was confusion and a lack of understanding regarding the cost of dental implants. Numerous people were unaware or had misconceptions about the expenses involved, mirroring findings from prior studies. When comparing individuals who were knowledgeable about the implant cost to those who were not, a significant disparity in knowledge was observed [$P = 0.000$]. Hence, it is crucial for patients to be informed about the cost, benefits, drawbacks, and potential issues associated with dental implant prosthetics as a superior option for tooth replacement.

In this research, all participants expressed an interest in learning more about dental implants. Half of them believed that implants are attached to teeth, 37.5% believed they are attached to gums, and 12.5% believed they are attached to the jawbone. A staggering 80.2% of individuals

expressed their intention to replace their missing teeth with dental implants. In simple terms, over half of the participants [51.2%] were unaware of their friends' experiences with implants. However, nearly half [48.8%] had heard about these experiences. Among those who had heard about it, 77% reported successful outcomes, while 2.5% had unsuccessful outcomes, and 20.5% had partially successful outcomes.

Regarding awareness of how dental implants can impact overall health, 37.5% of participants possessed this knowledge, while 50% had not heard about it, and 12.5% were uncertain or unable to comment.

According to **Kohli et al.** [4], 80.5% of the surveyed individuals expressed openness to receiving dental implants if necessary, while 19.5% declined. In terms of preferences for removable or non-removable options, 51.4% of the participants found removable dentures, which can be taken out of the mouth, to be more comfortable. Similarly, 47.8% believed that removable dentures have a better appearance. Furthermore, 55.6% of respondents stated that non-removable dentures functioned just as effectively as real teeth.

When participants were asked about the problems associated with supported prosthetic teeth, the majority [80.2%] identified high costs as the primary concern. This was followed by the lengthy treatment process, the requirement for a surgical procedure, and a lack of sufficient information. These factors were cited as the main reasons for individuals choosing not to undergo dental implant procedures. In relation to the importance placed on the outcome of implant-supported prostheses, 12.5% of individuals considered it to be very important, 50% deemed it important, and 37.5% believed it to be less significant. Moreover, 37.5% of participants perceived dentists who provide implant treatment as more qualified compared to those who do not, while 50% believed that it necessitates a specialist. Lastly, 12.5% expressed uncertainty regarding this matter.

A study conducted by **Arora et al.** [6] revealed that 27.8% of individuals believed that implants require more care compared to natural teeth. This finding aligns with another study conducted by **AlQahtani** [14], where 58.3% of participants shared the same perception. **Esfahani et al.** [15] also obtained similar results, with 47.4% of individuals expressing a similar viewpoint.

A recent study [16] discovered that there were negative reports regarding dental implants in newspapers and on TV. The media further reinforces the notion of having a permanent implant, thus leading patients to believe it is achievable, despite the potential lack of realism. Dentists should acquire knowledge and skills pertaining to implants during their dental school education [17]. Moreover, they should actively participate in educating and advising individuals who are contemplating getting implants, ensuring that they receive accurate and reliable information.

Patients who possess sufficient information about dental implants can avoid potential misunderstandings or negativity surrounding the procedure resulting from a lack of knowledge. While dental implants are the optimal choice for individuals who have lost some or all of their teeth, accessibility to this treatment option is limited in developing nations. It is crucial to address any limitations of the current research when attempting to comprehend the findings

Several limitations should be taken into consideration when interpreting the results of this survey-based study. Firstly, the participants included in this study were exclusively recruited from the Dental clinic. As a result, most of them had either planned an extraction or a more complex surgical procedure. Although this precisely aligns with our target population, it is evident that their opinions do not reflect those of the general public, thus compromising the external validity of our study. In order to draw more comprehensive conclusions, larger studies encompassing a more diverse population are required to confirm the identified trends with greater reliability and validity. Secondly, this study relied on self-reported information, which may be subject to various evaluator or systematic biases. Therefore, incorporating a more objective evaluation method in place of or in addition to self-reporting could yield more dependable data.

Conclusions: Based on the findings, dentists were found to be the primary source of information about dental implants. Therefore, it is crucial for dentists and authorities to make additional efforts to raise awareness among the public. Many patients hold the belief that dental implants are expensive. Hence, insurance companies and healthcare providers should strive to make dental implants more affordable. Dental experts play a critical role in educating and advising patients about the benefits of using dental implants. They achieve this by offering

specialized educational programs and counseling centers focused specifically on dental implants. Sufficient awareness, along with accurate, factual, and comprehensive data, are essential tools in presenting dental implant-retained prostheses as the optimal choice for tooth and maxillofacial tissue replacement. The dentist, as a professional, occupies a central role in this aspect, and it can be achieved by implementing patient education programs and counseling centers concerning dental implant usage and its advantages, ultimately influencing a patient's decision-making. Further studies with larger sample sizes are necessary to assess the level of information among dental patients attending both governmental and private dental clinics in different areas of Libya.

