Dental Public Health

Barriers for access to dental services related to patients and their impact on dental health – pilot study

Stanislav Nenov[1], Boyko Bonev[2], Petar Bozhinov[3], Nikolay Hristov[4]

Бариери за достъп до дентално-медицински грижи от страна на пациента и влиянието им върху денталното здраве – пилотно проучване

Станислав Ненов[1], Бойко Бонев[2], Петър Божинов[3], Николай Христов[4]

Abstract

Introduction

Different factors act as barriers and obstruct access to dental care. These barriers are three main groups: related to the patients; related to the dental profession; related to the state and society.

Purpose

The aim of the study is to explore the health status and opinion for the barriers for access to dental services of Bulgarians in active age (18 – 65 years old) and to reveal the influence of different barriers on the level of health.

Methods

An anonymous survey and clinical checkup were made among 50 Bulgarians. A statistical analysis was made to investigate the relations between the health status and barriers for dental health. The study was in compliance with ethical principles and all of the respondents submitted an informed consent for participation.

Results

Main group of barriers for dental health according to the participants in the study is the group related to patient – 37 (74%). Main reason for delaying of treatment are "lack of pain or complaints" – 28 (56%), "lack of time" – 17 (34%), "dental fear" – 15 (30%), and "cost of treatment" – 13 (26%). The prevalence and intensity of dental caries among the respondents who visit dental office for prophylaxis every six months are significantly lower (ET=54.23%; I=16.91) than those of them who visit dental office only in case of emergency (ET=59.76%; I=18.09), and are significantly higher for the groups of respondents who stated that they delay treatment due to "lack of pain" (ET=57.07%; I=17.43), "previous bad experience" (ET=60.33%%; I=18.5) and "lack of time" (ET=57.33%%%; I=17.71), compared to the groups of patients who don't delay dental treatment for such reasons.

Conclusion

Regular visits of dental office for checkup and treatment lead to better dental health status. Some psycho-social factors like income and general health impact the health status. Barriers for dental health lead to deterioration of dental status of population.

Key words: *access, barriers, dental health, dental status, DMF*

[1]Assistant professor, Department of Dental public health, Faculty of Dental medicine, Medical University – Sofia

[2]Associate professor, PhD, Department of Dental public health, Faculty of Dental medicine, Medical University – Sofia

[3]Senior assistant professor, PhD, Department of Dental public health, Faculty of Dental medicine, Medical University – Sofia

[4]Associate professor, PhD, Department of Social medicine, Faculty of Public health, Medical University – Sofia

[1]Асистнет, Катедра „Обществено дентално здраве", Факултет по Дентална медицина, Медицински университет – София

[2]Доцент, Катедра „Обществено дентално здраве", Факултет по Дентална медицина, Медицински университет – София

[3]Гл. асистнет, Катедра „Обществено дентално здраве", Факултет по Дентална медицина, Медицински университет – София

[4]Доцент, Катедра „Социална медицина", Факултет по Обществено здраве, Медицински университет – София

Резюме

Въведение

Различни фактори действат като бариери и възпрепятстват достъпа до дентални услуги. Тези фактори са три основни групи: от страна на пациента; от страна на денталната професия; от страна на обществото и държавата.

Цел

Целта на проучването е да се изучат денталният статус и мнението по отношение бариерите за достъп до дентални услуги на пациентите в активна възраст (18-65 години) и да се определи влиянието на различните бариери върху денталното здраве.

Материал и метод

Проведени са анонимно анкетно проучване и клиничен преглед на 50 български граждани. Направен бе статистически анализ за установяване на връзките между денталния статус и бариерите за дентално здраве. Проучването бе проведено в съответствие с етичните правила като всеки участник попълни доброволно информирано съгласие.

