

COMPARATIVE ASSESSMENT OF PREVENTIVE ATTITUDES AND ORAL HEALTH EVALUATION IN ROMANIAN AND FRENCH STUDENTS

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ABSTRACT

Aim of this study was the comparative assessment of the oral health of students of two different nationalities, focusing on behaviors, attitudes, level of knowledge and the correlation with the socio-economic level. In this regard, the objective of the study was the comparative analysis of the oral health level, through EGOHID system, diet and hygiene attitudes. Material and methods. The study was carried out on 260 Romanian and French students, divided into two equal groups. The study was performed by analyzing the data provided by a questionnaire, clinical examination, Cariogram program. Results. The results of the study indicate that the socio-economic level, which is much higher in French subjects, influences the level of oral hygiene, the intake of carbohydrates, the addressability to specialized services and the cariogenic risk. Conclusions There are differences in favor of the F students, but there are no differences between high and medium socio-economic status.

Keywords: oral health, prevention, DMFT, OHI, CPITN

INTRODUCTION

The World Health Organization (WHO) describes the carious lesion as "a localized pathological process of external origin, occurring after the eruption of the tooth. It is accompanied by softening of the hard tissues and evolves towards the formation of a cavity [1]. From a pathophysiological point of view, tooth decay is a multifactorial chronic bacterial disease, related to the presence of cariogenic bacteria that adhere and colonize dental surfaces [2]. Dental caries is a multifactorial disease caused by the interaction between the surface of the teeth, the bacterial biofilm (dental plaque) and the presence of sugar in the food. The dental plaque bacteria metabolize the sugars and produces acids that attack tooth enamel over time [3]. The evaluation of the oral health status has been carried out in numerous studies, but a comparative analysis of the dental hygiene habits, diet and the preventive attitudes of subjects of different nationalities has not been a common theme.

Thus the hypothesis did not prove that there is no significant difference between the studied groups. The testable hypothesis was that there are differences in habits and attitudes regarding oral hygiene, diet and dental-periodontal status between the analyzed groups. This study was initiated because we observed, during the general clinical examination of all students, that there are differences between their oral health statuses. Therefore, we wanted to perform a comparative analysis of two different cultural and social categories in order to evaluate the oral health status, habits, attitudes, behaviors and risk factors.

MATERIAL AND METHODS

The study was carried out on 260 students, who had been divided in two equal groups R and F. The study was conducted at the Oro-Dental Prevention Department of UMF GR. T. Popa Iasi-Romania Faculty of Dental Medicine. Data filling was done using the questionnaire method, based on clinical records and charts. The questionnaire was

based on general data and questions about oral hygiene and diet attitude, prosthesis treatment, orthodontic treatment, in generally included 43 questions. The data were introduced into data base and

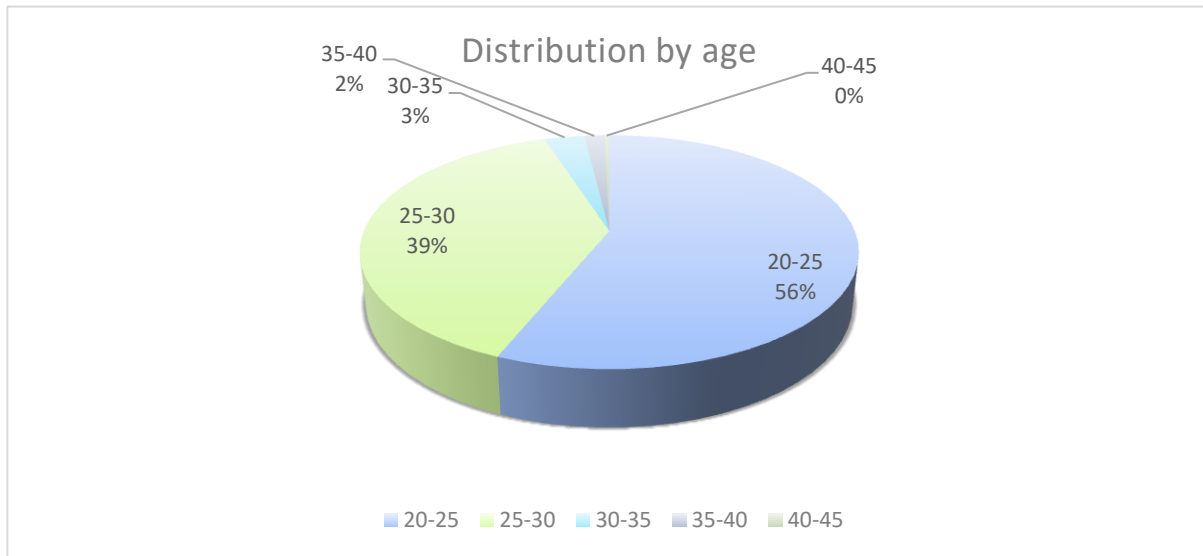
performed with SPSS14 for Windows, $p \leq 0.005$.

