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OWNERSHIP OF A DENTAL OFFICE AS A FACTOR OF DENTAL TOURISM IN THE REPUBLIC OF NORTH MACEDONIA

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Abstract

Dental tourism is considered as part of medical tourism and means travel abroad in order to receive dental services, which are usually more expensive in the home country. The Republic of North Macedonia with its geographical location is a current European destination for dental tourism.

The study aimed to indicate certain experiences in the field of dental tourism in the Republic of North Macedonia according to the ownership of a dental office.

This was a cross-sectional study conducted in the period from 15.02.2018 to 14.02.2019. The sample consisted of 215 dentists. A non-standardized questionnaire was used and applied with the Google Forms service.

The responses of 215 dentists were analyzed; 131 (60.93%) were owners of a dental office and 84 (39.07%) were not owners of a dental office. There was no significant association between the ownership of a dental office and years of experience in working with foreigners, for Pearson Chi square = 5.05 and $p > 0.05$ ($p = 0.28$). There was a significant association between the ownership of a dental office and the statement of the share of foreigners in the total income of the office, for Pearson Chi square = 9.47 and $p < 0.05$ ($p = 0.04$).

A negative correlation was found between the answers to the analyzed questions and the number of dentists, depending on the ownership of the office.

Keywords: dental tourism, ownership, dental office

Introduction

Oral health, as an important part of the health of every human being, was defined by the WHO in 1965 as a condition of "healthy and functionally capable teeth and their supporting tissues, including the parts of the oral cavity that participate in chewing". This definition confirms that oral health is an important part of a person's general health and has a significant impact on quality of life [1].

Dental tourism by ADA's (American Dental Association) Resolution 28H-2008 is defined as an act of traveling to a foreign country in order to obtain dental treatment [2].

It is considered as a part of the medical tourism and involves travel abroad to obtain dental services, which are usually more expensive in the home country [3]. The share of dental tourism in the overall world health tourism is 40% [4].

Academic research in this area is scarce [5,6]. The main factors of dental tourism in the EU are: lower price, shorter waiting time and confidence in the expertise and health system [7].

On the American continent, the factors that determine dental tourism are: price / service ratio, service capacity, technology, waiting time, trust in the health care system, and urban image [8].

For the American population living along the border with Mexico, the lack of health insurance is the main motive for dental tourism [9].

In Europe, the leading destination for dental tourism is Hungary [10]. Most foreign patients in Hungary come from Germany and Austria [11].

In the segment of dental services, India is a superior leader globally. India is visited by Asian and some dental tourists from the United States [12].

During the global economic recession, dental tourism has been the only branch of tourism that has not noticed a negative trend. The existence and functioning of this type of tourism is a curiosity for the economic and health experts [13,14].

The Republic of North Macedonia with its geographical location in the center of the Balkans is a current European destination for dental tourism. High standards in terms of staff, quality of dental

services, affordable prices and attractiveness of the destination, make the Republic of North Macedonia relevant when seeking dental treatment abroad.

The aim of this study was to point out certain experiences from working with patients from abroad in the field of dental tourism in the Republic of North Macedonia according to the ownership of a dental office.

Material and Methods

This was a cross-sectional study conducted in the period from 15.02.2018 to 14.02.2019.

The sample was obtained by a random sampling method, in accordance with pre-determined inclusion criteria, as follows: active dentist, employee / owner of a dental office, owner of an e-mail address and willingness to participate in the research.

The sample consisted of 215 dentists who were contacted electronically. A non-standardized questionnaire was used. It was applied with the Google Forms service, and was completed through an online browser.

Statistical Analysis

The analysis was performed with the statistical program STATISTICA 7.1 and SPSS 22.0. In series with attributive features, percentages of structure were specified.

The association between the ownership status of a dental office and years of treatment, the percentage of the total number of foreign patients, the share of foreigners in the total income of the dental office, the share in the total number of foreign patients in the diaspora, was analyzed by Pearson Chi square test.

The correlation between the number of dentists in terms of ownership status of the dental office and years of treatment, percentage of the total number of foreign patients, the share of foreigners in the total income of the dental office, the share in the total number of foreign patients from the diaspora, was analyzed by Spearman Rank Order R. Statistical significance was determined to be $p < 0.05$.

Results

The answers of 215 dentists were analyzed; 131 (60.93%) were owners of a dental office and 84 (39.07%) were not owners of dental office (Table 1).

