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Development of a Gerodontology course in Athens: a pilot study

A. E. Kossioni and H. C. Karkazis

Department of Prosthodontics, Faculty of Dentistry, National and Kapodistrian University of Athens, Athens, Greece

Aim: To describe the development of an undergraduate Gerodontology course in Athens Dental School.

Background: Because of demographic changes, undergraduate dental curricula should place appropriate emphasis on the oral care of the elderly. Therefore, the Athens Dental School Curriculum Committee authorised the development of a new Gerodontology course.

Methods: The new course was introduced in the 10th (final) semester of undergraduate studies. Teaching responsibilities were shared amongst staff from various Dental School departments and the National Health System. The course was elective and mainly didactic, consisting of seminars within the Dental School, educational visits to hospitals and geriatric day centres and elective clinical work in the comprehensive care clinic. The students evaluated the course at the end of the semester and indicated its strengths and weaknesses from their perspective.

Conclusion: The new course was generally satisfying. Based on the experience and evaluation of the first pilot year and taking into consideration the existing barriers, we plan to improve and expand educational activities, mainly including improved methods of teaching and assessment, and more clinical assignments.

Key words: geriatric dentistry; undergraduate dental education; curriculum development.

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Demographic, scientific and social changes have refocused dental education. The elderly population is steadily increasing. Approximately 18.6% of the Greek population is over 65 years of age, with a mean life expectancy at birth of 78.94 years. These patients have a wide range of dental needs. They have more natural teeth than in the past and often a complicated medical history, causing additional problems in their dental management (1–3). Therefore, appropriate emphasis on geriatric education is expected to be provided by dental schools. The dentists of the future must be competent to treat the long-term and recently edentulous older patients, as well as the dentate ones (3). According to the 2001 DentEd report (4), 'It is important that the undergraduate curriculum, places an appropriate emphasis on the oral and dental care of elderly patients'. Moreover, the UK General Dental Council (GDC) in the report: 'The First Five Years' (5) clearly states: 'Given the profound demographic changes affecting the population and the significant increase in the numbers of older adults with some natural teeth, the GDC would expect to see specific emphasis on this throughout the curriculum'.

In 2001, 98% of US dental schools required didactic teaching in geriatric dentistry and all schools taught at least some aspects on the topic (6). However, whilst utilisation of dental services by the elderly is increasing in the USA (2, 6), a significant proportion of graduating dental surgeons in US dental schools feel that they have been insufficiently trained in gerodontology and feel unprepared for practice (7). Geriatric dental education is limited in Australia (8), whilst in Europe it varies considerably. In a recent study in Austria, Germany and Switzerland, it was revealed that a special lecture or practical course in gerodontology is provided in all Swiss, a few German and no Austrian dental schools (9). From the socio-economic point of view in many European countries, as in the UK (3), and Greece, oral health care has a low priority for many older people, mainly because of financial barriers. Therefore, the need for treatment is increased, as well as the need to educate the dentists.

During recent years, it has become evident that a high percentage of patients utilising the Athens Dental School clinics are elderly, requiring special procedures and appropriate treatment planning. In 2003, the school decided to revise, refocus and restructure the existing undergraduate curriculum. The desire is to move towards a student-centred educational approach, with clearly stated educational objectives

based on the competences required to practise dentistry in the European Union (10). The school has collaborated with a medical education specialist whose major responsibility was to provide colleagues with educational support and to look at the overall design of the curriculum. In this revised curriculum, more emphasis was placed on the oral care of the elderly. A proposal was presented to the curriculum committee who authorised the development of a new Gerodontology course.

The aim of the present paper was to describe the development of the new course and the experience that was gained in its first pilot year.

Methodology

The previous gerodontology teaching experience

Athens Dental School was the first in Greece to teach gerodontology at the pre-doctoral, postgraduate and continuing education level. Geriatric dental education has developed within removable prosthodontics since 1991. Two members of the Prosthodontics Department who had also received formal training in geriatric dentistry provided lectures and seminars and some form of clinical instruction to the third, fourth and fifth year students, including other relevant topics apart from prosthodontics (e.g. age changes in oral tissues, medical aspects of ageing). An extended series of lectures on gerodontology were provided to students attending the postgraduate prosthodontic training programme. A textbook in geriatric dentistry has been provided for students since 1998. Two doctorate and two postdoctoral theses and various epidemiological research projects have also been designed and completed within the last 10 years. However, the educational activities that were offered to the students were not enough to adequately expose them to the medical and oral problems commonly met in the elderly, or to appropriate treatment planning for older adults.

