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Sociomedical and epidemiological analysis of patients aged 18-34 years visiting the dental office

Abstract

Introduction. Carelessness in caring for oral cavity in adults may contribute to severity of dental caries, periodontal diseases and diseases of mucous membranes that pose a risk to health of both dental and systemic character.

Aim. The aim of the study was to assess the relationship between selected demographic factors and the cause of visiting the dental practitioner and the dental health status in adults.

Material and methods. The study comprised 194 patients, aged 18-34 who visited in 2015 one of the dental offices in Lublin, which offers treatment under the framework of an agreement with the National Health Fund or for a fee. Gender, age, the place of residence and the reason for visiting the dental office were analyzed. The place of residence was a village, a town of less than 200 thousand inhabitants or the city of more than 200 thousand inhabitants. The reason for visiting the dental office was a check-up visit, loss of filling or a toothache. Dental condition was assessed by calculating the DMF index. The results were statistically analyzed.

Results. In the group of respondents, women accounted for 53.62%, and men – 45.88%. The prevalence of dental caries was 100% and the incidence expressed by the mean DMF index was 14.64±5.78, and increased with age. The main reason for visiting the dentist for 65.46% of respondents was a check-up visit, for 17.53% – loss of filling and for 17.01% – a toothache. The lowest incidence of tooth decay was found in people visiting the dentist for a check-up, higher in patients appearing with the loss of filling and toothache.

Conclusions. A high percentage of people visiting the dentist because of toothache, confirms the low level of health-related knowledge in adult patients. High incidence of tooth decay proves the need to intensify preventive measures against the carious disease in adults. It is necessary to intensify educational activities and programs addressed to the adult part of Polish society to prevent the development of dental caries.

Keywords: oral health, adults, DMF index, dental visit, Poland.

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INTRODUCTION

International comparative studies of oral health of individual populations show that in countries with high culture of healthcare the demand for dental reconstructive services is decreasing. In Poland, the needs for conservative and prosthetic treatment remain at a high level, and the degree of their satisfaction is not sufficient. The dental caries and periodontal diseases pose a very serious health problem [1]. There is an increasing demand for treatments in the field aesthetic dentistry to improve not only the patient's appearance, but also well-being. Psychologists emphasize a special attention paid to external appearance in young patients, fully active and single [2].

It is known that oral health, particularly tooth decay depends largely on proper health behavior of the individual and extensive dental educational and preventive programs. At the same time promoting the correct attitudes and healthy habits, is the simplest and cheapest way to fight the dental caries. Appointments at the dentist on a regular basis are one of the essential elements of the prevention program[1,3-5].

AIM

The aim of the study was to assess the relationship between the selected demographic factors and the cause of visiting the dental office and the dental health status in adults.

MATERIAL AND METHODS

The study group comprised patients aged 18-34 years, who for the first time in one year visited the dental office, where dental services are provided and covered by the National Health Fund (NHF) or are fully paid. Data on gender, age, place of residence and the reasons for visiting the dentist by the patient were obtained. The place of residence was a village, a town of less than 200 thousand residents or city

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with above 200 thousand residents. The reason for visiting the dental office was a check-up visit, toothache or loss of filling. Based on clinical examination of each patient the number of teeth with active or secondary caries, the number of teeth with fillings and the number of teeth lost due to of dental caries, were determined and the value of DMF index and its components were calculated.

The results were statistically analyzed using the Mann-Whitney U test, Student's t-test with variable grouping and Chi^2. The statistically significant relationships were considered those based on the significance level $p<0.05$.

RESULTS

A questionnaire survey and a clinical study comprised 194 respondents aged 18.0-34.0 years. Half of them did not exceed 27.0 years (Me=27.0), with the average age 26.94±4.73 years. In the study group, women accounted for 53.62% (n=104) and men – 45.88% (n=90). The place of residence of the majority of the respondents was a big city – 65.46% (n=127), followed by the village – 18.56% (n=36), and a small town – 15.98% (n=31). The main reason for visiting the dentist was a check-up visit – 65.46% (n=127), followed by the loss of fillings – 17.53% (n=34) and toothache – 17.01% (n=33).

Table 1. The values of DMF index and its components in the study group.

