

Patients' Knowledge of Dental Implants: Differences According to Sex, Age, and Educational Level

Patients' Knowledge of Dental Implants

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ABSTRACT

Introduction: Dental implants are considered a reliable and effective treatment option for the replacement of missing teeth; however, adequate patient knowledge regarding implant therapy, maintenance, oral hygiene, and long-term care is essential for informed decision-making and successful treatment outcomes. This study aimed to assess patients' knowledge of dental implants and to determine whether patients' knowledge differs according to sex, age, and educational level.

Methods: A cross-sectional study included 100 participants. Data were collected using a structured questionnaire designed for this study, which included demographic characteristics and questions assessing the level of knowledge about dental implants, including indications, materials, duration, complications, and maintenance. Data were analyzed using descriptive and inferential statistical methods.

Results: Most participants (98%) correctly defined the term dental implant, and the median number of correct answers was 11 out of a possible 17. There were no significant differences in the level of knowledge according to sex ($P = 0.85$), while significant differences in overall knowledge were observed across educational levels ($P = 0.04$). Men significantly more often recognized smoking as a contraindication than women (47.8% vs. 24.1%, $P = 0.02$). The highest percentage of correct answers was related to the purpose and longevity of dental implants, whereas the lowest scores were observed for surgical and technical aspects.

Conclusion: The participants demonstrated a moderate level of knowledge regarding dental implants, with no significant differences observed according to sex or age, while a higher educational level was significantly associated with greater overall knowledge. The findings indicate the need for additional patient education focused on the surgical and biomechanical aspects of implant therapy, as well as on the importance of proper maintenance and regular oral hygiene for long-term implant success.

INTRODUCTION

Tooth loss represents one of the major public health problems in the field of oral health and significantly affects masticatory function, speech, aesthetics, and quality of life, particularly in the elderly population. In Croatia, a high prevalence of tooth loss is still observed despite advances in preventive and therapeutic dental procedures. According to data from the World Health Organization (WHO), the prevalence of complete edentulism among the adult population in Croatia is among the highest in Europe, especially in individuals older than 65 years [1]. Studies conducted in Croatia confirm a high prevalence of edentulism and poor oral health status among the adult population, together with a pronounced need for prosthetic rehabilitation [2, 3]. Data from the Croatian Institute of Public Health further indicate the extent of the problem, as more than 400,000 tooth extractions are performed annually [4].

Due to the high prevalence of tooth loss, an increasing number of patients are opting for modern prosthetic rehabilitation methods such as dental implants. A dental implant is defined as an artificial replacement structure that substitutes the root of a missing tooth and serves as a support for a prosthetic restoration [5, 6]. Implants are most commonly made of titanium and its alloys because of their biocompatibility and ability to achieve stable osseointegration [7]. The most common indications for implant therapy include the replacement of one or more missing teeth, stabilization of dentures, and preservation of adjacent healthy teeth without the need for tooth preparation [8, 9].

Dental implants are currently considered one of the most effective treatment options for replacing missing teeth because they enable preservation of masticatory function, improvement of aesthetics and speech, and significantly contribute to patients' quality of life [4, 10]. Their main advantages include high stability, preservation of alveolar bone, and long-term treatment success, which, according to studies, exceeds 95% [11, 12]. The success of implant therapy is based on the process of osseointegration, defined as a stable connection between the implant and bone without signs of inflammation or mobility [12, 13].

Despite the numerous advantages of implant therapy, its acceptance among patients is still not universal. Insufficient information, financial constraints, fear of surgical procedures, and limited access to reliable information sources may influence treatment decisions [14, 15]. Previous studies indicate that patients' level of knowledge about dental implants differs according to age, sex, education, and previous experience with prosthetic therapy [16–18]. Furthermore, studies have shown that women more frequently express greater interest in the aesthetic aspects of therapy, whereas men more often emphasize functionality as the main motivation for implant placement [19]. Younger age groups demonstrate better knowledge and more positive attitudes toward implant procedures, which is associated with greater exposure to information through digital media [20]. Patient education regarding dental implants is essential for making informed treatment decisions. Dentists are considered the most important and reliable source of information about implant therapy [21, 22].