RESULTS

The study group comprised 260 students, 57.7% female and 42.3% male. The distribution by age groups is shown in figure 1.

Figure 1 Distribution by age

Regarding to the dental treatments performed, there is a significant difference, $p \leq 0.005$ with



Pearson's $R = -0.248$. for $df = 2$, only 13 subjects of R nationality had no treatment compared to 38 F students. Only 8 R and 16 F subjects visited the dentist several years

ago, the rest in approximately equal number having gone to the dentist in the current year or in the last year, significant differences $p = 0.145$ pour $df = 10$, $R = .125$. (Tab. 1).

Table 1 Distribution of answers to the question «What was the reason for your visit to the dentist? »in function by social level

		What was the reason for your visit to the dentist?						Total
		Check up	Dental pain	Treatment of cavities	Prosthetics	Dental extractions	Other treatments	
Social level	High	60	10	33	1	6	4	114
	Medium	51	2	44	1	5	9	112
	Low	11	2	17	1	1	2	34
Total		122	14	94	3	12	15	260

The analysis of the answers in the studied groups revealed significant differences especially in the values of the oral hygiene indices and of the dental status evaluation indices (tab.2)

Table 2 Comparative analysis of the answers between the studied groups.

No	Question	Differences from groups		
		p	df	R
1.	What was the reason for your visit to the dentist?	0.011	2	.185
2.	When was your last visit to the dentist?	0.011	2	.185
3.	How many times a day do you brush?	0.162	3	.106
4.	Do you brush your teeth using a recommended technique?	0.000	2	.269
5.	Do you use electric brushing	0.776	1	-.018
6.	Do you use floss?	0.001	1	-.00
7.	Do you experience gum bleeding when brushing?	0.771	1	-.018
8.	Do you use fluoride toothpaste?	0.092	1	-.00
9.	Do you use mouthwash?	0.001	1	-.211
10.	Have you ever done a descaling?	0.13	1	.085
11.	Have you ever done a professional brushing?	0.166	1	-.086
12.	Do you prefer hard foods?	0.385	1	.086
13.	Do you like sweets?	0.001	2	-.00
14.	When do you prefer to eat sweets?	0.037	1	.084
15.	Are you a smoker?	0.365	2	.075
16.	How many cigarettes do you smoke a day?	0.077	3	.123
17.	Do you wear a prosthesis?	0.046	1	-.00
18.	Type of prosthesis?	0.046	1	-.124
19.	Material by which the prosthesis is made?	0.053	3	-.00
20.	How many teeth are involved in the prosthesis?	0.472	3	-.207
21.	Cause of tooth loss?	0.373	1	.151
22.	Are you undergoing orthodontic treatment?	0.032	1	.133
23.	Type of orthodontic treatment?	0.160	1	.287
24.	Did you undergo orthodontic treatment?	0.542	1	-.067
25.	Are there any side effects following orthodontic treatment?	0.437	1	-.084
26.	Are you happy with the result of the orthodontic treatment?	0.000	1	-.00
27.	Oral Hygiene Index	.0320	3	-.006
28.	Detritus Index	.054	22	-.195
29.	Calculus Index	.010	32	-.056
30.	Quigley Hein index	0.005	42	-.050
31.	O'Leary Index	0.007	85	-.314
32.	Aproximal Plaque Index	0.007	79	-.317
33.	Sulcus Bleeding Index	0.000	23	.308
34.	Community Periodontal Index Treatments Needs	0.000	1	-.239
35.	Destroy Missing Filling Teeth (DMFT)	0.000	24	- 610
36.	Destroy Teeth (DT)	0.000	15	-.457
37.	Missing Teeth (DM)	0.000	5	-.184
38.	Filling Teeth (DF)	0.000	18	-.402
39.	Destroy Missing Filling Surfaces (DMFS)	0.000	44	-.523
40.	Destroy Surfaces (DS)	0.000	27	-.396
41.	Missing Surfaces (MS)	0.000	13	-.198

