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Original Research Article

Postgraduate students' knowledge on oral health

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Abstract

Objective: This study aimed to evaluate the oral health knowledge of postgraduate students comparing the results according to the area (exact sciences, health and humanities). **Material and methods:** The descriptive study consisted of a questionnaire with 12 open and closed questions applied to 120 students enrolled in post-graduation courses at the University of Ribeirão Preto. All responses were analyzed using descriptive statistics and the comparison among the student's areas was performed using Chi-square test with 5% significance level of significance. **Results:** The results showed that the average age of participants was 30.8 years, but with statistically significant difference among the three areas (humanities - 32.8 years; health - 27 and exact - 30.8 years). The last visit to the dentist in the last 12 months for 48.7% of the graduates in the humanities, 69.0% in the health area and 74.4% in the exact area, in a private practice (43.6% of Human, 71.4% health and 79.5% exact area) ($p<0.05$). About what is plaque, 25.6% of graduates in humanities, 23.8% in health area, and 17.9% in exacts could not answer. Concerning to plaque removal, 43.6% of the humanity and health area graduate thought that only the dentist can remove it. Dental caries primarily occurs because of poor hygiene for 59.0% of the graduates in the humanities, 81.0% of health care and 69.2% of the exact area. About fluoride, most knew about their usefulness (prevention and protection), but 31.0% of the graduates in healthcare associated fluoride to cleaning. Statistically significant differences in the questions about knowledge were found. **Conclusion:** It was concluded that the knowledge presented by graduates was limited and incomplete, regardless of the area.

Introduction

Caries and periodontal disease are the main oral health problems in Brazil, not only by the high prevalence, but also due to their individual and community impact, affecting the quality of life [13].

Beside the biological risk factors, environmental factors are related to behavior and the personal habits, especially among people with unfavorable socioeconomic level, which refers to the importance of health education in the promotion of oral health as a way to establish preventive habits for these diseases [2].

The oral health education comprises actions aimed at the appropriation of knowledge about the health-disease process, including risk and protective factors to oral health [4]. Thus, education actions in oral health should not be limited to biological aspects, but should also be considered the social context.

Among the health education strategies, the supply of information is seen as a key element. Favorable outcomes targeted to health education range from increased knowledge and understanding of patients about their conditions, about their perceptions and experiences of the disease and treatment to impacts on health behavior and, consequently, the health status [6].

According to Menezes and Cavalcanti [14], the level of knowledge of the people about oral health is increasing, thus justifying an improvement in people's quality of life. Research conducted by the Brazilian Federal Council of Dentistry [5] showed that 72% of people go to the dentist at least once a year. In general, this percentage is good but the same study compared participants who have the habit of going to the dentist with those who do not have the habit and there emerge two distinct realities: the average age of those who do not go is 50 years (compared to 37 years among those who usually go at least once a year to the dentist), 67% have the basic education level (they are 32% among those who usually go), 64% have family income of up to two salaries minimum (they are 41% among those who usually go), 37% are D/E Class (compared to 14% among those who go to the dentist) and 35% live in the Northeast (compared to 26% among those who go to the dentist).

Differences between groups show that healthcare needs to be thought in a setting that there is a social dimension, because it is determined by the working conditions and the way of life. So the hypothesis of this study is that people who attended the university and then return to course specialization have good habits and positive knowledge about oral health.

The *lacto sensu* post-graduate or specialization course was created for the professionals with high education and aims at professional expertise and knowledge of a particular area in a specific way. It is recommended for those seeking a different qualification, to keep updated knowledge in the chosen field, focusing on the professional market.

This study aimed to evaluate the oral health knowledge of *lacto sensu* graduates by comparing the results according to the training area (exact, health, and humanity sciences).

Material and methods

This was a descriptive, quantitative and transversal study developed during the year 2013 in the city of Ribeirão Preto, Brazil. It consisted of a questionnaire in a sample of professionals enrolled in *lacto sensu* postgraduate courses of the University of Ribeirão Preto in different areas.

The study population consisted of graduates enrolled in a *lacto sensu* post-graduation course 2013. The convenience sample, i.e. composed by students who agreed in participating and signed the informed consent, totalized 120 students.