Successful implant placement requires an adequate quantity and quality of alveolar bone as well as good oral hygiene, whereas contraindications include active infections, uncontrolled diabetes, severe systemic diseases, and smoking as an important risk factor for complications and peri-implantitis [23, 24]. Previous studies conducted in Croatia on patients' knowledge and attitudes toward dental implants are relatively limited. Kranjčić et al. investigated the awareness of older adults regarding dental implants and found that the level of knowledge about implant therapy differed significantly according to age and educational level [25]. More recent Croatian studies have also confirmed the presence of financial and informational barriers to the acceptance of implant treatment [26]. However, available data remain limited, particularly regarding contemporary patterns of patient information-seeking and possible changes in the level of knowledge during the past decade, marked by increasing availability of digital information sources and advances in implant therapy. Therefore, there is a need for more recent data that would provide better insight into the current level of patient awareness and the factors associated with knowledge about implant therapy. This study aimed to assess patients' knowledge of dental implants and to determine whether knowledge differs according to sex, age, and educational level.

METHODS

Study design

This cross-sectional study was conducted from March to September 2025 in a dental clinic in Osijek.

Setting and samples

The study included 100 adult patients (46 men and 54 women) attending a dental clinic in Osijek who voluntarily agreed to participate in the survey. Inclusion criteria were age ≥ 18 years and willingness to participate in the study. Participants were categorized into four age groups: younger than 30 years, 30–49 years, 50–69 years, and 70 years or older.

Measurements/instruments

Data were collected using an anonymous questionnaire specifically designed for this study based on available literature related to dental implants and patients' knowledge and attitudes toward implant therapy [10, 16–22, 27, 28]. The questionnaire consisted of two sections. The first section included demographic data (sex, age, and educational level), while the second section contained 17 closed-ended questions assessing knowledge about dental implants. The questions covered several thematic areas, including basic information about implants (definition, materials, components, and purpose), implant placement procedure and duration, osseointegration, complications and contraindications, and radiological and surgical procedures in implantology. The questionnaire consisted of 17 knowledge questions, some of which included multiple correct answers. Each question was scored as either correct (1 point) or incorrect (0 points). For questions with multiple correct answers, one point was awarded only when all correct answer options were selected. Partially correct responses were scored as incorrect. The total knowledge score was obtained by summing the scores across all questions, with higher scores indicating greater knowledge about dental implants.

Data collection/procedure

The study was conducted from March to September 2025. The questionnaire was distributed online using Google Forms. Participants completed the questionnaire using their own mobile devices while waiting for their scheduled appointment in the clinic waiting area. The average time required to complete the questionnaire was approximately 10 minutes. Data were collected anonymously, and no personally identifiable information was obtained from participants. Initially, 102 questionnaires were collected. Two incomplete questionnaires were excluded, resulting in a final sample of 100 participants.

Ethical considerations

Participation in the study was voluntary and anonymous. Before accessing the online questionnaire, all participants were provided with information about the purpose, procedures, and voluntary nature of the study. Participants were required to indicate their informed consent by selecting the designated consent checkbox before they could proceed to the questionnaire. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki for biomedical research.

Statistical data analysis

Categorical variables were presented as absolute and relative frequencies. Differences between categorical variables were analyzed using Fisher's exact test. The normality of distribution for continuous variables was assessed using the Shapiro–Wilk test. Continuous variables were described using median and interquartile range values. Differences in continuous variables according to sex were analyzed using the Mann–Whitney U test, together with the Hodges–Lehmann estimate of median difference and corresponding 95% confidence intervals [30]. All P values were two-sided, and the level of statistical significance was set at $\alpha = 0.05$. Statistical analyses were performed using MedCalc® Statistical Software version 23.3.7 (MedCalc Software Ltd, Ostend, Belgium; <https://www.medcalc.org>; 2025).

RESULTS

The study included 100 participants (46 men and 54 women). The largest proportion of participants, 49 (49%), were aged ≤30 years, whereas 9 (9%) were aged 70 years or older. Most participants had completed secondary education (55; 55%), while 28 (28%) had attained a university degree or higher level of education (Table 1).

