

Students' appraisal of their dental education related to basic sciences learning: a comparison of four curricula in Norway and Brazil

Avaliação estudantil de sua formação odontológica relacionada ao aprendizado de ciências básicas: comparação de quatro currículos na Noruega e no Brasil

Abstract

Objective: The aim of the present study was to assess the dental students' opinion on the importance of basic sciences learning for their dental education.

Methods: Four dental curricula (two from Norway and two from Brazil) were evaluated. The University of Oslo (UiO) has changed its dental curriculum from a traditional system to a PBL format more integrated with the medical curriculum, whereas the Brazilian curricula are traditional. Sample comprised 22 students in training under the old curriculum (UiO-old) and 28 students under the new curriculum of the University of Oslo (UiO-new), and 25 students from each of the two evaluated Brazilian universities (UFRGS and ULBRA). Faculty heads of clinical and basic science disciplines also were interviewed (UiO n=17, UFRGS n=10, ULBRA n=13).

Results: Most dental students, particularly the UiO-new (75%), reported that basic sciences learning and training should be identical for dental and medical students. Anatomy and Pathology were rated the most important disciplines by the dental students, followed by Microbiology, Histology and Biochemistry.

Conclusion: It may be concluded that the importance of basic sciences is recognized by dental students in Brazil and in Norway independently from their dental curriculum.

Key words: Basic sciences; curriculum development; dental education

Resumo

Objetivo: O objetivo do presente estudo foi avaliar a opinião de estudantes de Odontologia a respeito do ensino de ciências básicas no currículo odontológico.

Metodologia: Quatro currículos (dois do Brasil e dois da Noruega) foram avaliados. Na Universidade de Oslo (UiO) a mudança de currículo estava ocorrendo, de uma abordagem mais tradicional para uma mais integrada e com aprendizado baseado no problema (PBL). Os currículos brasileiros são tradicionais. A amostra foi constituída por 22 estudantes do currículo antigo (UiO-antigo) e 28 estudantes do novo currículo da Universidade de Oslo (UiO-novo) e por 25 estudantes de cada uma das universidades brasileiras avaliadas (UFRGS e ULBRA). As opiniões dos chefes de disciplina também foram coletadas (UiO n=17, UFRGS n=10, ULBRA n=13).

Resultados: A maioria dos estudantes, principalmente UiO-novo (75%), relatou que o ensino e o treinamento biológico básico deveriam ser idênticos para estudantes de medicina e de odontologia. Anatomia e Patologia foram consideradas as ciências básicas mais importantes pelos estudantes, seguidas por Microbiologia, Histologia e Bioquímica.

Conclusão: Pode-se concluir que a importância das disciplinas básicas é reconhecida pelos estudantes de Odontologia na Noruega e no Brasil independentemente do modelo curricular.

Palavras-chave: Ciências básicas; desenvolvimento de currículo; educação odontológica

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Introduction

Dental curricula in various universities around the world have undergone several modifications throughout the years. These changes have been based on efforts to achieve better outcomes of dental education, populational changes of prevalence and severity of dental diseases as well as treatment expectations among the general public. Historically, Dentistry has been established as a branch of Medicine, although it has become an independent professional area in most places. In recent years a tendency to include more general medical aspects in the dental curriculum has emerged (1,2). A traditional approach has been to teach basic and clinical disciplines separately and with little emphasis on general medical aspects.

The Faculty of Dentistry at University of Oslo (UiO), in Norway, has recently changed the dental curriculum from a traditional format to another that integrates medical and dental students during the first two years. The clinical training has become integrated and interdisciplinary. When the present investigation took place part of the alumni was in training under the old curriculum while others were under the new curriculum.