The data collection instrument was a semi structured questionnaire composed of 12 open and closed questions that was filled in the classroom. The questionnaire was developed for this study and could be divided into two parts. The first part was composed with questions for the characterization of the participant, such as gender, age and area of graduation, while the second part evaluated the habits and knowledge on oral health.

A questionnaire was used with some open questions to encourage the preservation of the multiplicity of information, avoiding targeting of responses. In the analysis, responses were grouped according to common terms used.

Before the final application, a pre-test with eight professionals selected randomly was conducted to change and/or adequacy of the questions to the study objectives. It was also performed the test-retest with the same pre-test professional, to confirm reproducibility of the questionnaire by applying the Kappa test according to the criteria proposed

by Landis and Koch [11]. The first and second applications were performed by the same investigator and with a seven-day interval between them. The agreement measured by Kappa test was 90%.

All responses were tabulated by Epi-Info Version 7 and analyzed using descriptive statistics, by absolute and relative frequencies. The comparison between the students' areas was performed using Chi-square test with level significance of 5%.

Results

The study sample consisted of 120 *lacto sensu* graduates. Of these, 39 did their undergraduate degree in the humanities, 42 in the health area and 39 in the exact area. The average age of participants was 30.8 (± 8.3) years, but with statistically significant difference ($p<0.05$) among areas (humanities with 32.8 ± 9.9 years, health area with 27.5 ± 4.2 years and exacts with 30.8 ± 7.5 years).

Table I shows the gender, access to dental treatment, and satisfaction with their teeth. Concerning to gender, there was greater participation of women, especially in health and humanities. The last visit to the dentist was carried out in the last 12 months and at private practice. Most were satisfied with their teeth, and the most dissatisfied occurred in the humanities.

Table I – Distribution of respondents according to person characteristics and habits on oral health (2013)

Question	Graduation in			
	Humanities	**Health**	**Exacts**	**p**
Gender				
Male	8 (20.5%)	4 (9.5%)	36 (92.3%)	0.000*
Female	31 (79.5%)	38 (90.5%)	3 (7.7%)	
Last visit to dentist				
Up to 1 year	19 (48.7%)	29 (69.0%)	29 (74.4%)	0.104
From 1 to 2 years	18 (46.2%)	9 (21.4%)	6 (15.4%)	
More than 2 years	1 (2.6%)	2 (4.8%)	2 (5.1%)	
Do not know	1 (2.6%)	2 (4.8%)	2 (5.1%)	
Type of service				
Private practice	17 (43.6%)	30 (71.4%)	31 (79.5%)	0.005*
Health insurance	15 (38.6%)	8 (19.0%)	8 (20.5%)	
Public health	7 (17.9%)	4 (9.5%)	0 (0.0%)	
Satisfaction with teeth				
Dissatisfied	9 (23.1%)	0 (0.0%)	2 (5.1%)	0.008*
Neither satisfied nor dissatisfied	7 (17.9%)	7 (16.7%)	10 (25.6%)	
Satisfied	19 (48.7%)	23 (54.8%)	19 (48.7%)	
Very satisfied	4 (10.3%)	12 (28.6%)	8 (20.5%)	

* Statistically significant difference, Chi-square test $p<0.05$

Table II highlights the answers on the dental plaque. All questions regarding these issues were with open answers and, therefore, each response was categorized into one of the items shown.

Table II – Distribution of answers on the knowledge on dental plaque (2013)

Question	Graduation in			
	Humanities	Health	Exacts	p
What is dental plaque?				
Bacteria	12 (30.8%)	12 (28.6%)	16 (41.0%)	0.945
Remains of food	9 (23.1%)	11 (26.2%)	10 (25.6%)	
Dirt	5 (12.8%)	6 (14.3%)	5 (12.8%)	
Other answers	3 (7.7%)	3 (7.1%)	1 (2.6%)	
Do not know	10 (25.6%)	10 (23.8%)	7 (17.9%)	
How can dental plaque be removed?				
Brushing	14 (35.9%)	21 (50.0%)	21 (53.8%)	0.615
By dentist	17 (43.6%)	14 (33.3%)	14 (35.9%)	
Do not know	8 (20.5%)	7 (16.7%)	4 (10.3%)	

About dental plaque or biofilm, a high percentage of respondents could not answer, while for 41.0% of graduates in exacts the plaque is the presence of bacteria. They were also cited food debris on the teeth and dirt that was not removed. Comparing the areas of student education there was no statistically significant difference.