Table 1. General characteristics of the participants (N = 100)

Characteristic		n (%)
Sex	Man	46 (46)
	Women	54 (54)
Age groups	< 30 years	49 (49)
	30–49 years	23 (23)
	50–69 years	19 (19)
	≥ 70 years	9 (9)

Characteristic		n (%)
Educational level	Secondary education	55 (55)
	College education	17 (17)
	University degree or higher education	28 (28)

Overall, 98% of participants correctly identified dental implants as artificial replacements inserted into the jawbone to replace a missing tooth, while 64% reported that titanium is the most commonly used material for dental implants. The duration of the implant placement process was correctly identified as approximately 3–6 months by 47% of participants, and 70% indicated that the minimum age for implant placement is 18 years. Sufficient bone quantity and density were identified as the primary prerequisite for dental implant placement by 88% of participants, with significantly more men than women providing the correct answer ($P = 0.02$). Replacement of a missing tooth was identified as the primary purpose of dental implants by 95% of participants. A lifespan of 10 years or longer was reported by 74% of participants, while between 80% and 85% indicated that implant longevity depends on maintaining good oral hygiene, regular dental visits, lifestyle habits, and oral health status (Table 2).

Table 2. Assessment of knowledge about dental implants according to sex

Question / Item	Men n (%)	Women n (%)	Total n (%)	P†
What are dental implants?				
Filling for a tooth damaged by caries	0 (0.0)	1 (1.9)	1 (1)	0.71
Temporary denture	1 (2.2)	0 (0.0)	1 (1)	
Artificial substitutes implanted into the jawbone to replace a missing tooth*	45 (97.8)	53 (98.1)	98 (98)	
What material are dental implants most commonly made of?				
Acrylic	9 (19.6)	10 (18.5)	19 (19)	0.91
Composite	7 (15.2)	9 (16.7)	16 (16)	
Titanium*	29 (63)	35 (64.8)	64 (64)	
Gold	1 (2.2)	0 (0.0)	1 (1)	
What is the average duration of the implant placement process (from start to finish)?				
One week	4 (8.7)	5 (9.3)	9 (9)	0.63
1–3 months	18 (39.1)	26 (48.1)	44 (44)	
3–6 months*	24 (52.2)	23 (42.6)	47 (47)	

Question / Item	Men n (%)	Women n (%)	Total n (%)	P†
What is the minimum age requirement for dental implant placement?				
No minimum age limit	10 (21.7)	7 (13)	17 (17)	0.28
10 years	5 (10.9)	2 (3.7)	7 (7)	
18 years*	29 (63)	41 (75.9)	70 (70)	
24 years	2 (4.3)	4 (7.4)	6 (6)	
What is the main prerequisite for dental implant placement?				
Sufficient amount and density of bone*	43 (93.5)	45 (83.3)	88 (88)	0.02
Sufficient healthy teeth	1 (2.2)	8 (14.8)	9 (9)	
Younger age	2 (4.3)	0 (0.0)	2 (2)	
Healthy diet	0 (0.0)	1 (1.9)	1 (1)	
What are the parts of a dental implant?				
Implant body*	44 (95.7)	50 (92.6)	94 (94)	0.68
Implant neck*	42 (91.3)	50 (92.6)	92 (92)	> 0.99
Abutment*	15 (32.6)	21 (38.9)	36 (36)	0.54
Prosthetic restoration*	23 (50)	35 (64.8)	58 (58)	0.16
Dental calculus	1 (2.2)	0 (0.0)	1 (1)	0.46
What is the main purpose of dental implants?				
Replacement of a missing tooth*	43 (93.5)	52 (96.3)	95 (95)	0.80
Reducing the need for oral hygiene	1 (2.2)	0 (0.0)	1 (1)	
Improving smile aesthetics	2 (4.3)	2 (3.7)	4 (4)	
How long do implants last?				
Up to 1 year	1 (2.2)	1 (1.9)	2 (2)	0.45
2–4 years	0 (0.0)	3 (5.6)	3 (3)	
5–10 years	9 (19.6)	12 (22.2)	21 (21)	
10 years and more*	36 (78.3)	38 (70.4)	74 (74)	
What does implant longevity depend on?				
Oral hygiene maintenance*	36 (78.3)	49 (90.7)	85 (85)	0.09
Regular dental check-ups*	38 (82.6)	44 (81.5)	82 (82)	> 0.99
Lifestyle habits (smoking, alcohol)*	35 (76.1)	45 (83.3)	80 (80)	0.45
Oral health status*	35 (76.1)	45 (83.3)	80 (80)	0.45

*Correct answers; †Fisher's exact test

Most participants correctly identified the most common complications of implant placement, including infection (79%) and implant failure/rejection (83%). Uncontrolled diabetes mellitus was identified by 77% of participants as the most important contraindication to implant placement, while men significantly more often recognized smoking as a contraindication than women (47.8% vs. 24.1%, $P = 0.02$). Regarding the perceived advantages of implants over fixed dental bridges, the most common response was

that implants do not require preparation (grinding) of adjacent teeth (52%), with this answer being significantly more frequently provided by women than men ($P = 0.04$). Men also significantly more often correctly identified bone augmentation as the surgical procedure used to compensate for insufficient bone before implant placement (56.5% vs. 40.7%, $P = 0.01$). The vast majority of participants were aware that implants can be used to replace multiple missing teeth (93%) (Table 3).

