

Stomatology and odontology: perspectives of Spanish professors and senior lecturers in dentistry

J. Seoane¹, P. Diz-Dios¹, A. Martinez-Insua¹, P. Varela-Centelles¹ and D. A. Nash²

¹ Department of Stomatology, Faculty of Dentistry, University of Santiago de Compostela, Santiago de Compostela, Spain,

² Pediatric Dentistry, College of Dentistry, University of Kentucky, KY, USA

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Correspondence

J. Seoane

Faculty of Dentistry

University of Santiago de Compostela

San Francisco S/N

E-15782 Santiago de Compostela

Spain

Tel: 34 98 15 63100

Fax: 34 98 15 62226

e-mail: jseoanel@usc.es

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Abstract

The curricula of dental faculties in many countries of the European Union can be described as odontological. The faculties of some of the countries who have become and are becoming members of the European Community have traditionally educated dentists in the stomatological tradition. In 1987, the Spanish dental education system initiated movement from the stomatological model to the odontological. Both models have their respective strengths and weaknesses. This study surveyed professors and senior lecturers in Spain's public dental faculties to assess their perspectives on 10 items related to the tension between the odontological and the stomatological approach to preparing dentists. Amongst other things, the results of the study indicate that the respondents believe the odontological model, with its emphasis on strengthening technical qualifications, may not prepare individuals for dental practice better than the stomatology tradition; and that the odontological model results in the loss of the strength of the stomatological model, that is, the strong foundation in clinical medicine. The suggestion is advanced that European dental educators consider revising the odontology curriculum to strengthen the education of dental students in clinical medicine. A curriculum in which dental and medical students share the first 3 years of study could accomplish this. It is further suggested that subsequent years in the curriculum be flexible enough for students to earn degrees in both dentistry and medicine, if desired. Such an approach is not inconsistent with the accepted profile and competencies of the European dentist.

Introduction

The curricula of many of the dental faculties in the countries of the European Union can be described as odontological, that is, they are autonomous disciplinary programmes of five academic years resulting in the registration of graduates as dentists. An odontological approach to dental education is to be contrasted with a stomatological curriculum, in which individuals desiring to become dentists complete a degree in medicine, and then specialise in dentistry (1). Typically, stomatological programmes are of 8 years duration; 6 years spent studying general medicine, followed by 2 years of study in dentistry. The dental faculties in some of the countries that have become members of the European Community, and others that are in the process of becoming members, have traditionally educated dentists in the stomatological tradition (2).

Participation in the European Union requires that countries with programmes of dental education in the stomatological tradition move to the odontological model (3). This is necessary to ensure an equivalency of education across the European

Community, with the resultant potential for complete mobility of dentists. Additional reasons justifying the transformation have been to effect a reduction in the length of study for dentistry, and to potentially improve access to care for the public (2).

Both models of dental education have their respective advantages and disadvantages. It is thought that the stomatological tradition results in inadequate training in the technical aspects of clinical dentistry; and that the odontological model suffers from an inadequacy of instruction in clinical medicine, resulting in dentists failing to have an adequate understanding of the pathophysiology of their patients (2). Amongst the strengths of stomatology is instruction in the core of clinical medicine received by the aspiring dentist. Identified strengths of odontological programmes are that faculties provide thorough education in the clinical dental disciplines. Additional advantages presumed for odontology include the better quality of equipment and clinical facilities, better organised dental departments, and frequent opportunities for student and faculty exchanges amongst dental faculties (2). Whilst these qualities have

possibly been more characteristic of the odontological approach to dental education, they are not an inherent or intrinsic advantage of it.

Scott has observed that as faculties in the stomatological tradition are questioning the need for the breadth and depth of the biomedical science and clinical medicine courses in their dental programmes, there is a realisation amongst the odontological faculties of the importance of strengthening the human diseases elements in their curriculum (4). Currently, the Netherlands is transitioning to a 6-year curriculum to effect such a strengthening (5, 6).