	Average	Median	Minimum	Maximum	Standard Deviation
D	3.22	2.00	0.00	19.00	3.49
M	1.55	0.00	0.00	16.00	2.65
F	9.88	10.00	0.00	23.00	4.81
DMF	14.64	15.00	1.00	30.00	5.78

DMF index ranged from 1.0 to 30.0 and in half of the patients it did not exceed 15.0 (Me=15.0) and the average value was 14.64±5.78 (Table 1). In women, the value of DMF index ranged from 5.0 to 30.0, in half of the female patients it was not lower than 14.50 (Me=14.50) and the average value was 14.51±5.25. In men, the DMF index ranged from 1.0 to 30.0, in half of the respondents it was not higher than 15.0(Me=15.0), and the average value was 14.76±6.38. Dental decay in women and men did not differ significantly (Student's-t test t=0.30, df=192, p=0.76). In all subjects DMF index>0 was recorded. Age had a statistically significant impact on the value of DMF index (test for Pearson's correlation coefficient r=0.34; p=0.0001). On the basis of the determined regression line, in the form of DMF index=3.56+0.41*age, we can say that with increasing age for each year the value of DMF index increased by an average of 0.41.

The research results were the basis for carrying out statistical analysis of the relationships between analyzed factors, and later in the work, only statistically significant relationships will be presented. Detailed documentation is available from the authors.

The observed differences were not statistically significant. Statistical analysis did not confirm the influence of place of residence on the incidence of dental caries (univariate ANOVA F=0.88; p=0.42); the influence of gender on the D value (Mann-Whitney U test Z=1.26; p=0.21); the influence of the place of residence on the D value (Kruskal-Wallis test H =2.01; p=0.37); the influence of gender on the M value (Mann-Whitney U test Z=-0.04, p=0.96); the influence of the place of residence on the M value (Kruskal-Wallis test H=3.02; p=0.22); the influence of gender on the F value (Mann-Whitney test Z=-1.82, p=0.07); the influence of the reason for visiting the dentist on the F value (Kruskal-Wallis test H=2.15; p=0.34).

In patients visiting regularly the dentist for check-ups the value of DMF index ranged from 1.0 to 30.0, in half of the respondents it was not higher than 13.0 (Me=13.0), and the mean value of DMF index was 13.81±5.70. In patients visiting the dentist due to the loss of filling, the value of DMF index ranged from 5.0 to 29.0, in half of the patients it was not higher than 17.0 (Me=17.0), and the average value was 16.26±6.25. Among the respondents who made an appointment due to toothache, the values of DMF index ranged from 5.0 to 27.0, in half of respondents the value of DMF index was not greater than 17.0 (Me=17.0) and the average DMF was 16.18±5.01. The reason for visiting the dentist had a statistically significant effect on the value of DMF index (univariate ANOVA F=3.94; p=0.02).

The age of patients influenced in a statistically significant way the D value (test for Spearman correlation coefficient R=0.164; p=0.022). There is a weak positive correlation – with increasing age, the D value was increasing. In 20.62% (n=40) of patients there was no presence of cavities, the average age in this group was 25.38±5.19 and was significantly lower than the average age of patients in whom the value of D>0. The average age in this group of patients was 27.35±4.53 (Student's-t test t=-2.38; df=192, p=0.02).

In patients visiting the dental office for a check-up, the D value ranged from 0 the 19.0, in half of the respondents it was not higher than 1.0 (Me=1.0), while the average value was 2.28±2.99. In the group of people declaring loss of filling as the reason for the visit, the D value ranged from 1.0 to 18.0, in half of the respondents it was not higher than 3.0 (Me=3.0), and the average value was 4.74±3.86. Among patients visiting a dentist because of a toothache, the D value ranged from 1.0 to 15.0, in half of the respondents it was not higher than 4.0 (Me=4.0), and the average value was 5.24±3.55. Based on statistical analysis we found a statistically significant relationship between the cause of visits to the dentist and the value of D (Kruskal-Wallis test H=39.01; p=0.0001).

The age of the patient was the variable which had a statistically significant effect on the M value – with age, an increase in the M value was observed (Spearman rank correlation coefficient R=0.25; p=0.0001). There is a weak positive correlation.