In the analysis according to years of experience in treating foreigners, most of the dentists, 80 (37.21%), stated that their experience in treating foreigners was 0-5 years; 60 (27.91%) had experience from 6-10 years; 43 (20.00%) had experience of 11-15 years; 18 (8.37%) had experience from 16-20 years in treating foreigners, and 14 (6.51%) of dentists had more than 21 years of experience.

Among the owners of dental office, the majority of dentists, 46 (35.11%), stated that their experience in treating foreigners was 0-5 years; 34 (25.95%) had experience from 6-10 years; 28 (21.37%) were with experience of 11-15 years; 15 (11.55%) had experience in treating foreigners from 16-20 years, and 8 (6.11%) dentists had experience of more than 21 years.

Among the dentists who did not own a dental office, 34 (40.48%) stated that their experience in treating foreigners was 0-5 years; 26 (30.95%) had experience from 6-10 years; 15 (17.86%) were with experience of 11-15 years; 3 (3.57%) had experience in treatment of foreigners from 16-20 years, and 6 (7.14%) dentists had experience of more than 21 years.

For Pearson Chi square = 5.05 and $p > 0.05$ ($p = 0.28$), there was no significant association between dental office ownership and years of experience working with foreigners. In the analysis according to the percentage of foreigners in the total number of patients, most of the dentists, 145 (67.44%), stated that 1-20% of their patients were foreigners; 41 (19.07%) said that 21-40% of their total number of patients were foreigners; 13 (6.05%) stated that 41-60% of their patients were foreigners; 9 (4.19%) said that 61-80% of the total number of patients were foreigners, and 7 (3.26%) dentists stated that foreigners were 81-100% of patients they treated.

Among the owners of a dental office, the majority of the respondents, 93 (70.99%), stated that of all patients, foreigners were 1-20%; 25 (19.08%) stated that 21-40% of all patients were foreigners; 8 (6.11%) reported that they had 41-60% of foreign patients of all their patients; 2 (1.53%) stated that

61-80% of all patients were foreigners, and 3 (2.29%) dentists stated that foreigners were 81-100% of patients they treated.

Among the dentists who did not own a dental office, 52 (61.90%) stated that foreign patients were 1-20% of all patients; 16 (19.05%) stated that foreign patients were 21-40% of all patients; 5 (5.95%) reported that foreign patients were 41-60% of all their patients; 7 (8.33%) stated that foreign patients were 61-80% of all patients, and 4 (4.76%) dentists stated that foreigners were 81-100% of all patients they treated.

For Pearson Chi square = 7.25 and $p > 0.05$ ($p = 0.12$), there was no significant association between the ownership of a dental office and the statement of the percentage of foreigners in the total number of patients.

In the analysis according to the share of foreigners in the total income of the office, most dentists, 118 (54.88%), stated that the share of foreigners in the total income was 1-20%; 50 (23.26%) said this share was 21-40% of the income; 25 (11.63%) of the dentists stated that the share of foreigners in the total income was 41-60%; 14 (6.51%) stated that the share of foreigners in the total income was 61-80%; 8 (3.72%) dentists stated that the share of foreigners in the total income was 81-100%.

Among the owners of a dental office, the majority of dentists,,75 (57.25%), stated that the share of foreigners in the total income of the dental office was 1-20%; 35 (26.72%) stated that the share of foreigners in the total income of the dental office was 21- 40%; 13 (9.92%) stated that the share of foreigners in the total income of the office was 41-60%; 4 (3.05%) stated that the share of foreigners in the total income of the office was 61-80%, and 4 (3.05%) dentists stated that the share of foreigners in the total income of the office was 81-100%.

Among the dentists who did not own a dental office, the largest number of 43 (51.19%) stated that the share of foreigners in the total income of the dental office was 1-20%; 15 (17.86%) stated that the share of foreigners in the total revenue of the dental office was 21-40%; 12 (14.29%) stated that the share of foreigners in the total income of the dental office was 41-60%; 10 (11.90%) stated that the share of foreigners in the total income of the dental office was 61-80 4%, and 4 (4.76%) dentists stated that the share of foreigners in the total income of the dental office was 81-100%.

For Pearson Chi square = 9.47 and $p < 0.05$ ($p = 0.04$), there was a significant association between the ownership of a dental office and the statement of the share of foreigners in the total revenue of the dental office. In the analysis according to the share of the diaspora in the total number of foreign tourists, the largest number of dentists, 97 (46.19%), stated that the share of the diaspora in the total number of foreign tourists was 1-20%, then 29 (13.81%) said this share was 21-40%; 21 (9.77%) of the dentists stated that the share of the diaspora in the total number of foreign tourists was 41-60%; 24 (11.16%) of the dentists stated that the share of the diaspora in the total number of foreign tourists was 61-80%, and 44 (20.47%) dentists stated that the share of the diaspora in the total number of foreign tourists was 81-100%.