As dental educators continue to address how to ensure that the European dentist has the requisite competencies to provide optimal care for patients, the strengths and weaknesses of each tradition should be considered and a model of dental education developed that results in a curriculum maximising the respective strengths of each approach whilst minimising their respective weaknesses.

In Spain, an odontological approach to education for dental practice was established in 1901 (7). In 1948, historical circumstances resulted in movement to a stomatological approach (8). However, for political and economic reasons, Spanish dental education adopted the odontology model in 1987 in the context of joining the European Community. Thus dentistry ceased to be a medical specialty in Spain, and became an independent profession (2).

Such a transformation is not unique to Spanish dental education, as several European dental faculties have moved from the stomatological model to the more autonomous odontological one (9). Spain is somewhat unusual in that these changes have occurred relatively recently, and over such a brief period of time that both programmes and degrees co-existed simultaneously. This permits a perspective on dental education that may contribute to the discussion carried out by the European Community of the tensions existing between these two approaches to educating dentists (4, 10).

This study investigated the opinions of Spanish professors and senior lecturers in dentistry regarding the relative differences between stomatology and odontology in preparing individuals to practise dentistry.

Methods and materials

An analytical, descriptive, cross-sectional survey was conducted using a self-administered, anonymous questionnaire mailed to all of the 206 professors and senior lecturers in dentistry at the nine public dental faculties in Spain. The survey instrument had been tested by being administered to members of the dental faculty at the University of Santiago de Compostela, and modifications were made prior to distributing to the study population.

The mailing included an explanatory letter along with the research instrument (Table 1) asking the dental educators to respond to 10 statements regarding distinctions between the odontological and stomatological curricula as they have been experienced in Spain. The respondents were asked to identify their views on each statement on a Likert scale, from 'absolute agreement - 1' to 'absolute disagreement - 5'.

Demographic information was also requested from the respondents including: university from which graduated;

TABLE 1. Statements proposed and Likert scale for answers

Likert scale	
Absolutely agree	Agree Don't know Disagree Absolutely disagree
Questions	
1	Medical terms are difficult for third, fourth or fifth year dental students to understand
2	Dental students show less interest in 'medical-surgical' disciplines than 'dental' ones
3	The dental student does not feel confident when treating medically-compromised patients
4	The age of dental students is a limiting factor for achieving educational objectives
5	Odontologists are better trained than stomatologists for clinical dental practice
6	Medical training improves the dentist-patient relationship
7	In my opinion, medical training increases the quality of the dental treatment
8	It is necessary to increase the hours devoted to medical training in the dental courses
9	It would be convenient to establish a system by which dental students could obtain a medical degree
10	It would be convenient to establish a system by which medical students could obtain a dental degree

professional and academic status; discipline taught; and years of teaching experience. A self-addressed, stamped envelope was included for responding. A follow-up letter was sent 2 weeks after the initial questionnaire.

Statistical analyses were performed on the results of the survey using a chi-squared and/or Fisher's exact test. The significance level chosen for all tests was $P \leq 0.05$.

Results

The questionnaire was sent to the 41 professors and 165 senior lecturers in dentistry. Responses were received from 104 individuals, for an overall response rate of 50.4%; 50.9% from professors and 48.7% from senior lecturers.

Most respondents, that is 82.6%, qualified as stomatologists, with 15.5% qualifying as oral and maxillo-facial surgeons. Only 1.9% of the respondents were odontologists. This reflects the small number of odontologists in Spanish faculties, and is a consequence of the relatively recent introduction of odontology education in Spain.

Thirty-four respondents (32.7%) were involved in teaching 'medical-surgical' dental disciplines (oral medicine, oral surgery, periodontology and special needs dentistry), whereas 90 respondents (67.3%) taught 'dental' subjects (all other dental courses). Eighty-eight of the respondents (84.6%) had previously been involved in teaching in the stomatology curriculum. The results are displayed graphically in Figs 1-5.