Table 3. Assessment of knowledge about dental implants according to sex

Question / Item	Men n (%)	Women n (%)	Total n (%)	P†
What are the possible complications of implant placement?				
Infection*	34 (73.9)	45 (83.3)	79 (79)	0.33
Damage to anatomical structures during implant placement*	28 (60.9)	31 (57.4)	59 (59)	0.84
Implant failure/rejection*	37 (80.4)	46 (85.2)	83 (83)	0.60
Gingivitis	16 (34.8)	23 (42.6)	39 (39)	0.54
Implant fracture*	31 (67.4)	31 (57.4)	62 (62)	0.41
Fracture of the prosthetic restoration*	24 (52.2)	28 (51.9)	52 (52)	>0.99
What are the contraindications for implant placement?				
Uncontrolled diabetes mellitus*	37 (80.4)	40 (74.1)	77 (77)	0.49
Gingivitis	30 (65.2)	31 (57.4)	61 (61)	0.54
Head and neck radiation therapy*	23 (50.0)	26 (48.1)	49 (49)	>0.99
Older age	14 (30.4)	11 (20.4)	25 (25)	0.26
Smoking*	22 (47.8)	13 (24.1)	35 (35)	0.02
What is the process of implant integration with bone called?				
Osseointegration*	36 (78.3)	43 (79.6)	79 (79)	0.97
Osteomyelitis	2 (4.3)	3 (5.6)	5 (5)	
Osteonecrosis	7 (15.2)	6 (11.1)	13 (13)	
Osteopenia	1 (2.2)	2 (3.7)	3 (3)	
What is the main advantage of dental implants compared with bridges?				
Cost	0 (0.0)	3 (5.6)	3 (3)	0.04
Durability	26 (56.5)	19 (35.2)	45 (45)	
No preparation of adjacent teeth is required*	20 (43.5)	32 (59.3)	52 (52)	
Can dental implants be used to replace multiple teeth?				
No	2 (4.3)	2 (3.7)	4 (4)	>0.99
Yes*	43 (93.5)	50 (92.6)	93 (93)	
Only in the mandible	0 (0.0)	1 (1.9)	1 (1)	
Only in the maxilla	1 (2.2)	1 (1.9)	2 (2)	
Which radiographic method is most commonly used to assess bone before implant therapy?				
CBCT (Cone Beam Computed Tomography)*	29 (63.0)	36 (66.7)	65 (65)	0.37
MRI (Magnetic Resonance Imaging)	9 (19.6)	5 (9.3)	14 (14)	
Periapical radiograph	7 (15.2)	9 (16.7)	16 (16)	
Ultrasound	1 (2.2)	4 (7.4)	5 (5)	
What is the surgical procedure used to compensate for insufficient bone before implant placement called?				
Bone augmentation*	26 (56.5)	22 (40.7)	48 (48)	0.01
Endodontics	13 (28.3)	20 (37.0)	33 (33)	
Enucleation	0 (0.0)	8 (14.8)	8 (8)	
Gingivectomy	7 (15.2)	4 (7.4)	11 (11)	

Question / Item	Men n (%)	Women n (%)	Total n (%)	P†
What is peri-implantitis?				
Allergic reaction to a dental implant	6 (13.0)	8 (14.8)	14 (14)	0.82
Disintegration of a dental implant	2 (4.3)	5 (9.3)	7 (7)	
Inflammation of the soft and hard tissues surrounding the implant*	36 (78.3)	39 (72.2)	75 (75)	
Inflammation of the tooth root	2 (4.3)	2 (3.7)	4 (4)	

*Correct answers; †Fisher's exact test

The possible score ranged from 0 to 17 correct answers, with higher scores indicating a greater level of knowledge. The median score was 11 (interquartile range, 8–13), with observed scores ranging from 3 to 16 correct answers. The distribution of participants according to the number of correct answers is shown in Figure 1.