Among the owners of a dental office, the largest number of dentists, 55 (43.65%), stated that the share of the diaspora in the total number of foreign tourists was 1-20%, followed by 19 (15.08%) according to which this share was 21-40%; 13 (9.92%) of the dentists stated that the share of the diaspora in the total number of foreign tourists was 41-60%; 12 (9.16%) of the dentists stated that the share of the diaspora in the total number of foreign tourists was 61-80%, and 32 (24.43%) dentists stated that the share of the diaspora in the total number of foreign tourists was 81-100%.

Among the dentists who did not own a dental office, the largest number, 42 (50.00%), stated that the share of the diaspora in the total number of foreign tourists was 1-20%; 10 (11.90%) said this share was 21-40%; 8 (9.52%) of the dentists stated that the share of the diaspora in the total number of foreign tourists was 41-60%; 12 (14.29%) of the dentists stated that the share of the diaspora in the total number of foreign tourists accounted for 61-80%, and 12 (14.29%) dentists stated that the share of the diaspora in the total number of foreign tourists was 81-100%.

For Pearson Chi square = 4.77 and $p > 0.05$ ($p = 0.31$), there was no significant association between the ownership of the office and the statement of the share of the diaspora in the total number of foreign tourists.

Table 1. Analysis of answers of selected questions according to the ownership of dental office

Questions		Office owner			p
		Yes	No	Total	
How many years have you been treating foreigners?					
0-5 years	Number	46	34	80	Pearson Chi-square: 5,049; df=4; p=0,2823
	%	35.11%	40,48%	37,21%	
6-10 years	Number	34	26	60	
	%	25.95%	30.95%	27.91%	
11-15 years	Number	28	15	43	
	%	21.37%	17.86%	20%	
16-20 years	Number	15	3	18	
	%	11.45%	3.57%	8.37%	
More than 21 years	Number	8	6	14	
	%	6.11%	7.14%	6.51%	
What percentage of your total patients are foreigners?					
1-20%	Number	93	52	145	Pearson Chi-square: 7.254; df=4; p=0.1231
	%	70.99%	61.90%	67.44%	
21-40%	Number	25	16	41	
	%	19.08%	19.05%	19.07%	
41-60%	Number	8	5	13	
	%	6.11%	5.95%	6.05%	
61-80%	Number	2	7	9	
	%	1.53%	8.33%	4.19%	
81-100%	Number	3	4	7	
	%	2.29%	4.76%	3.26%	

What is the share of foreigners in the total income of the office?					
1-20%	Number	75	43	118	Pearson Chi-square: 9.467; df=4; p=0.0494*
	%	57.25%	51.19%	54.88%	
21-40%	Number	35	15	50	
	%	26.72%	17.86%	23.26%	
41-60%	Number	13	12	25	
	%	9.92%	14.29%	11.63%	
61-80%	Number	4	10	14	
	%	3.05%	11.90%	6.51%	
81-100%	Number	4	4	8	
	%	3.05%	4.76%	3.72%	
What is the share of the diaspora in the total number of foreign patients?					
1-20%	Number	55	42	97	Pearson Chi-square: 5.033; df=4; p=0.2839
	%	43.65%	50%	46.19%	
21-40%	Number	19	10	29	
	%	15.08%	11.90%	13.81%	
41-60%	Number	13	8	21	
	%	9.92%	9.52%	9.77%	
61-80%	Number	12	12	24	
	%	9.16%	14.29%	11.16%	
81-100%	Number	32	12	44	
	%	24.43%	14.29%	20.47%	
Total		131	84	215	

* significant for $p<0.05$

The results shown in Table 2 refer to the examined correlation between the values of the analyzed questions and the number of dentists depending on the ownership of the dental office.

For Spearman Rank Order R = -1.00 and p> 0.05 between "How many years have you been treating foreigners?" and "Office owner / Yes", there was a maximum negative insignificant correlation. Namely, the increase of the years in the treatment of foreigners was accompanied by a slight decrease in the number of owners of a dental office (Table 2).

Between "How many years have you been treating foreigners?" and “Office owner / No”, for Spearman Rank Order R = -0.90 and p <0.05, there was a very strong negative significant correlation.