Резултати

Основните бариери за достъп до дентално здраве според участниците в проучването са от страна на пациентите – 37 (74%). Основните причини за отлагане на лечение са липсата на оплаквания – 28 (56%), липсата на време – 17 (34%), страхът от дентални манипулации - 15 (30%), и цената на лечението – 13 (26%). Епидемичността и интензитета на денталния кариес сред пациентите, посещаващи дентален кабинет на всеки шест месеца, са значително по-ниски (ET=54.23%; I=16.91) в сравнение с тези на пациентите търсещи помощ само при спешни състояния (ET=59.76%; I=18.09). Тези показатели имат значително по-високи стойности при пациентите отлагащи лечение поради липса на оплаквания и болка (ET=57.07%; I=17.43), минал лош опит (ET=60.33%%; I=18.5) и липса на време (ET=57.33%%%; I=17.71), в сравнение със стойностите на показателите при пациентите, които не посочват такива причини.

Заключение

Регулярното посещаване на дентален кабинет за профилактичен преглед и лечение води до по-добър дентален статус. Някои психо-социално фактори като доход и наличие на хронични заболявания, оказват влияние върху здравния статус. Бариерите за дентално здраве водят до влошаване на здравното състояние на популацията.

Ключови думи: *бариери, достъп, дентално здраве, дентален статус, DMF*

Introduction

Dental health is integral part of general human health. Different factors act as barriers and obstruct following the dental prophylaxis regime. These barriers are three main groups: related to the patients; related to the dental profession; related to the state and society. Barriers related to the patients have the greater impact on health. These psycho-social factors can either improve or obstruct the access to dental services. The most important barriers in this group are: dental fear and anxiety; cost of dental treatment; perceived treatment needs; and lack of access to dental care [1, 2].

There are many attempts in the dental literature to explain the avoidance of treatment through psycho-social factors and to predict the reasons for non-compliance with the instructions during treatment, as well as non-compliance with the preventive regime. According to R. Freeman [2] psycho-social factors don't act independently but complementary. Patients' feelings, beliefs, and attitudes are some of the psycho-social determinants of dental health that modify or change a patient's dental health behavior, but can also provide the basis for barriers for access to dental care.

In the 80's study by Finch et al. related to barriers for access to regular dental treatment led to a study of the factors on the part of patients and dentists leading to reduced access to dental care [3].

Borreani E. Et al. [4] described the following active barriers for dental care in adults: price, dental fear, availability, affordability, and characteristics of the dentist.

Malhi et al. [5] identify costs, inconvenience, fear, organization, and the relationship between the patient and the dentist as barriers to accessing dental services.

L. Cohen [1] identify four main groups of factors acting as a barriers for access to dental services: dental fear; cost of treatment; perceived treatment needs; lack of access.

B. Bonev et al. [6] conduct a study among 1636 people over 20-years old in Bulgaria and described the following main barriers for compliance with the dental prophylactic regime:

- Lack of pain – 37% ;
- Cost of treatment – 19 %;
- Dental fear– 13%;
- Lack of time – 9%;
- Other serious health issues – 8%;
- Previous bad experience – 7%;
- Lack of access – 7%.

Fear of the dentist and dental manipulation is the most important barrier for regular visits. [7]. It's thought that intensity of dental fear is higher than the need to visit dental office.

Cost of treatment is still important barrier for access to dental services [7]. World statistics shows that the ability for regular visits and treatment is directly related to annual income. The difficulties and problems faced by low-income people lead to a competition of priorities for the remaining family funds. In this situation, dentistry is considered impossible luxury and leads to inversion of values, while dental care remains low among the priorities [8].

Wall et al. [9] found that the percentage of persons indicating financial barriers is significantly higher than those indicating barriers related to access to and quality of dental services. The level of financial barriers is highest among low-income people.

The indirect price, including the costs outside the price of the dental treatment, is considered to add additional value to the dental visit. The biggest indirect price is the cost for transport [4].

Curtis et al. [10] examined some of the barriers for access to dental services and concluded that direct and indirect costs such as travel costs in remote areas have effect on access to dental services and are considered as important barrier.

According to Newman и Gift [11] individuals with resources in the form of finances and education, as well as a positive attitude towards oral health are more likely to follow a regular prevention regime.