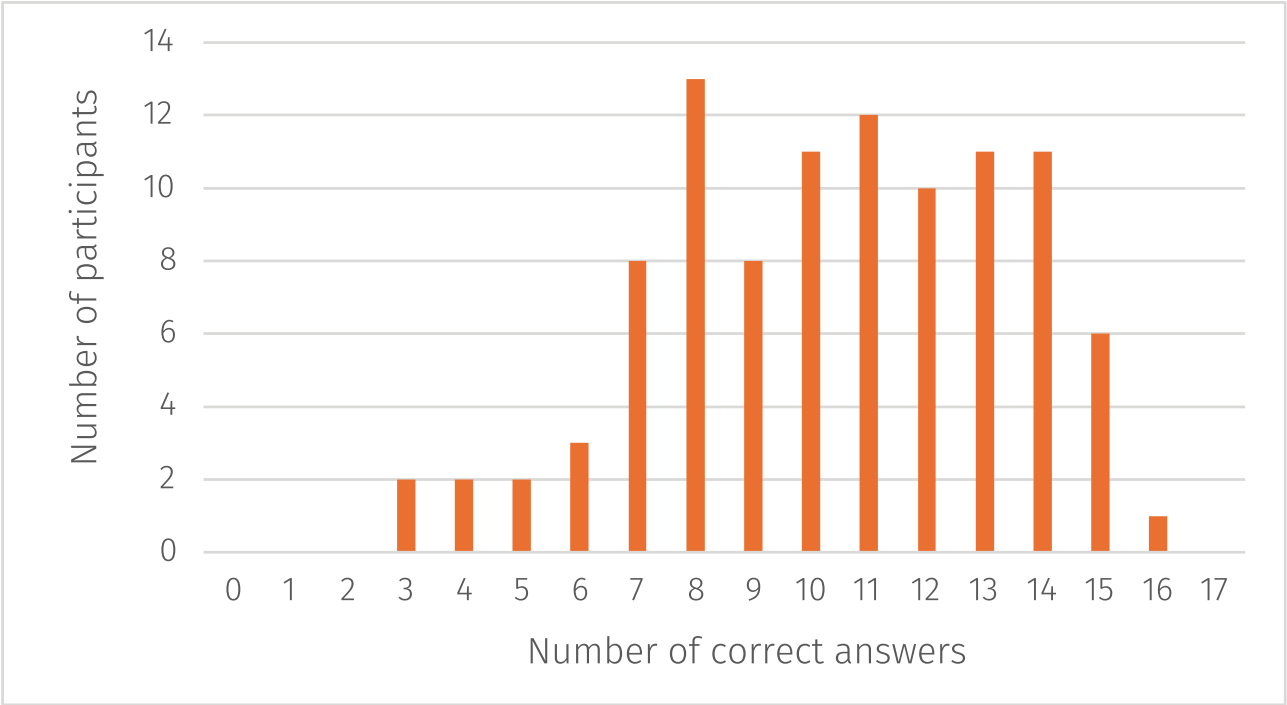


Figure 1. Distribution of participants according to the number of correct answers.

There was no significant difference in the overall knowledge score according to participants' sex (Table 4).

Table 4. Differences in overall knowledge scores according to sex

	Possible range	Median (Interquartile range)		Difference	95% Confidence Interval	P*
		Men	Women			
Overall knowledge score	0 – 17	10 (8 – 13)	11 (8 – 13)	0	-1 to 1	0.85

* Mann–Whitney U test (Hodges–Lehmann estimate of median difference)

No statistically significant differences in overall knowledge scores were observed across age groups, although participants aged 30–49 years achieved the highest median number of correct answers. In contrast, overall knowledge scores differed significantly according to educational level ($P = 0.04$). Post hoc analysis showed that participants with a university degree or higher education achieved a higher median number of correct answers than those with secondary education (median 12 vs. 10 correct answers) (Table 5).

Table 5. Differences in overall knowledge according to age groups and level of education

Characteristic	Median (Interquartile range)	<i>P</i> *
Age groups		
< 30 years	10 (8 – 12)	0.35
30–49 years	12 (8 – 14)	
50–69 years	11 (9 – 13)	
≥ 70 years	10 (8 – 12)	
Educational level		
Secondary education	10 (8 – 12)	0.04 [†]
College education	10 (8 – 13)	
University degree or higher education	12 (10 – 14)	

* Kruskal–Wallis test (Conover post hoc test).