Namely, the increase in the years of treatment of foreigners was accompanied by a significant decrease in the number of dentists who did not own a dental office (Table 2 and Figure 1).

For Spearman Rank Order R = -0.90 and p <0.05 between "What percentage of your total patients are foreigners?" and "Office owner / Yes", there was a very strong negative significant correlation. Namely, the increase in the percentage of foreign patients was accompanied by a significant decrease in the number of office owners (Table 2 and Figure 2).

Between "What percentage of your total patients are foreigners?" and "Office owner / No", for Spearman Rank Order R = -0.90 and p <0.05, there was a very strong negative significant correlation. Namely, the increase in the percentage of foreign patients was accompanied by a significant decrease in the number of dentists who did not own a dental office (Table 2 and Figure 3).

For Spearman Rank Order R = -0.97 and p <0.05 between "What is the share of foreigners in the total income of the office?" and "Office owner / Yes", there was a very strong negative significant correlation.

Namely, the increase of the share that the foreigners had in the total income of the dental office was accompanied by a significant decrease in the number of owners of the office (Table 2 and Figure 4).

For Spearman Rank Order R = -1.00 and p> 0.05 between "What is the share of foreigners in the total income of the office?" and "Office owner / Yes", there was a maximum negative insignificant correlation.

Namely, the increase of the share that foreigners had in the total income of the dental office was accompanied by a slight decrease in the number of owners of the dental office (Table 2).

For Spearman Rank Order R = -0.40 and p> 0.05 between "What is the share of the diaspora in the total number of foreign patients?" and "Office owner / Yes", there was a moderately strong negative insignificant correlation.

Namely, the increase of the part of the diaspora in the total number of foreign patients was accompanied by a slight decrease in the number of owners of a dental office (Table 2).

For Spearman Rank Order R = -0.15 and p> 0.05 between "What is the share of the diaspora in the total number of foreign patients?" and "Office owner / No", there was a moderately weak negative insignificant correlation.

Namely, the increase of the part of the diaspora in the total number of foreign patients was accompanied by a slight decrease in the number of dentists who did not own a dental office (Table 2).

Table 2. Spearman Rank Order R

Questions	Spearman Rank Order R		p
	Office owner / Yes	Office owner / No	
How many years have you been treating foreigners?	-1.00	-0.90*	p=0.0957
What percentage of your total patients are foreigners?	-0.90*	-0.90*	p=0.5000
What is the share of foreigners in the total income of the office?	-0.97*	-1.00	p=0.2790
What is the share of the diaspora in the total number of foreign patients?	-0.40	-0.15	p=0.3972