Psycho-social determinants of dental health impact the perception of treatment needs by the patients. The idea that psycho-social factors may improve or obsruct access to regular dental visits by influencing personal perception of treatment needs can be illustrated by examining demographic differences. For example, people with higher socio-economic status than those with lower, women compared to men, younger than older, those with better access to personal than public transport, more often visit the dental office regularly. People with a busy daily life tend to delay treatment or use emergency care. Lack of time as a barrier to dental treatment does not always act alone, but often in combination with other psycho-social factors such as dental fear and lifestyle [12].

The main determinants of healthy dental behavior are socio-demographic indicators such as: age, education, social status. Additional factors are: healthy lifestyle, healthy diet, regular physical activity [13.] In a survey conducted in Greece in 2006 among 1005 people H. Koletsi-Kounari et al. [13] found that 47% had visited a dentist in the last year, but only 31.7% had visited for prophylaxis.

Lack of access to dental services is seen as a barrier to use by the patient, as well as a barrier by society. Access to health care is considered a variable for measuring health inequalities. Aday and Andersen [14] described access as "dimensions that describe the actual and potential entry of the population into the health care delivery system". Access to professional dental care

is outlined as an opportunity to receive and use dental services [15].

Lack of access should not be seen only as a lack or remoteness of dental practices. It is often related to problems with language and communication. In addition to the fear of the dentist and the cost of treatment, people from ethnic minorities point out language and communication difficulties as a major barrier for access to treatment. Ignoring cultural differences by the dental team can obstruct the access [16]. Language barriers affect access to health care and the quality of access. Language barriers significantly impede access to oral care and compromise the quality of oral health. The consequences of poor communication are strongly felt by patients [17].

As a result of the review of the literature we can make the following conclusions, which prove the importance of barriers to access to dental care for compliance with the dental prophylactic regime and preservation of dental health.

1. Main barriers for access to dental care related to patients are dental fear, cost of treatment and lack of access.

2. Health knowledge and perceived treatment needs, as well as the nature of the dentist-patient relationship in many cases are a reason to delay or avoid treatment, especially among people from the lower socio-economic status, as well as among the less educated and those with a lower health culture.

3. Barriers for access to dental care can obstruct access to services. Knowledge of these barriers, as well as opportunities to address them, can improve access to and quality of dental services.

The little available data for Bulgaria determines the need for additional studies, both with a view to revealing the factors that prevent the observance of the dental prophylactic regime, and to create effective mechanisms for their positive impact.

Purpose

The aim of the study is to explore the health status and opinion for the barriers for access to dental services of the adult people in Bulgaria (18-65 years old) and to reveal the influence of different barriers on the level of health.

Material and methods

An anonymous survey and clinical checkup were made among 50 Bulgarians from capital city of Sofia in active age – 18 to 65 years old. All of the respondents submitted an informed consent for participation in the study.

A special questionnaire consisting of 19 questions was developed for the purposes of the study. Questions were divided in two main groups – "personal information" and "barriers for dental health". The questions in second part allow multiple choice and more than one answer.

A special epidemiological card for registration of the results of clinical checkup was developed for the purposes of study. A complete clinical checkup was made. The indexes of prevalence of dental caries per teeth – ET, Intensity of dental caries (Klein's index, DMF), and CPI index were calculated.

A statistical analysis was made to find the relations between the health status and barriers for dental health. The respondents were divided in three age groups. Most of them were from the age group "30 to 44 years old" – 28 (56%), followed by group "45 to 65 years old" – 12 (24%) and group "18 to 29 years old" – 10 (20%). Twenty-two (44%) of respondents are male and twenty-eight (56%) are female.

Results

Ten of the respondents (20%) graduated college while forty of them (80%) graduate university. Most of the respondents have monthly income 1000-1500 lv. – 14 (28%), nine (18 %) – 1500-2000 lv., and only one (2 %) has no income.