Three-quarters of the respondents agreed that 'medical terms are difficult for third, fourth and fifth year dental students to understand' (Fig. 1). This result was independent of the

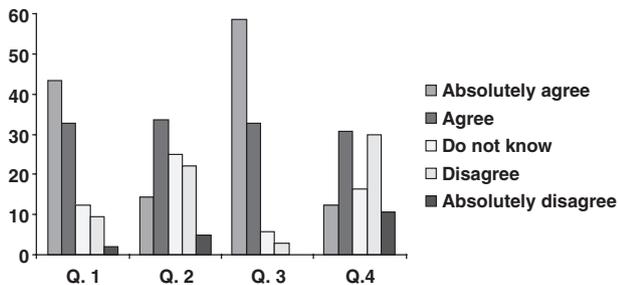


Fig. 1. Respondents' assessments of dental students.

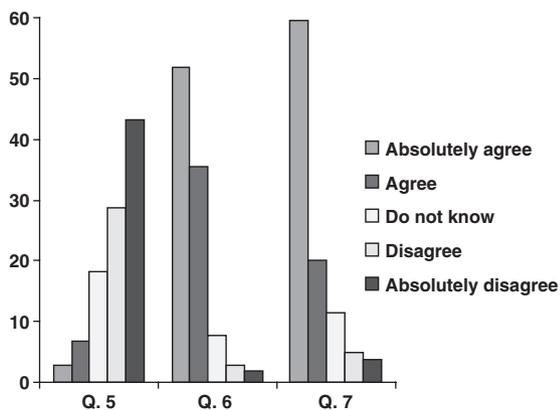


Fig. 2. Respondents' assessments of practice outcomes.

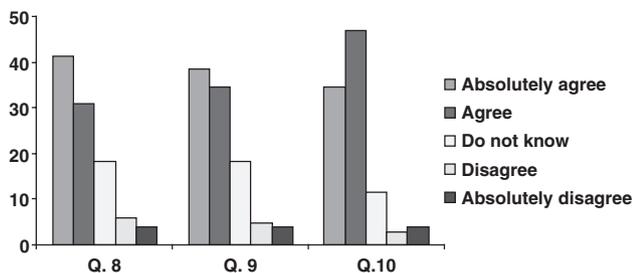


Fig. 3. Respondents' assessments of educational uses.

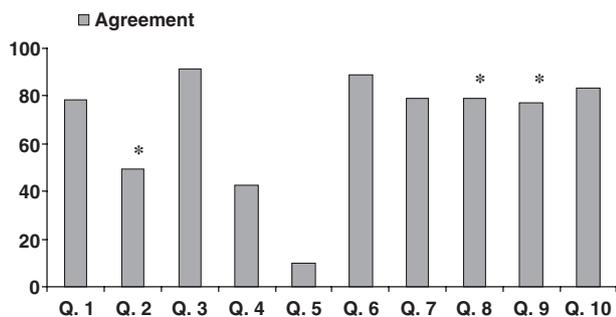


Fig. 4. Percentage agreement with each statement, with indication of statistically significant differences existing between respondents by discipline taught, medico-surgical or dental. *Statistically significant.

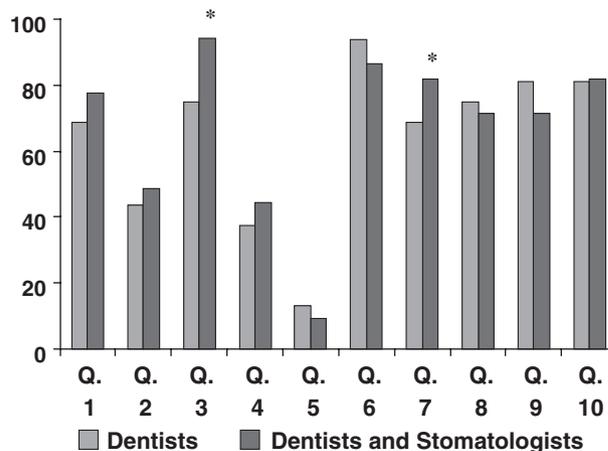


Fig. 5. Results for each statement by teaching experience of respondents. *Statistically significant.

respondents, teaching experience, or the discipline area in which they taught, that is whether 'medical-surgical' or 'dental'.