In the patients who declared visiting the dentist for check-up, the M value ranged from 0 to 16.0, in half of the respondents the value of M=0 (Me=0), and the average M value was 1.31±2.57. In people for whom the reason for dental visit was the loss of filling, M values were in the range 0-11.0, in half of the patients they were not higher than 0.50 (Me=0.50) and the average value was 1.79±2.83. In the group of subjects for whom the reason for the visit to the dentist was a toothache, M value ranged from 0 to 10.0, in half of the respondents it was not higher than 1.0 (Me=1.0), and the average was 2.18±2.73. The declared reason of visit being a check-up, influenced in a statistically significant way the value of M (the Kruskal-Wallis H=10.48; p=0.0053).

It was found that with increasing age of the respondents the F value increased (test for the Spearman rank correlation coefficient R=0.15; p=0.040). There was a weak positive correlation.

In the group of people living in big cities the F value ranged from 0 to 23.0, in half of the respondents it was not higher than 10.0 (Me=10.0), and the average value was 10.09±4.98. Among of respondents living in rural areas the number of fillings was ranging from 3.0 to 18.0, in half of the respondents it was not higher than 10.0 (Me=10.0), while the average was 10.92±3.96. In patients coming from small towns the F value ranged from 0.0 to 16.0, in half of the respondents it was not higher than 8.0 (Me=8.0), and the average was 7.81±4.56. The place of residence had a statistically significant impact on the F value (the Kruskal-Wallis test H=6.58; p=0.037).

DISCUSSION

National epidemiological studies of oral health of the population, having been conducted on a regular basis since 1987, indicate that dental caries and periodontal diseases are still a major health problem of the Polish society. Tooth decay is found in almost all adults, and the incidence and severity increases with age. Tooth decay is also, as currently assumed, the leading cause of tooth loss [6,7]. Similar conclusions can be drawn by analyzing the results obtained in the present study. In all patients, the incidence of tooth decay expressed by the value of DMF index higher than 0, has been confirmed. The average value of DMF index for the study population was 14.64. Studies of other authors show that the incidence of tooth decay in adults in Poland is 16.8, while in the Lodz region, in a slightly older age group than in the group of patients from Lublin region – 19.28 [8].

In the present study, we found a significantly lower value of DMF index in patients visiting a dentist for a check-up than it was in patients visiting the dentist with toothache or because of the loss of filling. During the visit the dentist can early detect initial stages of tooth decay and take appropriate therapeutic management, as well as give the patient the recommendations on hygiene, nutrition and the use of fluoride preparations [9,10].

Also in the present study, it was found that the number of teeth with carious cavities, teeth lost in the course of tooth decay and with fillings increased significantly with the age of the respondents, the value of DMF index increased by an average of 0.41 per year. According to the authors, this is the result of bad stereotypes and improper healthy behaviors. Patients often treat a visit to the dentist as a "necessary evil" [6,7,11]. The consequence is a high percentage of individuals in whom surgical treatment was carried out – in patients from Lublin region the percentage was 50%, while other authors report a value of 20%. Such high percentages may be related to the lack of refunds by the NHF of endodontic treatment costs of adults and with limited access to dental care [6].

It should also be noted that 17.01% of the studied patients visited the dentist because of toothache. According to other authors, this percentage was in the studied subjects 14% [6] and 12.5% [3].

The low level of health awareness is confirmed by the fact that patients often visit the dental office only because of the toothache and are oriented mainly to the treatment of existing problems, rather than to measures for preventing the development of the dental disease. The mentioned causes for not visiting the dentist include such factors as fear of pain, lack of time, needs and financial resources for treatment [3].

It seems that the dentists should more widely inform adults about the possibilities of free dental check-up twice a year, and treating patients with dental fear under general anesthesia, which are reimbursed by the National Health Fund. In the case of dental offices running dental services reimbursed by the NHF and fully paid, it is also worth promoting free of charge control examinations of the oral cavity for the benefit of patients, but also from a marketing point of view – for dental surgeons running their offices [2,3].

CONCLUSIONS

1. A high percentage of people visiting the dentist because of toothache, confirms the low level of health-oriented knowledge in adult patients.
2. The high value of mean DMF index confirms the need for intensification of prevention actions against dental caries in adults.
3. It is necessary to intensify educational activities and programs addressed to the adult part of Polish society to prevent the development of tooth decay.

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