Sixteen participants (32%) perceive their health status as "excellent", twenty-six (52%) – as "good", eight (16%) – as "satisfying". Only three (6%) of the respondents evaluate their dental health as "excellent", twenty-six (52%) – as "good", sixteen (32%) – as "satisfying", and five (10%) – as "bad".

Previous visit of dental office for the largest part of the respondents – 26 (52%) was last month, six (12%) of them – in last 6 months, 14 (28%) – in last year, and four (8%) in last two years. When asking for the reason for visit twenty-four (48%) responded that it was "treatment", eighteen (36%) – stated "pain" as the reason for visit, and ten (20%) – "prophylactic checkup".

When asking about the time of last prophylactic checkup major part of the respondents – 24 (48%) did it "every year", eleven of them (22%) – "every six months", four (8%) – "several years", and eleven (22%) stated that they visit dental office only in case of emergency (Table 1).

Barriers for dental health

Main group of barriers for dental health according to the participants in the study is the group related to patient – 37 (74%), followed by the group of barriers related to the state/society – 17 (34%). Only one respondent (2%) marked barriers related to dental profession as major reason (Figure 1).

When asked about the main reasons to delay visit or treatment majority of patients – 27 (54%) indicated more than one reason. As a main reason 28 (56%) of them point out "lack of pain or discomfort". Other important reasons according to respondents are: "lack of time" – 17 (34%); "dental fear" – 15 (30%); "cost of treatment" – 13 (26%) (Figure 2).

Table 1. *Characteristics of patients*

Education					
Without	Elementary school	College		University	
0	0	10 (20%)		40 (80%)	
Income					
Without	0-1000	1000-1500	1500-2000	2000-3000	More than 3000
1 (2%)	8 (16%)	14 (28%)	9 (18%)	9 (18%)	8 (16%)
General diseases					
Without		With		More than one	
42 (84%)		5 (10%)		3 (6%)	
Self-estimated health status					
Excellent	Good	Satisfying		Bad	
16 (32%)	26 (52%)	8 (16%)		0	
Self-estimated dental status					
Excellent	Good	Satisfying		Bad	
3 (6%)	26 (52%)	16 (32%)		5 (10%)	
Previous visit of dental office					
Previous month	Six months ago	Last year	Two years ago	More than 2 years ago	Don't remember
26 (52%)	6 (12%)	14 (28%)	4 (8%)	0	0
Reason for last visit					
Prophylactic checkup		Pain		Treatment	
10 (20%)		18 (36%)		24 (48%)	
Time of the last prophylactic checkup					
Every six months	Every year	Several years		Only in case of emergency	
11 (22%)	24 (48%)	4 (8%)		11 (22%)	