Faculty members believed dental students are more interested in 'dental' subjects than in 'medical-surgical' ones, although this agreement was weak, with 49 individuals affirming the statement, 28 disagreeing with it and 26 holding no particular view (Fig. 1). There was, however, a significant difference ($P = 0.027$) between those teaching 'medical-surgical' subjects and those teaching 'dental topics', with those teaching 'dental' subjects more strongly supporting the statement (Fig. 4).

The statement that 'dental students do not feel confident when treating medically compromised patients' was affirmed by 91.4% of the respondents, regardless of their discipline area (Fig. 1). This view was significantly more common ($P = 0.003$) amongst those who had taught both stomatological and odontological students (Fig. 5).

The respondents were polarised on the fourth statement 'the age of dental students is a limiting factor for achieving educational objectives'. The statement was agreed with by 45 respondents, but disagreed with by 42 (Fig. 1). There were no statistically significant differences between those who taught 'medical-surgical' disciplines or 'dental' disciplines, or between those who had taught stomatology students and those who had not.

A significant number of the respondents, 72.1%, did not agree with the statement, 'odontologists are better trained than stomatologists for clinical dental practice' (Fig. 2). No differences of opinion were identified between the two discipline groups, or between those who had taught in a stomatology curriculum and those who had not.

Almost 90% (91/104) of the sample agreed with the statement that medical training improves the dentist-patient relationship (Fig. 2). No statistically significant differences were observed between any of the subgroups considered in the analysis.

A similar result was found for the statement, 'medical training increases the quality of the dental treatment', with 83 of 104 (79.8%) concurring with the statement (Fig. 2). The agree-

ment was stronger amongst those who had previously taught in the stomatology curriculum ($P = 0.007$) (Fig. 5).

Seventy-five of the 104 respondents (72.1%) agreed 'it is necessary to increase the hours devoted to medical training in the undergraduate dental curriculum' (Fig. 3). This need is felt more significantly by those engaged in teaching 'medical-surgical' disciplines ($P = 0.007$), but was not correlated with the teaching experience in a stomatology curriculum by respondents (Fig. 4).

The final two statements of the questionnaire were whether dental students should be given the opportunity to obtain a medical degree; and the corollary, whether medical students should be given an opportunity to earn a dental degree. There was strong agreement with these statements, regardless of whether the respondent had ever taught stomatology students, and irrespective of the teaching area of the respondent. Seventy-six of 104 (73.1%) agreed that dental students should be able to earn a medical degree, and 85 of 104 (81.7%) agreed that medical students should be able to earn a dental degree (Fig. 3). Those involved in teaching 'medical-surgical' disciplines were significantly more likely ($P = 0.004$) to agree with establishing a mechanism for dental students to earn a medical degree (Fig. 4). A significant difference between the respondents by discipline area did not exist when the opposite possibility was considered, that is for medical students earning a dental degree.

Discussion

The response rate obtained in this study was similar to ones described in studies with the same design performed amongst health professionals in Spain (11), and the sample analysed is consistent with the universe studied.

It should be noted, when considering the results of this survey, that the overwhelming majority of the participants were educated as stomatologists, as stomatologists comprise the majority of professors and senior lecturers in Spain's faculties of dentistry. Whilst the responses reflect a bias towards stomatology based on the predominance of stomatologists responding, and their favouring of their own education, it does not bias the results as the intention of the study was to assess the opinions of Spain's professors and senior lecturers.

The respondents agreed with the statement that dental students have difficulty in understanding medical terms. Lecturers on 'dental' subjects, as well as those in 'medical-surgical' disciplines observed this difficulty. This circumstance suggests this may be caused by less instruction in biomedical science and clinical medicine in odontological education. This may contribute to the difficulties observed in communication between dentists and physicians in clinical practice (12). Discussion of patient care with physicians should be a routine activity for dentists, as such communication helps prevent medical emergencies or undesired outcomes of dental treatment. With the increase in the number of elderly and medically compromised patients, contemporary dentists must have a more comprehensive understanding of, and appreciation for, pathophysiology and clinical pharmacology, and be able to confer effectively with physicians in providing care for their patients.