† Significant difference at $P < 0.05$ between participants with secondary education and those with a university degree or higher education

DISCUSSION

The findings of this study indicate that participants' knowledge regarding dental implants was moderate, while a higher educational level was significantly associated with greater overall knowledge. No statistically significant differences in knowledge were observed with respect to participants' sex or age, although the highest median number of correct answers was recorded in the 30–49 age group compared with other age groups. Previous studies have reported that younger individuals are more likely to use digital sources of information and therefore have greater access to implant-related content, whereas older adults, despite often having a greater need for prosthetic rehabilitation, tend to possess less accurate knowledge regarding implant therapy [15–18, 21, 22]. This may be due to limited internet use, reliance on information obtained through personal communication within their social environment, or a lack of systematic educational interventions targeted at this population.

In this study, no statistically significant difference in overall knowledge was observed between men and women. However, certain questionnaire items revealed significant sex-related differences. Men were significantly more likely to recognize adequate bone quantity and density as a key prerequisite for implant placement, as well as smoking as an important contraindication, whereas women more frequently identified the fact that dental implants do not require the preparation (grinding) of adjacent teeth. Men were also significantly more likely to correctly identify bone augmentation as the surgical procedure used to compensate for insufficient bone before implant placement. This pattern is partly consistent with the findings of Alomran et al., who reported

that women generally demonstrated greater interest in the aesthetic aspects of treatment, whereas men more frequently emphasized its functional benefits [20]. Furthermore, men tend to express greater confidence in their knowledge and treatment-related decision-making regardless of their actual level of information [19, 20, 27, 28].

Educational level was significantly associated with participants' knowledge of dental implants. Participants with a university degree achieved a higher median number of correct answers compared with those with secondary education. This finding is consistent with previous studies [18, 20, 29], which have shown that a higher level of education contributes to a better understanding of dental concepts and greater confidence in modern therapeutic procedures [18, 22].

It is particularly important to emphasize the role of dentists as the primary source of information. Most participants reported receiving key information about dental implants directly from their dentist, which is consistent with studies identifying dental professionals as the primary and most reliable source of information regarding implant therapy [15, 16, 21, 22]. At the same time, some participants obtain information from the internet, social media, or the experiences of other patients, highlighting the need for high-quality, evidence-based educational content that is readily accessible to the general public [15–18]. Incorrect or incomplete information available online may lead to misunderstandings of the procedure, unrealistic expectations, overestimation of treatment possibilities, or unjustified concerns regarding complications. Rustemeyer and Bremerich reported that patients' level of knowledge and expectations regarding dental implants significantly influence the acceptance of implant therapy, with insufficient information representing one of the key barriers to treatment acceptance [30].

The present findings suggest that patient education represents an essential component of successful implant therapy. Patients who have a better understanding of the purpose and course of treatment are more likely to adhere to professional recommendations, develop realistic expectations, and maintain oral hygiene more responsibly, which may contribute to the long-term success of implants and greater treatment satisfaction [8, 9, 18, 28]. These findings

emphasize the importance of providing individually tailored counselling in clinical practice, particularly for groups with lower levels of knowledge.

Overall, participants demonstrated a moderate level of knowledge regarding dental implants, with a median of 11 correct answers out of a possible 17. Most participants correctly identified a dental implant as an artificial substitute placed in the jawbone, indicating a high level of basic understanding of the concept. A similar moderate level of knowledge in comparable populations was reported by Pommer et al. and Suprakash et al., confirming that basic awareness of implant therapy is now widely distributed [15, 18].

The highest percentage of correct responses related to the basic purpose of dental implants and their longevity. Most participants were aware that the lifespan of implants depends on oral hygiene, regular dental check-ups, and lifestyle habits, indicating a high level of awareness of the patient's role in the long-term success of implant therapy [15, 18]. In contrast, the lowest proportion of correct answers was observed for questions related to implant abutments and bone augmentation, suggesting limited knowledge regarding the technical and surgical aspects of implant therapy. Overall, the level of knowledge observed in this study is comparable with findings reported from Austria [15], the United Kingdom [16], and India [17]. These studies consistently demonstrate that most patients possess a basic understanding of dental implants but have limited knowledge regarding the surgical and biomechanical aspects of treatment [15–17]. Similarly, Ho et al., in a cross-sectional study conducted in Japan, found that despite generally positive perceptions of dental implants, patients often lack knowledge regarding treatment procedures, indications, and potential complications [31]. The authors emphasized that information regarding additional procedures, such as bone augmentation, and safety-related aspects of treatment remains limited, while professional sources are not always used as the primary source of information [31].