In Brazil, this study evaluated two dental schools located in the South of Brazil: one centenarian public school (Universidade Federal do Rio Grande do Sul – UFRGS) and one private school established approximately 15 years ago (Universidade Luterana do Brasil – ULBRA). Their curricula at the moment of this study were quite similar, although the social/educational background of the students varied. Since there are no tuition fees at UFRGS, the selection process is highly competitive, and the dental students usually exhibit excellent performance in pre-university education. On the other hand, the relatively high tuition fees at the private dental school ULBRA cause selection of students with different profile from UFRGS. Both Brazilian universities adopt the traditional dental curriculum, where basic sciences are taught in separate disciplines with a large amount of theoretical information and little emphasis on aspects of clinical importance for dentists. Clinical teaching is generally fragmented in discipline-oriented clinics, where students treat patients for only specific problems related to that particular specialty. These curricula are similar to the old curriculum of UiO, and there is no integration with the medical curriculum.

The aim of the present study was to compare the perceptions of dental students and faculty from UiO, UFRGS, and ULBRA, on the teaching/learning process of basic sciences and their importance for dental education.

Methods

Study population

The study population comprised dental students and faculty from three dental schools: University of Oslo (UiO), in Oslo, Norway; UFRGS, in Porto Alegre, RS, Brazil, and ULBRA, in Canoas, RS, Brazil. The students from UiO were divided into two groups according to their dental

curriculum (old or new). Sample comprised students available to answer the survey questionnaire and was composed as follows: 22 senior students from UiO who were in training according to the old curriculum (UiO-old); 28 junior students from UiO under the new curriculum (UiO-new), and 25 senior students in each of the Brazilian universities. Faculty surveyed included the heads of clinical and basic sciences disciplines in each university: 17 from UiO, 10 from UFRGS, and 13 from ULBRA.

Procedures

A questionnaire with open and closed questions was constructed with questions on students' perceptions of their dental education regarding basic sciences teaching/learning. The questionnaire was developed after a pilot test with students who were not targets of the present investigation; they also helped the research team to decide which answers should be accounted for the closed questions. Students were asked to answer the questionnaire form, and a member of the research team fluent in both Portuguese and Norwegian languages was always present to solve any doubts.

Data were collected and analyzed by descriptive statistics as relative frequency (per cent) of answers for selected questions. In some cases, groups of answers were merged to facilitate interpretation.

Results

Figure 1 displays the students' opinion about the need of similar basic sciences teaching/learning for dentists and medical doctors. The majority of dental students in Norway and Brazil reported that dentists and medical doctors should have the same level of training in basic sciences. The Brazilian students from the private university (ULBRA) had a slightly different opinion on this topic, although more than 50% agreed with the overall opinion. The Norwegian students under the new curriculum showed the highest percentage of students in favor of similar training in basic sciences for dental and medical students. More than 80% of the teachers from all dental schools voted for similar basic education (data not shown).