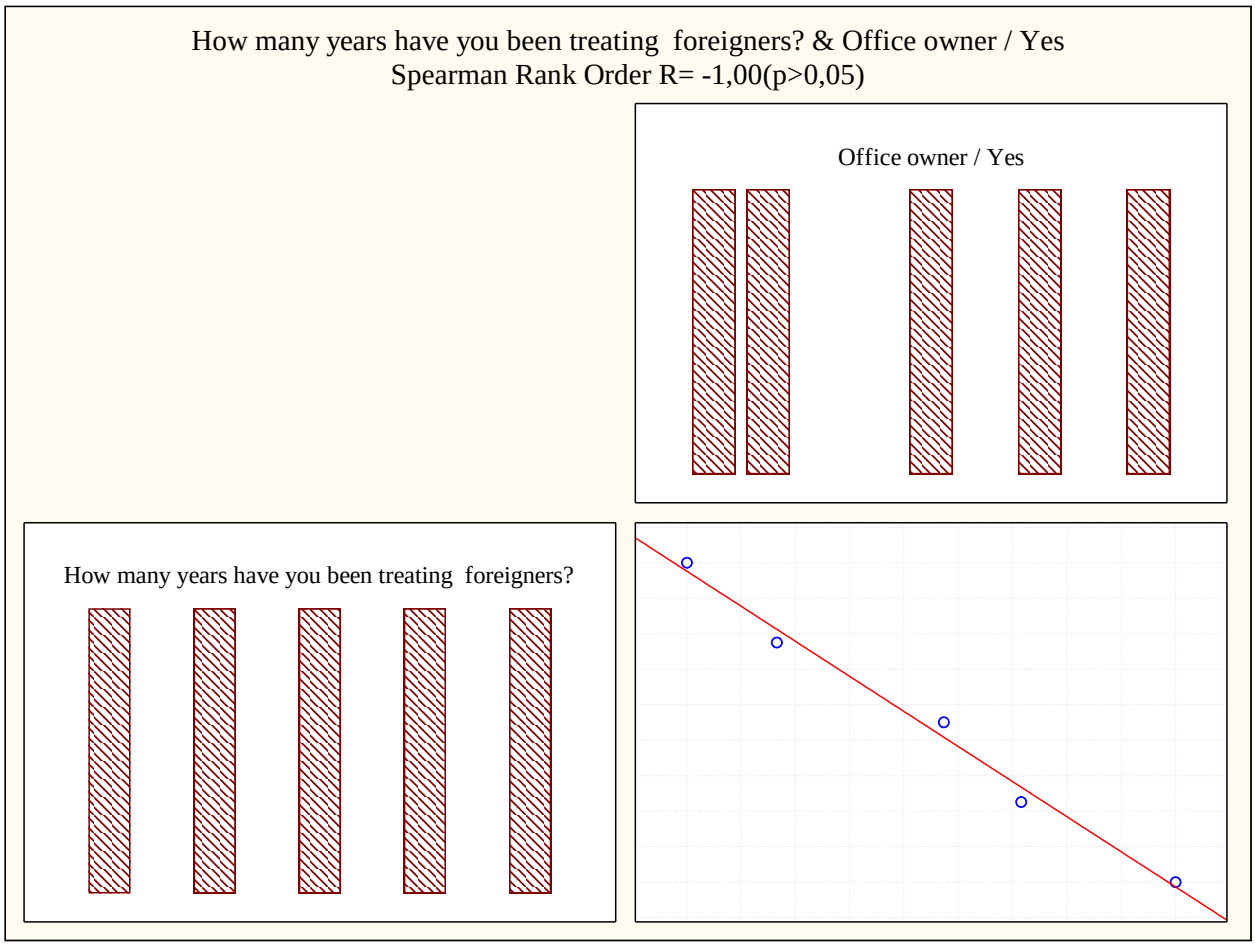

Figure 1. Spearman Rank Order R**.**