By comparing the results of this study with previous Croatian research, a gradual improvement in patients' awareness of dental implants can be observed. A Croatian study conducted in 2015 reported limited knowledge among older participants and

identified age and educational level as significant factors associated with awareness and knowledge of implant therapy [25]. In contrast, a study conducted in 2021 demonstrated greater familiarity with dental implants and more positive attitudes toward implant treatment, with education and access to information playing important roles, while financial barriers to treatment acceptance were also identified [26].

The findings of the present study indicate that most participants correctly recognize the fundamental characteristics of implant therapy, whereas age was not significantly associated with the overall level of knowledge. This may be related to the increasing availability of information regarding dental implants in recent years, while educational level continues to be an important factor associated with better knowledge of implant therapy. The findings of previous Croatian studies, together with those of the present research, underscore the need for systematic and structured patient education regarding dental implants. Improving patients' understanding of implant therapy may facilitate informed decision-making, promote realistic treatment expectations, and contribute to better long-term treatment outcomes.

Limitations

This study has several limitations that should be acknowledged. First, it was conducted in a single dental clinic and included a relatively small sample, which may limit the generalizability of the findings to the broader population. In addition, certain age groups, particularly participants older than 70 years, were underrepresented. The cross-sectional study design precludes conclusions regarding causal relationships between the examined variables. Furthermore, the use of an online questionnaire may have introduced selection bias, as participation was limited to individuals with internet access and sufficient digital literacy. Despite these limitations, the study provides valuable insight into patients' knowledge of dental implants and may serve as a foundation for future multicenter investigations involving larger and more representative samples.

Recommendations for Future Research

Future research should include larger and more diverse populations from different geographical regions to improve the generalizability of the findings. Longitudinal and multicenter studies may provide a more comprehensive understanding of changes in patients' knowledge and attitudes toward dental implants over time. In addition, future studies should explore the influence of socioeconomic status, previous dental experiences, access to dental care, and digital sources of information on patients' awareness, perceptions, and acceptance of implant therapy. The development and validation of standardized instruments for assessing knowledge of dental implants would further enhance comparability across studies and contribute to the advancement of research in this field.

Implications for Clinical Practice and Education

The findings of this study highlight the important role of patient education in improving awareness and understanding of dental implant therapy. Dental professionals should provide clear, evidence-based, and individualized information regarding implant indications, benefits, potential risks, and maintenance requirements. Particular attention should be directed toward patients with lower educational levels, who may benefit from additional educational support. Furthermore, the implementation of educational strategies incorporating digital media, printed materials, and chairside counselling may enhance patient knowledge and facilitate informed decision-making regarding implant treatment.

CONCLUSIONS

The findings of this study indicate that participants demonstrated a moderate level of knowledge regarding dental implants. Educational level emerged as the factor most strongly associated with overall knowledge, whereas sex and age were not significant-

ly associated with knowledge scores. Participants with higher educational attainment achieved better overall knowledge scores, suggesting that education plays an important role in patients' awareness and understanding of implant therapy. These findings underscore the importance of continuous patient education and highlight the crucial role of dental professionals in providing accurate, evidence-based information regarding implant treatment. Strengthening patient education may contribute to more informed treatment decisions, more realistic treatment expectations, and better patient engagement throughout implant therapy.

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Conceptualization, V.G. and L.I.G.; Methodology, L.I.G., Ž.U. and V.G.; Software, A.L.J., L.I.G. and Z.G.; Validation, A.L.J., L.I.G. and Ž.U.; Formal Analysis, A.L.J., Ž.U. and Z.G.; Investigation, V.G., L.I.G.; Resources, V.G. and L.I.G.; Data Curation, V.G., L.I.G.; Writing – Original Draft Preparation, V.G.; Writing – Review & Editing, V.G., L.I.G., Z.G., A.L.J. and Ž.U.; Visualization, A.L.J., Ž.U. and Z.G.; Supervision, Ž.U.; Project Administration, V.G., L.I.G. and Z.G.

Declaration of Conflicting Interest:

The authors declares no conflict of interest.

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