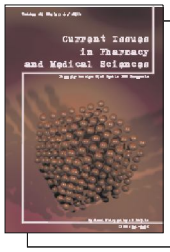

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The influence of selected demographic and socioeconomic factors on patient's decision-making about the treatment of missing teeth using the implants

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ABSTRACT

The research aimed at assessment of the influence of selected demographic and socioeconomic factors on patient's decision-making about the treatment of missing teeth using the implants. The survey was conducted among 464 patients of both sexes aged 20-74 years, treated with dental implants at the Non-Public Healthcare Centre "Dental" in Tomaszów Mazowiecki. The patients answered the questions included in an anonymous questionnaire. The questions concerned age, sex, marital status, place of residence, education, occupational status and material status. Most patients taking the decision about dental treatment using the implants were persons aged 40-60 years. Slightly more often men made decisions on supplementing missing teeth using the implants. The results of the survey indicate that financial resources are an important factor influencing a patient's decision on the selection of implant prosthetic treatment, while other analyzed factors have less impact on this decision.

Keywords: ental implants, demographic factors, socio-economic factors

INTRODUCTION

Implantoprosthetic treatment enables the replacing of a single, as well as more missing teeth, allowing for the achievement of long lasting aesthetic effect and improvement of the masticatory mechanics disturbed by the loss of teeth. Dental services in this area are not covered by the insurance and are provided as a full cost service [11].

The research aimed at assessment of the influence of selected demographic and socioeconomic factors on patient's decision-making about the treatment of missing teeth using the implants.

MATERIAL AND METHODS

The survey was conducted among 464 patients of both sexes aged 20-74 years, treated with dental implants at the Non-Public Healthcare Centre "Dental" in Tomaszów Mazowiecki. The patients were divided into 3 age groups: younger than 40 years (n=157), between 40 and 60 (n=241), and older than 60 years (n=66). The patients answered questions included in ananonymous questionnaire. The questions concerned age, sex, marital status (single/bachelor, married, divorced, widow/widower), place of residence (village, small town – population of 20-50 thousand, city – population of 100-500 thousand), education (primary, vocational, secondary, tertiary), occupational status (white collar worker, blue-collar worker, own business, unemployed, farmer, retired/pensioner, student, etc.), material status assessed by the surveyed themselves (low, medium, high).

Using the χ^2 test of independence, the impact of the analyzed variables was analyzed. Statistical analysis was performed by using the Statistica 6.0 software (StatSoft, Inc., Tulsa, Oklahoma, USA).

RESULTS

It has been shown that the frequency of implant treatment in patients within certain age groups was highly significantly affected by gender. The implants were implanted more often in women under the age of 40 years and in men over 60 years of age ($p<0.001$). Among people aged between 40 to 60 years, they significantly prevailed among patients and accounted for more than half of their total number (Table 1).

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Table 1. The incidence of dental implant treatment, depending on gender and age

Gender	Age groups			Total
	<40	40–60	>60	
Men	65	122	49	236
	27.54%	51.69%	20.76%	100%
Women	92	119	17	228
	40.35%	52.19%	7.46%	100%
Total	157	241	66	464
Value of test χ^2=20.981 p<0.001				

The impact of gender and marital status on decision-making about the treatment of missing teeth with implants is presented in Table 2. The effect of marital status on the incidence of implant treatment in patients according to gender is statistically significant (p<0.05). Much more often married women and men than the single people decided on dental implants.

Table 2. The incidence of dental implant placement depending on gender and marital status

Gender	Marital status			Total
	Single	Married	Widow/widower divorced	
Men	27	180	29	236
	11.44%	76.27%	12.29%	100%
Women	45	152	31	228
	19.74%	66.67%	13.60%	100%
Total	72	332	60	464
Value of test χ^2=6.672 p<0.035				

Among the surveyed patients of both genders, there were no unemployed, farmers, pensioners and students. The effect of marital status on the incidence of implant treatment in patients in relation to gender is statistically significant (p<0.05). Much more often, white-collar female workers or retired and blue-collar male workers decided on dental implants (Table 3).

Table 3. The incidence of dental implant treatment depending on gender and professional status

Gender	Professional status				Total
	White-collar worker	Blue-collar worker	Business	Retired	
Men	98	30	95	13	236
	41.53%	12.71%	40.25%	5.51%	100%
Women	105	12	90	21	228
	46.05%	5.26%	39.47%	9.21%	100%
Total	203	42	185	34	464
Value of test χ^2=9.876 p<0.020					

It has been proved that the effect of marital status on the incidence of implant treatment in patients with regard to age is highly statistically significant (p<0.001). Much more often the unmarried subjects and those below 40 years of age than the older patients decided for dental implants. In contrast, people over the age of 60 more often decide on such treatment, if they are married (Fig. 4).

The impact of patients' age and professional status on decision-making about the treatment of missing teeth with implants is presented in Table 5. The professional status is statistically significant for the frequency of implants treatment in patients depending on age (p<0.05) Much more often white-collar workers under the age of 40 years decided to use implants, as well as manual workers and people running their own business in the age group of 40 to 60 years and the retired after 60 years of age.