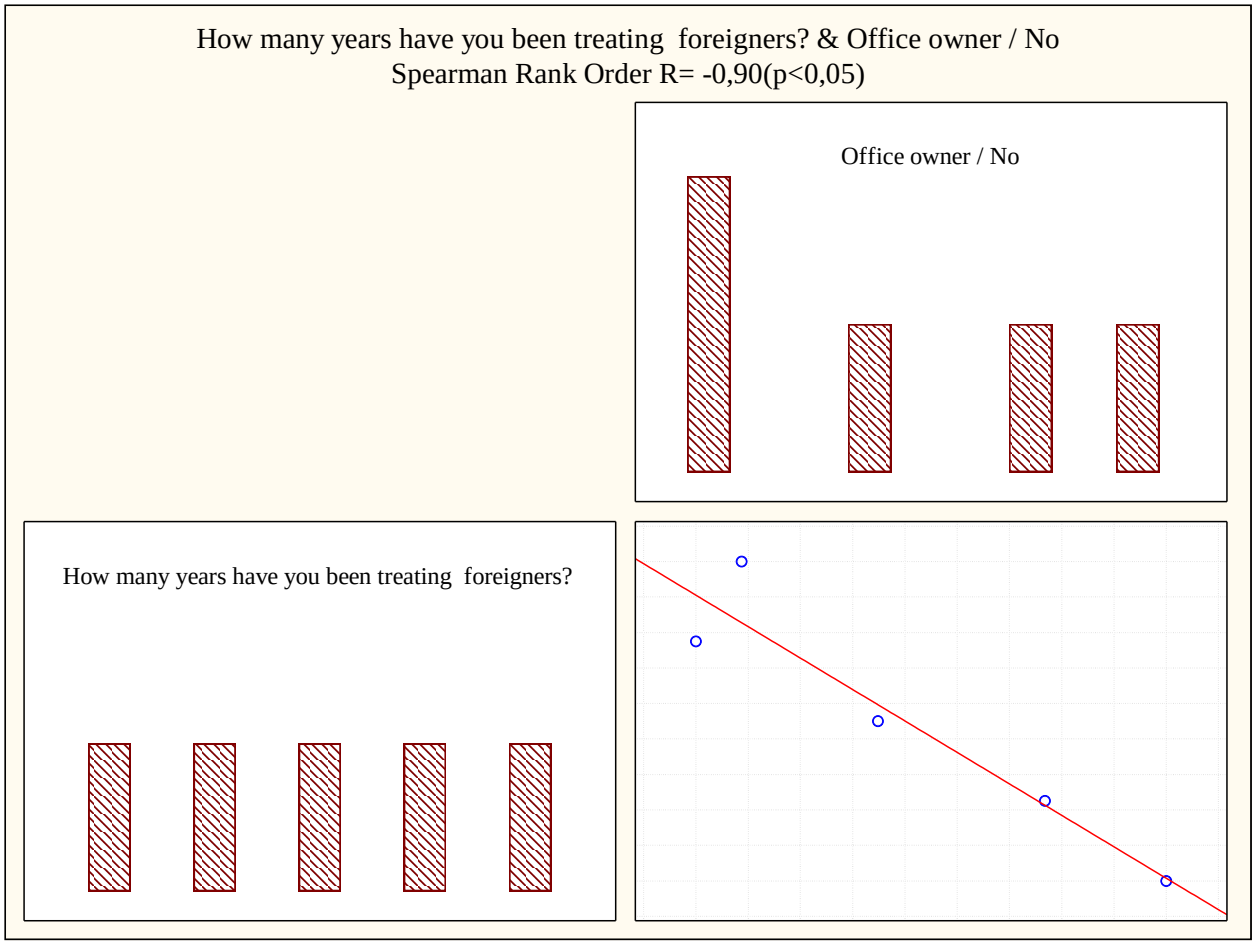

Figure 2. Spearman Rank Order R.