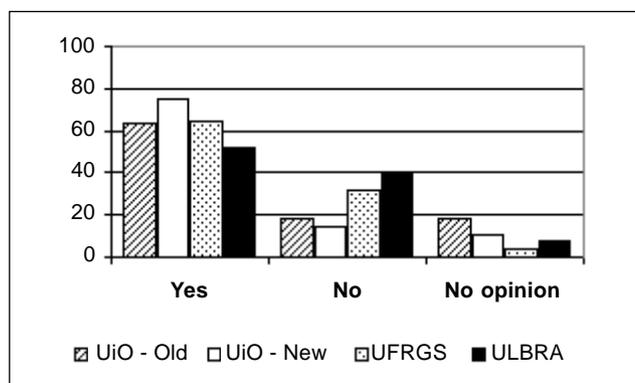
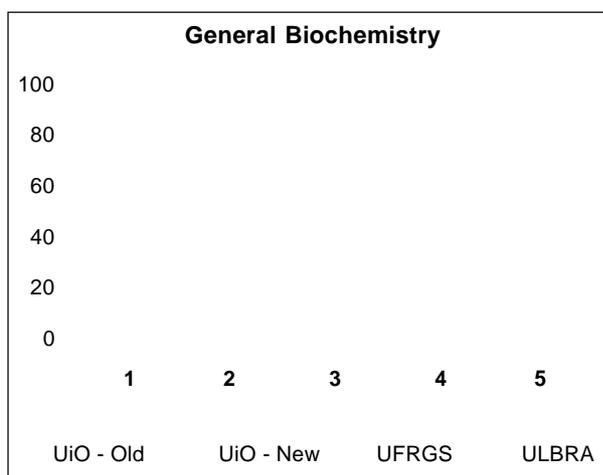
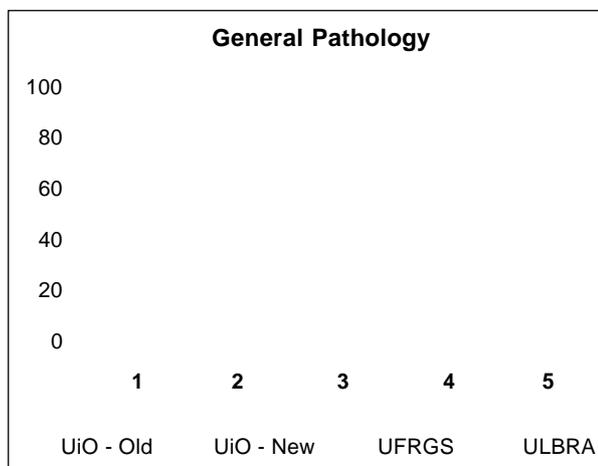
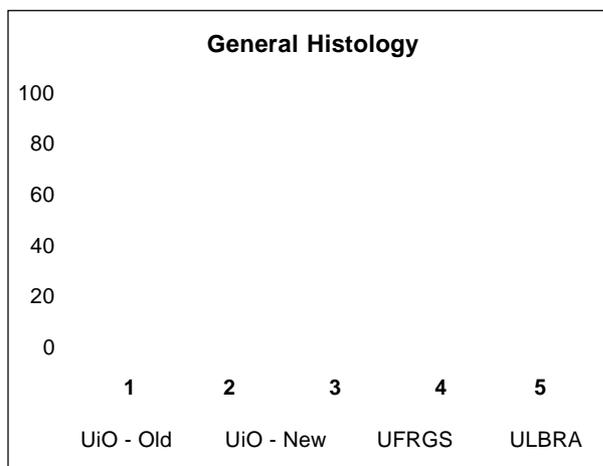
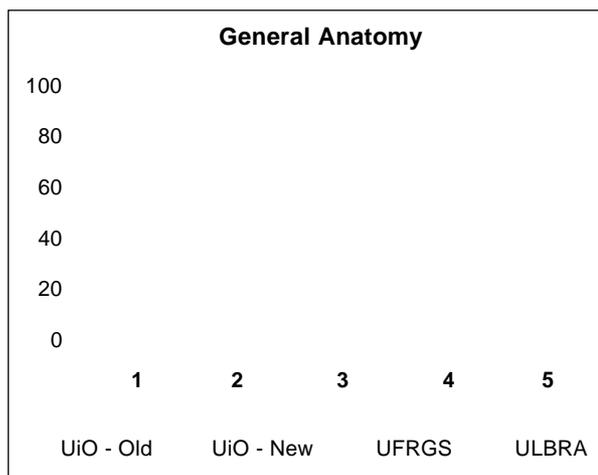
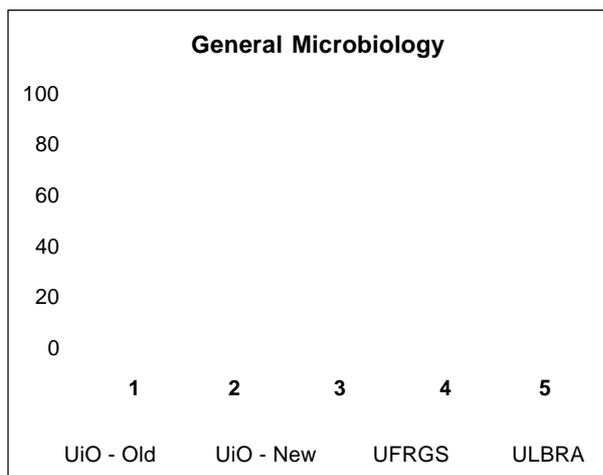


Fig. 1. Students' answers for the question: "Should the biological training for a dentist be the same as for a medical doctor?"