Table 4. The incidence of dental implant treatment depending on gender and age

Age	Marital status			Total
	Single	Married	Widow/widower divorced	
<40	48	100	9	157
	66.67%	30.12%	15.00%	
40–60	20	185	36	241
	27.78%	55.72%	60.00%	
>60	4	47	15	66
	5.56%	14.16%	25.00%	
Total	72	332	60	464
	100%	100%	100%	
Value of test χ^2=47.975 p<0.001				

Table 5. The incidence of dental implant treatment depending on age and professional status

Age	Professional status				Total
	White-collar worker	Blue-collar worker	Business running	Retired	
<40	92	12	53	0	157
	45.32%	28.57%	28.65%	0.00%	
40–60	82	28	121	10	241
	40.39%	66.67%	65.41%	29.41%	
>60	29	2	11	24	66
	14.29%	4.76%	5.95%	70.59%	
Total	203	42	185	34	464
	100%	100%	100%	100%	
Value of test χ^2=11.076 p<0.012					

In assessing the impact of marital status and employment status to make decisions about the treatment of missing teeth with implants it was demonstrated that professional status has a highly statistically significant influence on the incidence of implant patients, depending on the marital status (p<0.001). Significantly more often the blue-collar workers or unmarried white-collar workers, people running their own business being married and unmarried retirees, but with marital experience, decided on implants compared to the other occupational groups (Table 6).

Table 6. The incidence of dental implant treatment depending on age and professional status

Marital status	Professional status				Total
	White-collar worker	Blue-collar worker	Business running	Retired	
Maiden/ Bachelor	49	12	9	2	72
	24.14%	28.57%	4.86%	5.88%	
Married	138	25	150	19	332
	67.98%	59.52%	81.08%	55.88%	
Divorced/Widow/Widower	16	5	26	13	60
	7.88%	11.90%	14.05%	38.24%	
Total	203	42	185	34	464
	100%	100%	100%	100%	
Value of test χ^2=55.408 p<0.001					

DISCUSSION

For maintaining masticatory action, occlusive contact is necessary of at least 20 own or artificial teeth [17]. Not less important is the external appearance, especially for

young people who are professionally active, the unmarried people and those who pay particular attention to their own appearance [1, 4, 8, 18]. According to Knychalska-Karwan among older people, there is increasing interest in improving their appearance and oral function [8]. People with a nice smile and healthy teeth are better perceived, especially by the opposite sex and facial aesthetics has impact on the first impression, well-being and establishing contacts [1, 2, 3, 4, 5].

More than half of the respondents who took the decision about the treatment with implants were people aged between 40 and 60 years. This is undoubtedly related to the increasing with age number of missing teeth and affects the growth of demand for prosthetic treatment [6, 16]. The people deciding for the mentioned type of prosthetic treatment are usually self-employed, usually living in rural areas or small towns, with higher income and declaring high economic status. It seems that this is a group of active and thriving population, whose financial situation has significantly improved in recent years. They continue to work in the city, in the case of the respondents in our study – in nearby Lodz. They live in the countryside and a small town, which is associated with a projected internal definitive migration and the influx of migrant in the country (more and more Poles move to to the countryside, still working in cities or when they reach retirement age) [15]. This is confirmed by the results of Ziołecka's research who believes that an important factor in choosing this type of treatment is higher socioeconomic status resulting from the possession of higher education and employment in private enterprises [2].

It is noteworthy that among patients treated with implants there were no unemployed, farmers, pensioners and students. It appears that for those of the first three groups, because of greatly limited financial resources, such treatment is not within their abilities. Those who rated their financial status as a low as well as persons with primary education were absent among the treated patients. It seems understandable that due to the high costs incurred by patients, generally the better off people are the consumers of implant prosthetic treatment. However, it has been noted that this type of treatment can be chosen by less well-off people over 60 years of age, and unmarried young women. It seems that the first group of them is driven by the need to supplement the lack of missing teeth associated with age, the second group – by aesthetic considerations.

However, for students and young people the treatment with dental implants was not necessary, or in the case of single missing teeth, another available method for prosthetic treatment was used [10, 13, 14].

Our research shows that among patients who took the decision to the implantoprosthetic treatment there were slightly more men (50.86%) than women (49.14%), which differs from the results obtained by other authors. Ziołecka's research shows that the women who are in middle age and older, undergo implantoprosthetic treatment as often men [19]. Females have a greater interest in such a treatment in order to improve the aesthetic appearance of their teeth [12], just as is the case with the frequency of using the dental treatment, which is significantly higher among them [7, 9, 20].

CONCLUSIONS

1. Most patients taking the decision about dental treatment using implants were persons aged 40-60 years.
2. Slightly more often men made decisions on supplementing missing teeth using the implants.
3. The financial resources are an important factor influencing the patient's decision on the selection of implant prosthetic treatment, while the other analyzed factors have less impact on this decision.

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