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REFERENCES

- Gabiec K, Bagińska J, Łaguna W, Rodakowska E, Kamińska I, Stachurska Z, *et al.* Factors Associated with Tooth Loss in General Population of Białystok, Poland. *Int J Environ Res Public Health.* 2022 Feb 18;19[4]:2369. doi: 10.3390/ijerph19042369.
- Bilhan H, Erdogan O, Ergin S, Celik M, Ates G, Geckili O. Complication rates and patient satisfaction with removable dentures. *J Adv Prosthodont.* 2012 May;4[2]:109-15. doi: 10.4047/jap.2012.4.2.109.
- Jha A, Aher V, Lath P, Khangembam M, Nishant, Pani P, Singh U. Knowledge and awareness of dental implants as a treatment choice in the adult population in North India: A hospital-based study. *Natl J Maxillofac Surg.* 2021 May-Aug;12[2]:244-249. doi: 10.4103/njms.NJMS_38_20.
- Kohli S, Bhatia S, Kaur A, Rathakrishnan T. Patients awareness and attitude towards dental implants. *Indian J Dent.* 2015 Oct-Dec;6[4]:167-71. doi: 10.4103/0975-962X.168518.
- Gbadebo OS, Lawal FB, Sulaiman AO, Ajayi DM. Dental implant as an option for tooth replacement: The awareness of patients at a tertiary hospital in a developing country. *Contemp Clin Dent.* 2014 Jul;5[3]:302-6. doi: 10.4103/0976-237X.137914.
- Arora K Jr, Kaur N 2nd, Kaur G 3rd, Garg U 4th. Knowledge, Awareness, and Attitude in Using Dental Implants as an Option in Replacing Missing Teeth Among Dental Patients: Survey-Based Research in a Dental Teaching Hospital in Derabassi, Punjab. *Cureus.* 2022 Jul 21;14[7]:e27127. doi: 10.7759/cureus.27127.
- Kaurani P, Kaurani M. Awareness of dental implants as a treatment modality amongst people residing in Jaipur [Rajasthan]. *J Clin Diagn Res.* 2010 Dec;4[6]:3622-6.
- Zimmer CM, Zimmer WM, Williams J, Liesener J. Public awareness and acceptance of dental implants. *Int J Oral Maxillofac Implants.* 1992 Summer;7[2]:228-32. PMID: 1398840.
- Akagawa Y, Rachi Y, Matsumoto T, Tsuru H. Attitudes of removable denture patients toward dental implants. *J Prosthet Dent.* 1988;60:362-364. doi: 10.1016/0022-3913[88]90286-7.
- Ravi Kumar C, Pratap KV, Venkateswararao G. Dental Implants As An Option In Replacing Missing Teeth: A Patient Awareness Survey In Khammam, Andhra Pradesh. *Ind J Dent Sci.* 2011 Dec 1;3[5]:33-37.
- Tepper G, Haas R, Mailath G, Teller C, Bernhart T, Monov G, Watzek G. Representative marketing-oriented study on implants in the Austrian population. II. Implant acceptance, patient-perceived cost and patient satisfaction. *Clin Oral Implants Res.* 2003 Oct;14[5]:634-42. doi: 10.1034/j.1600-0501.2003.00917.x.
- Al-Johany S, Al Zoman HA, Al Juhaini M, Al Refeai M. Dental patients' awareness and knowledge in using dental implants as an option in replacing missing teeth: A survey in Riyadh, Saudi Arabia. *Saudi Dent J.* 2010 Oct;22[4]:183-8. doi: 10.1016/j.sdentj.2010.07.006.
- Rustemeyer J, Bremerich A. Patients' knowledge and expectations regarding dental implants: assessment by questionnaire. *Int J Oral Maxillofac Surg.* 2007 Sep;36[9]:814-7. doi: 10.1016/j.ijom.2007.05.003.
- AlQahtani SM. Awareness and acceptance of dental implants as a treatment modality for replacement of missing teeth among patients in Aseer region Kingdom of Saudi Arabia. *Int J Oral Care Res.* 2018;6[1]:58-64.
- Esfahani OF, Moosaali F. Awareness and knowledge of patients toward dental implants as an option in replacing missing teeth: a survey in Kerman, Iran. *J Periodontol Implant Dent.* 2016 Dec 21;8[2]:43-8. doi: 10.15171/jpid.2016.008.
- Saha A, Dutta S, Vijaya V, Rajnikant N. Awareness among patients regarding Implants as a treatment option for replacement of missing teeth in Chattisgarh. *J Int Oral Health.* 2013 Oct;5[5]:48-52. PMID: 24324304.
- Ozçakır Tomruk C, Ozkurt-Kayahan Z, Sençift K. Patients' knowledge and awareness of dental implants in a Turkish subpopulation. *J Adv Prosthodont.* 2014 Apr;6[2]:133-7. doi: 10.4047/jap.2014.6.2.133.



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