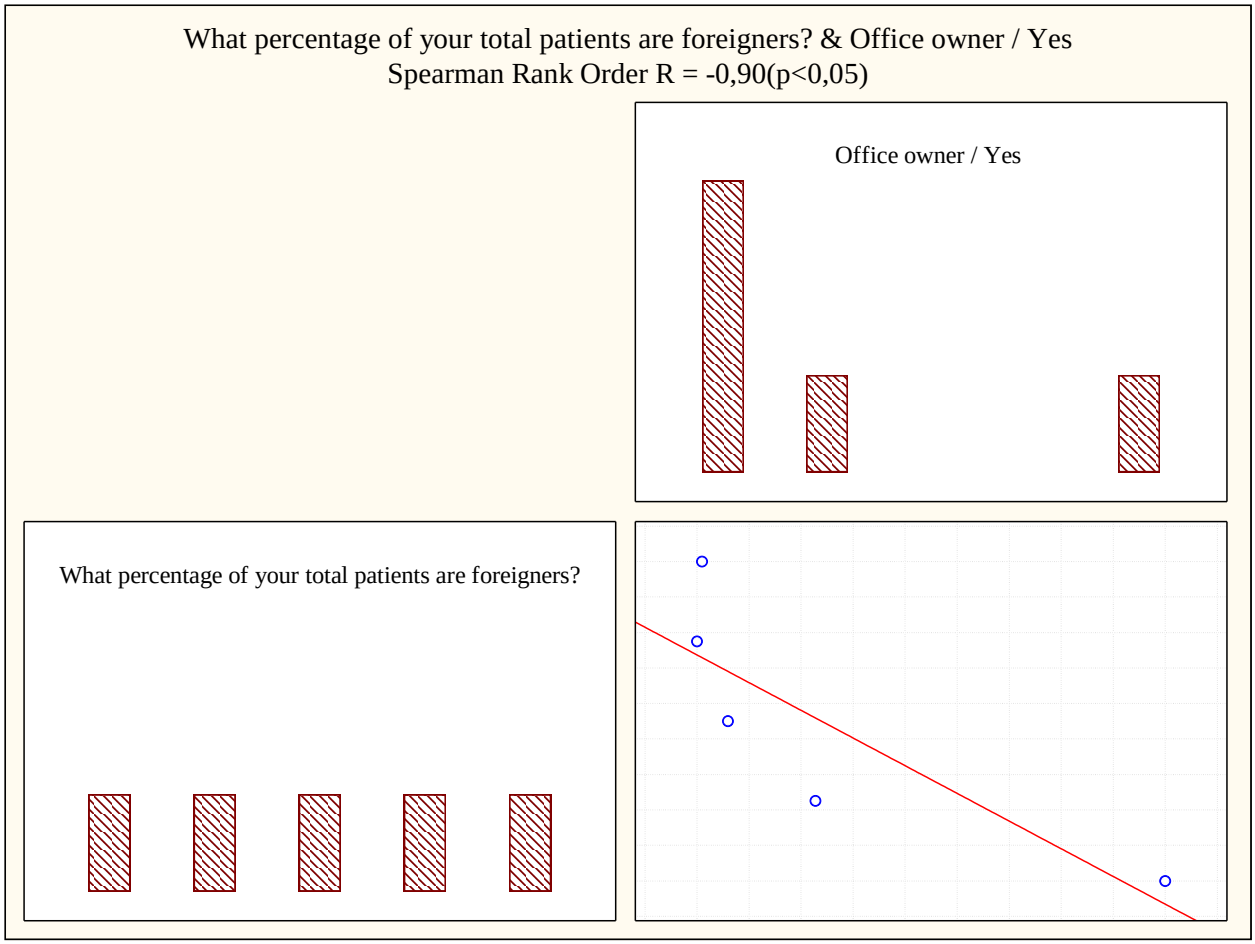

Figure 3. Spearman Rank Order R.

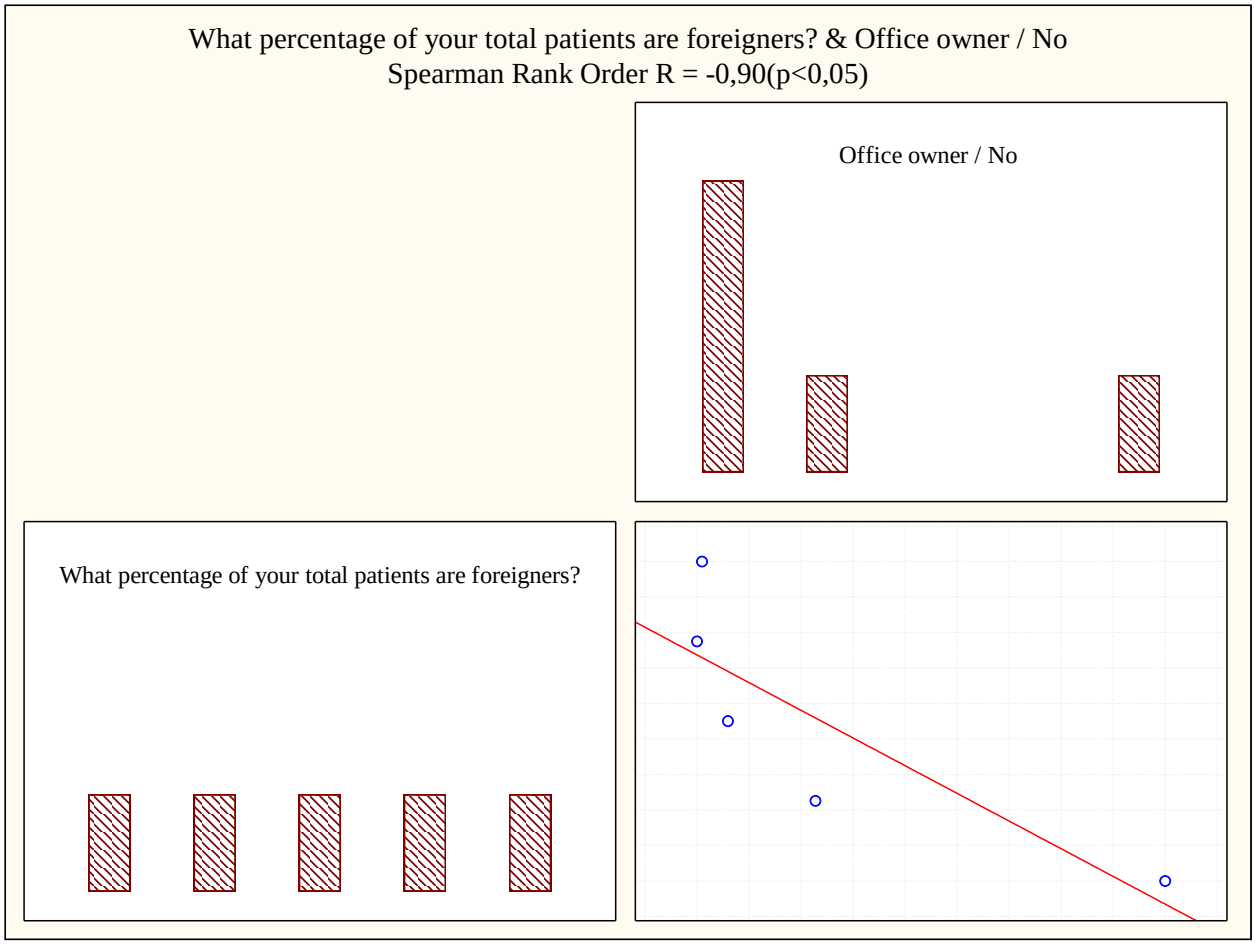

Figure 4. Spearman Rank Order R.