When it was suggested that dental students show less interest in 'medical-surgical' disciplines than in 'dental' ones, some agreement was observed. Instructors of 'dental' subjects

supported this view more strongly than those engaged in teaching 'medical-surgical' subjects. Such a result may be expected as students preparing for the profession of dentistry would likely be predisposed to demonstrating more interest in instructional areas they perceive to be more directly relevant to the everyday practice of dentistry. However, it is also possible that instructors in 'dental' courses were expressing a bias favouring their course content by students.

When probing whether dental students were insecure treating medically compromised patients, there was strong agreement in the affirmative, with no differences between those teaching 'dental' or 'medical-surgical' subjects. It is assumed that when students initially encounter patients they may feel insecure, independent of the circumstances of the patient. However, it is even more the case when patients have underlying health problems. A strong educational background in medicine should permit the student to manage such patients more confidently. Those who had experience in teaching stomatology students demonstrated a significantly stronger agreement that dental students were insecure when encountering biologically or pharmacologically compromised patients. Their stronger support for this statement could reflect an underlying perspective that students who had prepared for dental practice in the stomatology curriculum did not feel as uncomfortable when managing the dental care of the medically compromised patient.

The respondents were polarised regarding the impact the age of dental students had on the achievement of educational objectives of the odontological curriculum. In the stomatological model, students entered the study of dentistry at an older age. The absence of any significant trends amongst the subgroups in the study makes it difficult to assess further what this means, other than that there is random disagreement.

The respondents strongly agreed with the affirmation that odontologists are not better prepared than stomatologists for clinical dental practice. It appears to be the perspective of this study's subjects that the odontological model, with its emphasis and strength being preparing more technically qualified practitioners, does not prepare individuals for dental practice any better than the stomatology tradition. And, the model potentially results in the loss of a strength of the stomatological model, that is, the strong foundation in clinical medicine.

There was agreement amongst the respondents for the view that completing the core of medical education improves the dentist-patient relationship. The clinician-patient relationship has multiple components: time (dentist-patient encounter), container (individuals in the relationship) and contents (patient needs and health demands) (13). In this regard, the odontology curricula in Spain have increasingly incorporated credits on the dentist-patient relationship to overcome this deficiency.

Most respondents shared the opinion that basic medical education increases the quality of dental treatment. This opinion is common to teachers of both 'dental' and 'medical-surgical' subjects. However, there is a statistically significant difference between those who have taught stomatologists and those who have not, with this view being more strongly supported by the former. This response could relate to the fact that the odontological and stomatological approaches to dental education can produce different expectations and standards, which may be difficult to reconcile (14).

'Medical-surgical' disciplines, including 'dentistry for patients with special needs', account for 15% of the compulsory credits of the final 3 years of the dental curriculum in Spain (15). When the question was posed as to whether dental curricula should have more credits devoted to medical training, the respondents agreed that this should be the case. Those engaged in teaching 'medical-surgical' subjects were significantly more likely to desire modifications of the curriculum in this regard.

Future dentists must be prepared to collaborate as partners with physicians in the treatment of the increasing number of elderly and medically compromised patients (16, 17). This circumstance requires that medical subjects in the dental curriculum gain greater importance and prominence (2). Reinforcement of communication competencies with colleagues (medical terms) and patients, competencies in the diagnosis and treatment of oral manifestations of systemic diseases, and management of special needs patients could improve the approach and synergy amongst the two traditions, odontology and stomatology. There is a recognised need to increase the breadth and depth of preparation of future dentists; including more internal medicine and clinical pharmacology, more immunology, more genetics and new levels of sophistication in communication skills and clinical decision making (18, 19). The increasing research suggesting an association between oral and systemic diseases further intensifies the need for curricula that are grounded in a strong background in the biological and core medical sciences (20). It is increasingly recognised that the treatment of oral disease is becoming more medical and less surgical (21). These issues should be addressed by any reforms seeking to improve dental education, and to help inculcate a culture of science in dental education (22, 23). Inadequate training in the biological sciences and medicine for dental students has recently been called 'an impending crisis for dentistry' (24).