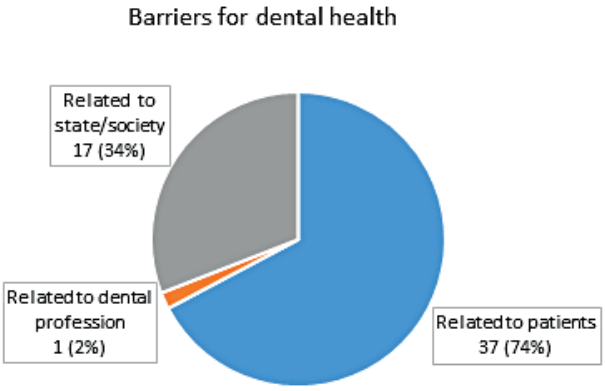

Figure 1. *Barriers for dental health*

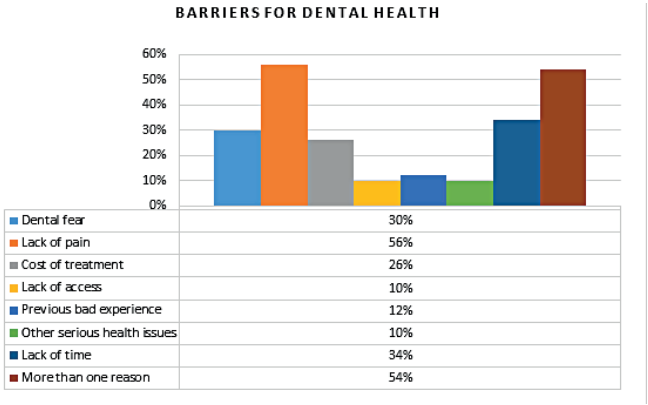

Figure 2. *Barriers related to patients*

Main reason for occurrence of dental fear according to patients is "pain during the treatment"-22 (44%). Twenty-one of them (42%) stated that thought of visiting dental office cause negative feeling. The majority of patients – 32 (64%) – point "lack of complaints" as the main reason to delay visit or treatment while 20 of them (40%) stated that they underestimate dental prophylaxis. Twenty-two (44 %) of the respondents stated more than one reason for dental fear.

When asked about the reasons why "cost of treatment" is barrier for access fifteen (30%) of patients indicated the price of treatment, ten (20%) indicated subjective factors (low income, other priorities, etc). Lack of health insurance and indirect cost (transportation, parking, etc.) – both 2 (4%) – seems not to be important reasons.

Twenty of patients (40%) stated that their previous bad experience is due to unsuccessful treatment in the past, fifteen of them (30%) – that it's due to other factors, and twelve (24%) – due to work/attitude of certain dentist (Table 2).

Patients stated that insufficient funding of dental healthcare is the main barrier from the group of

Table 2. *Reasons for occurrence of barriers for dental health*

Reasons for dental fear									
Pain	Manipulation	Dental devices	Anes-thesia	Dentist's attitude	Previous bad expe-rience	With-out any reason	Thought of a treatment is unpleasant	Other reasons	More than one
22 (44%)	4 (8%)	6 (12%)	1 (2%)	7 (14%)	9 (18%)	6 (12%)	21 (42%)	3 (6%)	22 (44 %)
Reasons for postponement of treatment									
Lack of knowledge		Underestimation of the prophylaxis		Lack of symptoms/ pain		Self-treatment	Other reasons		More than one
1 (2%)		20 (40%)		32 (64%)		0	8 (16%)		11 (22%)
Reasons cost of the treatment to be barrier									
High cost	Co-payment for NHIF procedures	Lack of health insurance		Indirect cost		Subjective factors		Other reasons	More than one
15 (30%)	6 (12%)	2 (4%)		2 (4%)		10 (20%)		17 (34%)	4 (8%)
Lack of access is due to:									
Distant dental office	Difficulties in communica-tion	Difficulties in setting an appointment		Physical characteristics of dental office		Discrimination		Other reasons	More than one
8 (16%)	3 (6%)	4 (8%)		2 (4%)		0		28 (56%)	1 (2%)
Previous bad experience is due to:									
Previous treatment	Shared expe-rience	Information from medias		Working style of certain dentist		Other reasons		More than one	
20 (40%)	5 (10%)	2 (4%)		12 (24%)		15 (30%)		6 (12%)	

barriers related to the state and society – 29 (58%). Twenty-seven of them (54%) indicated poor health culture and lack of health education in country as other important reasons. Lack of health policy adressing the needs of society is seen as a problem by 23 (46%) and lack of national programs for dental prophylaxis by 22 (44%) (Figure 3).

Dental status

When we studied the dental status we found that the prevalence of dental caries (ET) among the patients is 56.72%. The intensity of dental caries (DMF index) of the sample is 17.38.

The prevalence of dental caries in the group who didn't graduate university (56.54%) is almost equal to this of the group who graduated (56.77%). DMF index for the group who graduated university is 17.4 compared to 17.3 for the group who doesn't.

The prevalence of dental caries is higher in the group with income "from 2000 to 3000 lv."– 57.84% and lower in the group with income "less than 1000 lv." – 54.71%. DMF index is lower in the group with income "from 2000 to 3000 lv." – 16.78, and higher I the group with income "from 2000 to 3000 lv." – 19.67.