Discussion

In many European countries, dental tourism is an important part of the health tourism industry. The Republic of North Macedonia with its geographical location in the center of the Balkans is a current European destination for dental tourism. High standards in terms of staff, quality of dental services, affordable prices and attractiveness of the destination, make the Republic of North Macedonia relevant when seeking dental treatment abroad. In the Republic of North Macedonia, dental services for patients from abroad are rarely analyzed.

The results of this study indicated that most of the dental office owners [46 (35.11%)] had experience in providing dental services to patients from abroad from 0-5 years, and most of the dentists [34 (40.48%)] who did not own a dental office had experience in providing dental services to patients from abroad from 0-5 years.

Experience in providing dental services to patients from abroad for more than 21 years had 8 (6.11%) owners of a dental office and 6 (7.14%) dentists who did not own an office. For $p > 0.05$, there was no significant association between dental office ownership and years of experience working with foreigners. Similar research was done among dentists in Croatia [2] Hungary [8] and Hong Kong [14].

When it comes to what percentage of the total number of patients are foreigners, in this study most of the dental office owners, 93 (70.99%), answered that it was 1-20%; the answer was identical in 52 (61.90%) dentists who did not own a dental office. Only a small number of dental office owners, 3 (2.29%), and 4 (4.76%) dentists who did not own a dental office said that the percentage of the total number of patients made up of foreigners was 81-100%. For $p > 0.05$, there was no significant association between the ownership of the dental office and the statement of the percentage of foreigners in the total number of patients. Regarding the question what is the share of foreigners in the total income

of the dental office, most owners of the dental office, 75 (57.25%), and 43 (51.19%) dentists who did not own a dental office answered that it was 1-20%.

A small number of owners of a dental office, 4 (3.05%), and 4 (4.76%) dentists who did not own a dental office stated that the share of foreigners in the total income of the dental office was 81-100%. For $p < 0.05$, there was a significant association between the ownership of a dental office and the statement of the share of foreigners in the total revenue of the dental office.

Most of the owners of a dental office, 55 (43.65%), and 42 (50.00%) dentists who did not own an office stated that the share of the diaspora in the total number of foreign patients was 1-20%.

In 32 (23.81%) owners of a dental office and 12 (14.29%) dentists who were not owners of a dental office, the share of the diaspora in the total number of foreign patients was 81-100%. For $p > 0.05$, there was no significant association between the ownership of a dental office and the statement of the share of the diaspora in the total number of foreign tourists. In the study of Croatian dentists, there were coincidences with the time of treatment of foreigners, the share of foreigners in the total number of patients, as well as the share of foreign patients in the total income of the dental office [2].

Results related to the examined correlation between the answers to the analyzed questions and the number of dentists depending on the ownership of a dental office showed a very strong negative significant correlation ($p < 0.05$) indicating that the increase in the years of treatment of foreigners was accompanied by a significant decline in the number of dentists who did not own a dental office.

An identical result indicated that the increase in the percentage of patients made up of foreigners was accompanied by a significant decrease in the number of dentists who did not own a dental office ($p < 0.05$).

A very strong negative significant correlation ($p < 0.05$) indicated that the increase in the percentage of patients made up of foreigners was accompanied by a significant decrease in the number of office owners. For $p < 0.05$, a very strong negative significant correlation was found where the increase of the share that foreigners had in the total income of the dental office was accompanied by a significant decrease in the number of owners of a dental office. In the other relations of analyzed correlation, an insignificant negative correlation was found ($p > 0.05$).

Conclusion

The results have indicated that dental tourism has an impact on the activities in dental offices. For $p > 0.05$, there was no significant association between the ownership of a dental office and years of experience in working with foreigners, the statement of the percentage of foreigners in the total number of patients, the statement of the share of the diaspora in the total number of foreign tourists.

For $p < 0.05$, there was a significant association between the ownership of the dental office and the statement of the share of foreigners in the total revenue of the dental office.

There was a negative correlation between the answers to the analyzed questions and the number of dentists depending on the ownership of the office. The results have indicated that there is a basis for developing a national strategy for dental tourism in the Republic of North Macedonia.

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