The faculty surveyed agreed with the desirability of establishing systems by which dental students could obtain a medical degree, and medical students could obtain a degree in dentistry. This view was significantly stronger amongst those engaged in teaching 'medical-surgical' disciplines. This perspective agrees with the need expressed by leaders in the field of dental education to educate future dental professionals for the more sophisticated dimensions of dental practice which will occur in future, as well as to be the leaders of a team of trained allied dental professionals rendering the less sophisticated dimensions of care (25).

In the United States, the term 'oral physician' is being used to characterise one educated in medicine and dentistry, rather than the term stomatologist, which has been used in Europe (21). The debate continues amongst American educators as to whether the dentist of the future needs to be an oral physician, trained in both medicine and dentistry (26-30). The Case Western Reserve University in Cleveland, Ohio, is launching a dentist (DMD)/physician (MD) curriculum for the 2007-2008 academic year in which students can earn both degrees by participating in a 5-year curriculum (31). In the United States, dental education begins after 4 years of college (higher education). The practice of dentistry has always been characterised both by its closeness to the practice of medicine, yet its distinc-

tiveness from it. Thus, whilst it is universally acknowledged that dentists should subscribe fully to the core values of the physician, certain features of the practice of dentistry have ensured that its identity as a separate profession has been maintained (25). However, conceptually, dentistry is not a discipline distinct from medicine; dentistry is medicine (21). Whilst the results of this survey do not suggest a return to the stomatological model, the experience of dental educators in Spain unequivocally recommends an increase in medical training in the dental (odontology) curriculum.

In such a curriculum, dental students could share the first 3 years of their education with medical students (21). Such an organisation of dental curricula could allow, after the first 3 years, for students to choose either dentistry or medicine for their further education, or even use their 'free allocation credits' to obtain both the degrees. It would also ensure that education in the biomedical sciences and core of clinical medicine are comparable for dentists and physicians. An additional advantage would be to facilitate the education of oral and maxillo-facial surgeons. In this structure, dental students could obtain a medical degree, and medical students too could obtain a dental degree; ideas strongly supported by this study's respondents. Such a curriculum change would provide better integration of education for medical and dental professionals, a goal that has been recommended (19, 20, 32).

Recently, the European Union, through the DentEd project, in co-operation with the Association for Dental Education in Europe has adopted a profile and competencies of the European dentist. (33) An advantage of a competencies approach to dental education is the flexibility provided in methods (curricula) employed to achieve the competencies. The curriculum structure suggested is not inconsistent with achieving the desired profile and competencies of the European dentist; in fact, it is supportive of such achievement.

There are potential consequences for the profession of dentistry if dental education fails to address the concerns identified in this survey. The perceived lack of intellectual challenge in the typical odontology curriculum in comparison with medicine, particularly as related to the biomedical sciences and clinical medicine; the anticipated future decrease in the prevalence of common oral diseases; the difficulties in educating to the highest standards; and the increase in the number of dental graduates could potentially cause talented students to choose courses of study other than dentistry. Ultimately, dentistry could come to be perceived as less than a university-based study (34), and over time be relegated to the status of a technically-skilled trade (35).

Conclusion

Whilst this study was limited to professors and senior lecturers in Spain's nine public dental faculties, it is their perspective that dental (odontology) curricula need to be revised to strengthen the education of dental students in the core of clinical medicine. A curriculum in which dental and medical students share the first 3 years of the curriculum could accomplish this. The study's respondents believe that the curricula should be flexible enough to permit students to earn degrees in both dentistry and medicine, if desired.

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