The prevalence of dental caries among the patients with general diseases is 55.20% compared to 57.02 in the group of the ones without. DMF in the first group is 17.25 and 17.40 in the second.

The prevalence of dental caries among the patients who visit dental office for regular dental checkup every six months is 54.22% compared to 57.78 – for those who visit dental office every year, and 59.76% for those who visit dental office only in case of emergency. DMF index for the first group is 16.91, for the second – 17.79, and for the third – 18.09 respectively.

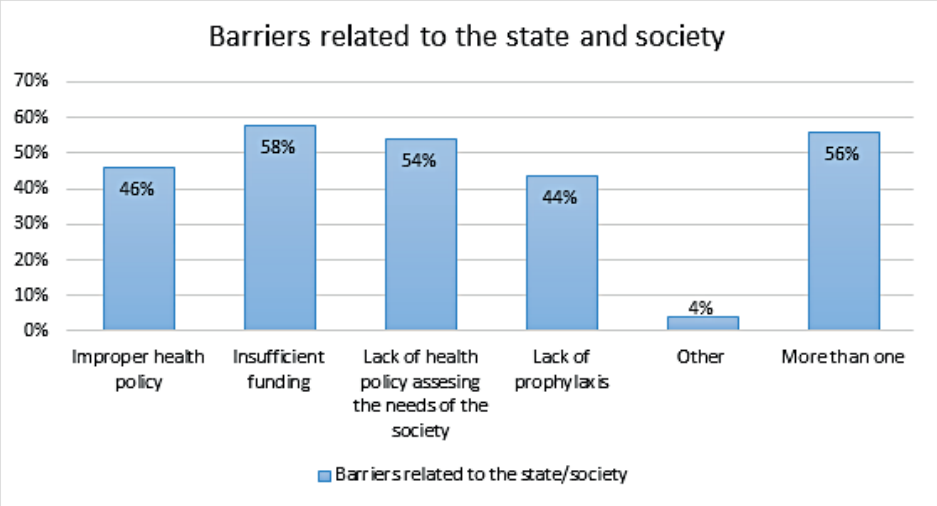

Figure 3. *Barriers related to the state and society*

Table 3. *Prevalence and Intensity of dental caries*

	Sample	Graduated University		Monthly income				General diseases		Frequency of dental visits			
		Yes	No	< 1000	1000-2000	2000-3000	>3000	With	Without	6 m.	1 year	More than 1 year	Only in case of emergency
ET	56.72%	56.77%	56.54%	54.71%	57.63%	57.84%	55.2%	57.02%	55.20%	54.23%	57.78%	48.72%	59.76%
I (DMF)	17.38	17.4	17.3	16.78	16.74	19.67	17.25	17.4	17.25	16.91	17.79	14.25	18.09

When we studied the prevalence of dental caries (ET) in relation to the barriers for access to dental services, we found that group of respondents, who stated that they postpone treatment due to lack of pain, has higher value of ET = 57.07% compared to those who don't – E T= 56.28%.

When we studied the prevalence of dental caries (ET) in relation to presence of previous bad experience, we found that group of people with such experience has higher value for ET=60.32% than the group who hasn't – ET=56.23%. The value of DMF index for the groups is 18.5 and 17.23 respectively.

When we studied the connection between the lack of time as a barrier and dental status of patients, we found that in the group that stated this barrier the prevalence of dental caries (ET) is 57.33% while in the group without this barrier it is 56.4%. The value of DMS index in the groups is 17.71 for the first and 17.21 for the second (Table 4).

We examined the periodontal status of the patients also, using the methodology for examination of the Community Periodontal Index (CPI index). The results were used to calculate CPI index for the sample. Only two of the patients (4 %) have no periodontal issues and their CPI index is "0" for the whole dentition.