About plaque removal, while half of the graduates in health and exact answered it is done through the hygiene of teeth, 43.6% of graduates in humanities said that only the dentist could perform it, but without statistically significant difference.

Table III shows the results on caries and fluoride. Dental caries arises primarily as a cause of poor hygiene. The presence of bacteria and food consumption with sucrose had low percentage of responses. About fluoride, it is observed that most knew about their usefulness (prevention and protection), but still some of the participants associated the fluoride to cleaning. About where the fluoride can be found, water and toothpaste were the most frequent answers.

Table III – Distribution of answers about knowledge on caries and fluoride (2013)

Question	Graduation in			
	Humanities	Health	Exacts	p
What causes caries?				
Poor hygiene	23 (59.0%)	34 (81.0%)	27 (69.2%)	0.071
Sweet foods	4 (10.3%)	3 (7.1%)	3 (7.7%)	
Bacteria in the mouth	10 (25.6%)	4 (9.5%)	3 (7.7%)	
Other answers	0 (0.0%)	0 (0.0%)	3 (7.7%)	
Do not know	2 (5.1%)	1 (2.4%)	3 (7.7%)	
Fluoride function				
Prevention	31 (79.5%)	24 (57.1%)	28 (71.8%)	0.171
Cleanliness	6 (15.4%)	13 (31.0%)	8 (20.5%)	
Other answers	1 (2.6%)	2 (4.8%)	1 (2.6%)	
Do not know	2 (4.8%)	3 (7.1%)	1 (2.6%)	
Where is fluoride found?				
Water	16 (41.0%)	7 (16.7%)	15 (38.5%)	0.095
Toothpaste	8 (20.5%)	16 (38.1%)	10 (25.6%)	
Rinse	2 (5.1%)	0 (0.0%)	1 (2.6%)	
Foods	3 (7.7%)	1 (2.4%)	0 (0.0%)	
Other answers	5 (12.8%)	6 (14.3%)	7 (17.9%)	
Do not know	5 (12.8%)	12 (28.6%)	6 (15.4%)	

Discussion

The population surveyed – students of *lacto sensu* post-graduation courses –, constituted a homogenous group with similar answers and without demonstrating greater knowledge from one area over the other with regard to knowledge about oral health.

They were young, and graduates in health care had the lowest average age, while the humanities had the higher age. A similar result at least in health area was also found by Maciel *et al.* [12], who when assessing graduates of specialized courses in family health found, on average, 51% of respondents aged 20-30 years old. The search for a specialization course may occur because professional necessity due to a job or just after graduation so that the student has better preparation to face the job market, so this low average age.

The last visit to the dentist occurred within 1 year prior to study enrollment for most participants and was almost always at a private practice, but without statistically significant difference among the areas. Graduates in humanities attended more dental insurance practices or the public practices than those graduate in health or exacts, who most attended private practice.

These data on access to dental treatment were expected, at least in the areas of health and exacts, because it is a young group with university education and conditions to cover either private or insurance fees. Menezes and Cavalcanti [14], evaluating students in the health area, obtained an annual rate of 88.5%. The results of this study in the fields of exacts and health, are closer to the figures released by the Brazilian Federal Council of Dentistry in the national survey conducted in 2014 [5], in which 72% went to the dentist in the last year; 70% of the appointments were in private practice.

Peres *et al.* [16] found that between 2003 and 2008 the use of dental services increased, while decreased the lack of access to these services. For the authors, the situation has improved due to socioeconomic factors and health sector, because the average income of the population and employment rates increased in the period, which may have influenced the demand for private care or agreements. In the same period, there was an increase in supply in the public sector with the Health Family Strategy and the implementation of specialized dental clinics.

The satisfaction with teeth showed difference between the participants. In the health area, the percentage of graduates satisfied or very satisfied reached 83.4%. Once again, students of the humanities were those with the highest percentage of dissatisfaction with the teeth (23.1%), which should be related to previous data access to dental treatment.

The Brazilian Oral Health Project in 2010, conducted by the Ministry of Health [3] across the country, revealed a different situation, with only 40.3% of respondents satisfied or very satisfied, while 37.8% were dissatisfied or very dissatisfied.