Figure 2 shows how students rated the importance of some basic biological disciplines. Merging scores 4+5, General Microbiology was considered important by 55% of the Norwegian students (with little difference between the two curricula subgroups) and by 32-44% of the Brazilian students. For General Anatomy, 72-92% agreed that this discipline was important, particularly among the Brazilian students. A large variation of responses was found for General Histology; students under the new curriculum in UiO gave more importance to this discipline (32%)

compared to only 9% of students under the old curriculum. Brazilians students rated General Histology higher (48 and 64%) than the Norwegian students. Similar answers were computed for General Biochemistry when the old and new curricula in UiO were compared. However, Brazilian answers showed less variation than those reported for General Histology. General Pathology (similarly to General Anatomy) was considered very important by all dental students, and the 4+5 scores ranged from 77 to 100%.



Discussion

The present study was conducted in three dental schools with distinct curricula. A convenience sample was used based on students' availability to answer the questionnaire. Due to upcoming exams and other personal reasons, some eligible students were reluctant to spend too much time on interviews. Therefore, the response rate of eligible students varied from 48-93%.

No gold-standard questionnaire was available for the purpose of this investigation. Thus, the research instrument was constructed based on interviews with some students and teachers from the three evaluated dental schools, but they were not included in the final investigation and data analysis. Also, to overcome any potential cross-cultural differences in the understanding of the questions, the questionnaire was previously tested among students not interviewed for the ultimate survey.

This study found that dental students who were in training under all types of curriculum regarded basic sciences learning and training as equally important for dentists and medical doctors. Dental faculty had similar opinion. This may reflect that modern Dentistry is highly concerned with general medical and health aspects of dental patients. In UiO, students followed two different dental curricula and had had basic sciences training in different format, yet both groups rated basic sciences as important disciplines for their professional education. However, students under the new curriculum seemed to consider basic sciences more important than the other students.

In Southern Europe, basic sciences have been mainly taught in a traditional fashion (3). The Faculty of Dentistry in Malmö, Sweden, was probably the first dental school to adopt an integrated curriculum with emphasis on PBL. Evaluation of this new curriculum showed that results are promising (4), although the basic training is not identical

to that for a medical doctor. A survey performed in ten dental schools in Nordic countries (5) showed that dental curricula are structured in different ways, mainly in specific subjects, with few integrated disciplines. In some dental schools, basic sciences are taught in a theme-based mode and/or integrated with the clinics. In the present study, the students in training under this new approach in Oslo seemed to appreciate that the biological training of a dentist was similar to that of a medical doctor.

Among the assessed basic sciences, General Pathology was considered the most important discipline by the four student groups. Also, Anatomy was highly rated. The Norwegian students appreciated General Microbiology regardless of their curriculum. On the other hand, Brazilian students seemed to prefer Histology. Students under the three traditional curricula reported that basic sciences are very important, although the order of importance tended to vary. This may be dependent on the type of curriculum, but cultural differences and tradition may also play a role. The enthusiasm of teachers could also have affected the students' responses. In Norway, more students under the new curriculum of UiO considered Histology and Biochemistry as important disciplines for their education (6-8). This can be a positive aspect to use everyday problems as a trigger theme in PBL activities. On the other hand, some studies suggested that the final learning outcomes may not be much different between the traditional and PBL-based curricula (2,9), which requires further investigation.

Conclusions

The findings of this study support the dental students' perceptions on the importance of basic sciences teaching/learning for dental education. A number of cultural differences affecting responses were detected and should be considered when changes in dental curricula are planned.

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