In the first sextant (18-14) 13 of patients (26%) have value "0" (healthy). For major part of the patients – 22 (44%), the value of CPI index for this part of dentition is "1" (bleeding). CPI index for second sextant (13-23) for the sample shows that major part of them – 28 (56%) has value "0". The results for the third sextant (24-28) show that CPI index of the major part of patients – 26 (52%), is "1", and healthy status (CPI = 0) has eight (16%) of them. The results for the fourth sextant (38-34) shows the same distribution – CPI = "1" for 26 respondents (52%), and CPI ="0" for six of them (12%). For the fifth sextant (33-43) the results shows that for the major part of patients the value of CPI index is "2" (calculus) – 24 (48%). Healthy periodontal status (CPI = "0") was found in 13 of patients (26%). For the sixth sextant (44-48) results are as follows – CPI index of major part of the patients is "1" – 31 (62%), and for six of them (12%) CPI index is "0".

Most cases of severe periodontal diseases (CPI = "3"/ "4") were found in the distal segments of the mandible – 10 cases (20%) for the left and right distal sextant of the jaw. Almost the same is situation in the upper left distant sextant where CPI = "3"/"4" were found in 9 cases (18%). (Table 5)

Table 4. *Barriers for dental health and caries indeces*

	Dental fear		Lack of symptoms/pain		Cost of treatment		Lack of access		Previous bad experience		General diseases		Lack of time	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
ET	50 %	72.52 %	57.07%	56.28%	52.69%	58.11%	47.44%	57.78%	60.33%	56.23%	56.49%	56.75%	57.33%	56.41%
I (DMF)	15	18.4	17.43	17.32	15.85	17.92	14.8	17.67	18.5	17.23	17.4	17.38	17.71	17.21

Table 5. *CPI index*

Value / Sextant	0	1	2	3	4	X
1	13 (26%)	22 (44%)	7 (14%)	4 (8%)	2 (4%)	2 (4)
2	28 (56%)	15 (30%)	4 (8%)	1 (2%)	1 (2%)	1 (2%)
3	8 (16%)	26 (52%)	5 (10%)	7 (14%)	2 (4%)	2 (4%)
4	6 (12%)	26 (52%)	7 (14%)	7 (14%)	3 (6%)	1 (2%)
5	13 (26%)	9 (18%)	24 (48%)	1 (2%)	3 (6%)	0
6	6 (12%)	31 (62%)	2 (4%)	8 (16%)	2 (4%)	1 (2%)

Discussion

Main group of barriers for dental health according to the participants in the study is the group related to patient, followed by the group of barriers related to the state and society.

The main reasons for delay of the treatment according to the major part of respondents are "lack of pain or discomfort" and "lack of time". The dental fear and cost of treatment seemed not to have important effect on access to dental health for the patients.

Respondents of the study stated that "insufficient funding of dental healthcare" and "poor health culture and lack of health education in country" are the main barriers from the group of barriers related to the state and society.

The Objective dental status of the patients showed that the prevalence of dental caries (ET) among them is 56.72% and the intensity of dental caries (DMF index) of the sample is 17.38. There is no significant difference of the prevalence of dental caries in the group of them who graduate university and this of the group who doesn't. The prevalence of dental caries is higher in the group of people with income "from 2000 to 3000 lv." compared to those with income below and over this values.

When studied the periodontal status of patients, we found that almost all of them have some kind of periodontal problem. The periodontal status of the patients (CPI index) shows that the upper front sextant is the healthiest (CPI = 0), while periodontal status is the worst in the lower front sextant (CPI = 2) for major part of patients. The most severe are the periodontal diseases in distant sextants of the mandible.

The prevalence and intensity of dental caries among the respondents who visit dental office for dental checkup every six months are significantly lower than those of the respondents who visit dental office only in case of emergency.

The prevalence and intensity of dental caries are significantly higher for the groups of respondents who stated that they postpone treatment due to "lack of pain", "previous bad experience" and "lack of time", compared to the groups of patients who don't postpone dental visit for such reasons.

Conclusion

Main barriers for dental health are related to patients, followed by the group of barriers related to the state and society.