42.	Filling Surfaces (FS)	0.000	28	-.403
43.	Caries Risk Assessment	0.000	4	-.262

The revealed bacterial plaque evaluated by the O'Leary and API indices shows differences between students in favor of F students with an average value of 43% for O'Leary and 48% for API. Although both groups of students have bacterial plaque, R students have gingival inflammation values (evaluated by the SBI index) higher than F students. (Tab. 2 and 3)

Table 3 Evaluation according to social level for OHI DI CI , O'LEARY , API, SBI indices

Students		OHI	DI	CI	QH	O'LEARY	API	SBI
R	Mean	.3230	.2341	.3237	.8595	58.6692	65.3385	6.4077
	N	130	130	130	130	130	130	130
	Std. Deviation	.27080	.21969	1.40064	6.55750	24.00013	23.09755	10.51665
F	Mean	.3198	.1541	.2113	.4001	43.2385	48.7846	1.3846
	N	130	130	130	130	130	130	130
	Std. Deviation	.26461	.18244	.21598	.27357	22.81262	26.58436	3.21427
Total	Mean	.3214	.1941	.2675	.6298	50.9538	57.0615	3.8962
	N	260	260	260	260	260	260	260
	Std. Deviation	.26721	.20548	1.00175	4.63763	24.61404	26.20096	8.15870

For CPITN, the differences being statistically significant tab.3 with an average of the scores presented in tab.4. No difference between socio-economic status.

Table 4 Descriptive analysis of R and F students for the CPITN index

		CPITN				Total
		Score 1	Score 2	Score 3	Score 4	
Students	R	40	9	79	2	130
	F	58	30	41	1	130
Total		98	39	120	3	260

The average values for the DMFT and DMFS indices through the EGOHID system and their components are shown in Table 5, the differences being statistically significant

but depending on their socio-economic status the differences are not.

Table 5 Descriptive analysis for DMFT, DMFS through the EGOHID system

Students		DMFT	DT	MT	FT	DMFS	DS	MS	FS
R	Mean	11.00	4.83	.89	5.58	18.99	6.72	4.78	8.03
	N	130	130	130	130	130	130	130	130
	Std.	5.573	4.02	1.27	5.323	11.794	7.074	7.633	7.284

F	Deviation		7	1					
	Mean	3.85	1.41	.45	1.98	6.83	1.85	2.12	2.86
	N	130	130	130	130	130	130	130	130
	Std. Deviation	3.523	2.47	1.12	2.359	7.646	3.765	5.367	4.073
	Mean	7.42	3.12	.67	3.78	12.91	4.28	3.45	5.45
	N	260	260	260	260	260	260	260	260
F	Std. Deviation	5.873	3.75	1.21	4.488	11.642	6.159	6.719	6.434
	Mean		1	7					
	N								

The caries risk assessment shows differences between students that are statistically significant tab.2 with an average of the scores presented in tab.6.

Table 6 Caries risk assessment of R and F students

		Caries risk					Total
		None	Low	Medium	High	10	
Students	R	1	18	79	31	1	130
	F	1	49	67	13	0	130
Total		2	67	146	44	1	260

The information provided by the cariogram shows a reduced probability for avoiding the appearance of new caries for R students, the differences being statistically significant tab.2, but according to social status the differences are not significant. (p = 0.102 df = 126). (Tab.7). Also, for all the cariogram factors, the comparison between the students shows statistically significant differences:

for the cariogenic carbohydrates p = 0.002, df = 24, R = .318, for the bacteria p = 0.000, df = 23, R = .398, for the terrain factor, the cariogenic susceptibility of the host p = 0.005, df = 27, R = .162, for the circumstances p = 0.000, df = 13, R = .474. According to the socio-economic criteria for carbohydrate, there are no differences

Table 7 Descriptive analysis of R and F students for cariogram sectors evaluation

Students		P	CH	B	S	C
R	Mean	60.6154	10.0769	12.1000	12.2154	5.0308
	N	130	130	130	130	130
	Std. Deviation	14.07752	4.95971	4.48399	5.09443	2.84193
F	Mean	73.0692	6.5615	8.1000	10.0615	2.3077
	N	130	130	130	130	130
	Std. Deviation	16.96928	5.40600	4.76071	7.82240	2.19882
Total	Mean	66.8423	8.3192	10.1000	11.1385	3.6692
	N	260	260	260	260	260
	Std. Deviation	16.76461	5.46894	5.03171	6.67590	2.87953

P - Probability for avoiding the appearance of new caries, CH – Carbohydrates, B – Bacteria, S – Susceptibility, C - Circumstances