The perception of the people and the judgment of oral health are related to self-image, needs and the search for dental care. There is also evidence that the negative perception of health is related to indicators of social inequalities, highlighting the deleterious effects of social determinants on health [9].

Unfer and Saliba [19] surveyed users of public health services and 45.7% of them rated their oral health as regular. When asked about the reason of this perception, the respondents mentioned to present some necessity, mainly expressed by "Need of prosthesis", "I need root treatment", "I have decay", "I have gum problem", "I have to go to the dentist"; while 30% when considering your oral health as good, expressed "nothing bothers", "feel nothing", "I went to dentist", "good".

On the knowledge that students have on dental plaque or biofilm, it was observed that this is not a clear concept, with responses that overlap and do not adequately explained. The plaque is formed by microorganisms adhered to tooth surface. Santos *et al.* [17] stated that the dentists themselves are responsible for the confusion that people do, because when trying to explain the concept more easily use inappropriate terms such as "dirt" or "food remains".

Granville-Garcia *et al.* [10] also found large misinformation on dental plaque among elementary school teachers, with 58.5% of the participants of their study not knowing to answer about its constitution.

About plaque removal, lack of knowledge is evident when 43.6% of graduates in humanities said that only the dentist can perform it, which may show, as already mentioned by Santos *et al.* [17] that people can confuse plaque removal with the dental calculus.

Caries biological factors (diet, microorganisms, bad hygiene) appeared in the answers partially with the predominance of poor hygiene. The influence of diet on the occurrence of caries had a secondary role. According to Unfer and Saliba [19], the campaigns of candy manufacturers, promoting their products as natural, socially acceptable, and

linked to displays of affection, compete with big advantage over educational messages about the sugar consumption and oral health.

In the study of Santos *et al.* [17], only 20.4% of respondents associated caries and multifactorial process. Almas *et al.* [1] also found that caries is the result of incorrect brushing, according to 88% of their respondents. Ferreira *et al.* [7] studied pedagogy graduates and 55% of them cited poor hygiene and consumption of sugar.

Freire *et al.* [8], in a study on the oral health knowledge of pediatricians, observed that, in relation to the etiology of caries, doctors have knowledge about the biological factors, but none mentioned the social and economic determinants that influence installation and development of the disease. Bacterial factors were strongly related to caries, but the role of diet, on the other hand, was not recognized by most pediatricians. Moreover, most of who cited the diet reported food in general, and among those who cited the sugar (45.5%), none mention sucrose.

About fluoride, it is observed that most knew about their usefulness (prevention and protection), but 31.0% of graduates in health area associated fluoride to cleaning. Very researched, fluoride is an essential element in the control and prevention of caries and should be used by all people at all ages, in addition, it is important to be present steadily and in small concentrations in the oral cavity.

More than fluoride effectiveness, it is important to consider the perceptions that people have of their reality, so Ferreira *et al.* [7] called attention to one important aspect: the popularization of scientific knowledge, that is, although the benefits of fluoride to teeth is already known by dentists, information on oral health are still few disseminated among the general population

Morano *et al.* [15] verified the knowledge on oral health of a group of graduates in teaching and 76.9% of respondents said they would know to say how important the fluoride is to the teeth, but only 4.1% correctly answered about its importance. Unfer and Saliba [19], studied adult users of public health services found that 61.6% answered that fluoride protect teeth, and 20.5% did not know what to answer.

About which fluoride can be found, in water and toothpaste were the most prevalent answers, but 28.6% of graduates in health could not answer. Not knowing where fluoride can be found was also seen by Unfer and Saliba [19], in which 23.0% of the participants did not know how to answer. Draws attention in that study that 37.5% mentioned the pharmacy and 26.2% the dental office as a place to find fluoride.

Santos *et al.* [18], in a study with elementary school teachers, found that 53.3% answered water and 50.0% toothpaste.

This study was conducted with the *lacto sensu* post-graduate students of a single educational institution, by convenience sample. Thus, the results cannot be extrapolated to the general population or even for students from other institutions. Its importance lies in the fact that it was conducted in order to verify the knowledge on oral health and it was found that this is limited and incomplete. Even professionals trained in health care present similar knowledge in relation to graduates in the areas of humanities and exacts.

Conclusion

It was concluded that the knowledge presented by students was limited and incomplete, regardless of the training area.

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