The main reasons for delaying of the treatment according to the respondents are "lack of pain of pain of complaints" and "lack of time". The dental fear and cost of treatment don't have important effect on access to dental health for the patients.

The main barriers from the group of barriers related to the state and society are "insufficient funding of dental healthcare" and "poor health culture and lack of health education in country".

Almost all of patients have some kind of periodontal problem as it is the most severe in distant sextants of the mandible, while the upper front sextant is the healthiest.

The prevalence and intensity of dental caries among the respondents who visit dental office for regular checkup every six months are significantly lower than the rest.

The delay of treatment due to "lack of pain", "previous bad experience" and "lack of time" rather than other reasons lead to worse overall dental status of the patients.

People with higher income have better oral status, but the level of education seems to not impact dental health. People who visit dental office more frequently have better dental health status. People with general diseases have better dental health.

Following the regular prophylactic regime and limiting the barriers for access to dental services are seen as the best way for improvement of dental health of population in Bulgaria.

Limitations

As a limitation can be considered the small number of the sample as this is pilot study.

The study is part of project № 8324/20.11.2019 г. with contract № Д-108/24.06.2020 г. of the program GRANT2020 funded by Medical University – Sofia

References:

1. Cohen, L. K. Converting unmet need for care to effective demand. Int Dent J, 1987, 37, 114-116.
2. Freeman, R. Barriers to accessing and accepting dental care. British dental Journal, 1999, 187, 81-84.
3. Finch, H., J. Keegan, K. Ward. Barriers to the receipt of dental care – a qualitative research study. Social and Community Planning Research, London,1988.
4. Borreani, E. et al. Minimising barriers to dental care in older people. BMC Oral Health, 2008, 8, 7.
5. Malhi, R. et al. Perceived barriers in accessing dental care among patients attending dental institute using decision–making trial and evaluation laboratory method. Journal of Indian Association of Public Health Dentistry, 2015, 13(2), 152-157.
6. Bonev, B., P. Boginov, Kr. Yaneva. Influence of the main barriers for accessing dental care in Bulgaria. Problems of dental medicine, Vol. 40. 2014;1: 41-45.
7. Adams, E. K. et al. Accessing primary dental care in three inner city boroughs. Comm. Dent. Health, 1997, 14, 108-112.
8. Call, R. L. The effects of poverty on children's dental health. Pediatrician, 1989, 16, 200–206.
9. Wall, T., K. Nasseh, M. Vujcic. Most important barriers to dental care are financial, not supply related. Health Policy Institute Research Brief. American Dental Association. October 2014.
10. Curtis, B. et al. Geographic location and indirect costs as a barrier to dental treatment: A patient perspective. Aust Dent J, 2007, 52, 271-275.
11. Newman, J.F., H.C. Gift. Regular pattern of preventive dental services: a measure of access. Soc Sci Med, 1992, 35, 997-1001.
12. Freeman, R. Barriers to accessing dental care: patient Factors. British Dental Journal, 1999, 187, 141-144.
13. Koletsi-Kounari, H., C. Tzavara, Y. Tountas. Health-related lifestyle behaviors, socio-demographic characteristics and use of dental health services in Greek adults. Community Dental Health, 2011, 28, 47-52.
14. Aday, L.A., R. Andersen. Exploring dimension of access to medical care. Health Serv Res, 1983, 18(1), 49-74.
15. Koneru, A., M.J. Sigal. Access to dental care for persons with developmental disabilities in Ontario. J Can Dent Assoc, 2009, 75, 121.
16. Williams, S.A., S. Gelbier. Dentists and ethnic minority communities. Br Dent J, 1989, 166, 194-195.
17. Vanobbergen, J. N. et al. Barriers to oral health care access among socially vulnerable groups: a qualitative study. Journal of Disability and Oral Health, 2007, 8(2), 63-69.

Address for correspondence
Stanislav Nenov
Department of Dental public health
Faculty of Dental medicine,
Medical University – Sofia
1 Georgi Sofiiski str.
phone: 00359 886897161
s.nenov@fdm.mu-sofia.bg