DISCUSSIONS

Our study set out to evaluate the oral health of students of two different nationalities by focusing on behaviors, attitudes and level of knowledge, in close correlation with the socio-economic level. For this purpose, we used a self-administered questionnaire that consisted of 43 questions, the OHI index for oral hygiene, DMFT and DMFS index through the EGOHID system, the QH, O'Leary, API index for dental plaque, SBI, CPITN indices for periodontal evaluation and the cariogram for the carious risk assessment. In our study the average age was between 20-30 years, most of the subjects were females and the majority came from a high and moderate socio-economic level. In regard to oral hygiene, we discovered that almost all of the subjects both F and R brushed their teeth regularly, the majority twice daily, although the number of students that brushed three times daily was double for the F. Overall, oral hygiene is good (twice daily R and three times daily F), the majority of students are using a recommended technique of manual brushing and the number of students who use electric brushing is equal in both groups. The majority of students use toothpaste with fluoride and mouthwash but, this use is in favor of the R students. The number of subjects who have prosthesis is double for the R students (R-23 and F-12) [4, 5] and also double for subjects who are undergoing orthodontic treatment in favor of the F students (F -59, R -22), results comparable with other studies [6] Although the results of the gingival bleeding index SBI are similar, the number of subjects with CPITN score 2 is two times higher for R students (79). The means for the OHI index is similar in both groups. The bacterial plaque index Quigley Hein is higher in R subjects (0.8595) and very high in both groups (0.9812) for the subjects with high socio-economic level. For

O'Leary, API and SBI indices there is a difference to the disadvantage of R subjects (O'Leary 58.66, API 65.33 and SBI 6.4) and for F subjects (O'Leary 43.23 API 48.79 and SBI 1.38). The evaluation of the DMFT index indicates a mean 11-R and 3.85-F and on the components there is a significant difference for the DT 4.83 to 1.41 and for MD 0.89 to 0.45 and for FT 5.58 to 1.98. The data given by the cariogram indicates a reduced probability to avoid the appearance of new carious lesions for the R students, the differences being statistically significant, but according to social status the differences are not significant. For all the factors that evaluate the carious risk, there are differences. Our results are consistent with other studies from 2010 and 2013 done on students in Yemen and India [7, 8]. Moreover, those same studies show that dental students in Udaipur district of India presented a DMFT score of 1.16 [7], whereas we discovered a much higher DMFT score in both our research groups (11 for the Rs and 7,42 for the F). Also, according to S Kumar's study, subjects who had a habit of brushing after every meal showed lower DMFT score (1.4) than those who brushed only once a day (1.64) [7]. Another study by M Cuculescu in 2019 indicated that most Swedes visit the dental office regularly, but only 50.5% of the Portuguese and 20.6% of the Rs do so [9]. However, our study showed that 53% of the R students and 63% of the F students visited the dentist in the last year. The same study [9] found that interdental cleaning aids and fluoridated toothpaste were used the most in Sweden and the least in Romania. Our findings indeed demonstrate that only 20% of the R students use electric tooth brushing and 42% floss their teeth regularly, but 87% of them use fluoridated toothpaste L. B. Messer, H. Calache at Melbourne Dental School, University of Melbourne, published an article in 2012 on oral health attitudes and

behaviors of final-year dental students [10]. Their study demonstrated that all subjects tooth-brushed with fluoride toothpaste and 80% brushed ≥ 2 /day. Among the results of our study is the fact that 73% of R students and 61% of F students brush their teeth twice daily. Somewhat discouragingly, a study by D R Smith and P A Leggat in 2010 [11] concluded that smoking remains quite common among dental students in countries such as Greece, Serbia, Romania and Hungary. Our own study found that only 25% of the R students and 30% of the F students do smoke.

CONCLUSIONS

There are differences in dentist visits frequency in favor of the F students, whereas R students had double dental treatment done, but there are no differences between high and medium socio-economic status. Oral hygiene index values are higher for R students. There are no differences between those who practice electric brushing and the use of mouthwash and interdental floss. The number of subjects who have a prosthesis is

double for the R students (R-23 and F-12). The number of subjects undergoing orthodontic treatment is double in favor of French students (F-59, R-22). Although the results of the SBI gingival bleeding index are similar, the number of subjects with CPITN 2 score is twice as high for R students (79), which makes the recommendation to establish hygiene programs with support given through health programs. Bacterial plaque index. The value of the Quigley Hein index is double in R subjects and very high in both groups for subjects with a high socio-economic level. The evaluation of the DMFT index indicates three times more carious lesions and restoration and two times more extractions to the detriment of the R students. The data given by the cariogram indicate a reduced probability of avoiding the appearance of new carious lesions for the R students, the differences being significant, but according to the social status no.

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