The development of the new course

The Gerodontology course was developed using existing university resources (staff, teaching venues, equipment). The students' characteristics and needs, and the existing recourses in staff, rooms, clinics as well as the available curriculum time were taken into consideration when designing the new course. However, it was very difficult to find time within the curriculum that would not interfere with the existing seminars and clinics. Three elective courses were introduced in the 10th semester of the undergraduate studies in 2003/2004; one of them was Gerodontology. The 150 students of the semester had to participate in one elective course (50 students in each), indicating at the beginning of the semester their order of preference. The first 50 students who indicated their wish to participate in each particular elective course were assigned to it. The 10th semester was selected for training in Gerodontology because senior students already have knowledge and skills in general medicine and dentistry.

A member of the Prosthetics Department was assigned the role of Programme Director. Teaching responsibilities were shared amongst staff from multiple departments and the National Health System, as geriatric dentistry is clearly a multidisciplinary course. Seven educators provided the course. Two of them originated from the Prosthetics Department, one from Oral Surgery, one from Periodontology, one from Operative Dentistry and two from the National Health System (one of them was specialist in oral medicine and the other with particular interest in geriatric dentistry). Two members of the teaching staff were associate professors and three were lecturers. The two faculty members from the Prosthetics Department had also received formal training in geriatric dentistry (Master of Science in Gerodontics).

Because only 50 students could attend the new elective course, compulsory didactic elements in gerodontology (lectures, seminars, treatment planning and clinical work in the comprehensive care clinic) for all students were still integrated into the Removable Prosthodontics undergraduate curriculum.

Educational goal and objectives

The goal of the new course was to prepare dental students to provide appropriate treatment for the older adults.

According to the stated objectives of the new course, at the end of the course the students must be able to:

- Identify the main aspects of pathology associated with ageing and determine the dental implications.
- Distinguish true age changes from pathological alterations.
- Make appropriate treatment plans for the elderly dental patient taking into consideration the medical, oral, social, financial and personal aspects of his/her life, as well as his/her needs and demands.
- Select appropriate clinical and laboratory techniques for the older individual.
- Be familiar and describe the organisation of hospital dentistry applied to the elderly.
- Describe the function of day centres for the elderly.
- Describe the fundamentals of domiciliary treatment.

The objectives included the special knowledge, skills and attitudes required in provision of oral care to the elderly. Emphasis was also placed on the social and financial problems related to ageing, as well as to the patients' needs and demands.

The content of the course

The course was complementary to issues taught in various dental departments and appropriate emphasis was placed on medical topics related to the elderly. Students must understand the range of physical disabilities related to ageing, as well as the psychological and social factors involved. They must also gain a deeper knowledge of the most prevalent oral conditions in the old age such as xerostomia, tooth wear, root caries, periodontitis and the problems in the provision of removable prostheses. The importance of prevention was mentioned in many topics such as the management of dental caries and periodontal problems, prosthetic management and treatment planning.

The major topics of the new course were:

- Epidemiology of ageing; medical and social aspects of ageing.
- Oral and dental age changes.
- Oral pathology in the elderly.
- Management of dental caries in the elderly.
- Periodontal disease in the elderly.
- Prosthetic management.
- Oral surgery in the older individual.
- Treatment planning for the older dental patient.
- Hospital dentistry for the elderly.
- Geriatric day centres and domiciliary treatment.

The students attended ten 1-h weekly seminars on the above topics (1 h each), in groups of 25 at the Dental School. Moreover, they attended two 2-h educational visits to hospitals and two 2-h visits to geriatric day centres in groups of 6—8.

Educational methods

In the new curriculum design, factual information provided by lectures is reduced and small group teaching, case-based teaching and self-directed learning for the students is increased. Teaching and assessment methods for the new course have been discussed with the medical education specialist. Our aim was to link logically the educational objectives with teaching and assessment methods.

As mentioned above, 50 students from the class of 2003/2004 participated in the course. The course consisted of compulsory seminars and educational visits to day centres and general hospitals. The students could also treat elderly patients on an elective base in the comprehensive care clinic, mainly applying specific prosthodontic techniques. Our senior students generally have clinical experience with functionally independent older citizens who visit dental school clinics and particularly the Removable Prosthodontics students. In this first pilot year, we did not have the opportunity to perform required dental therapies.

Lecturing was reduced as far as possible and case vignettes, case studies and group discussions were applied. On some occasions students had to prepare essays, working in groups of five and discuss them in class.

At the hospital, the students had the opportunity to become familiar with the organisational structure and treatment options that are provided to the elderly and medically compromised dental patients. At the day centres for the elderly, the students discussed with the instructor methods of history taking and clinical examination, as well as needs, demands and barriers to treatment. They then interviewed the older individuals and performed oral examinations.

Educational material

In the new course, the didactic material included written material (textbook on gerodontology, papers, handouts), audiovisual material (e.g. videos on the ageing brain), and electronic material (case vignettes) in Greek and in English.

Assessment

The assessment was summative at the end of the course. The final examination was prepared to include 10 short-answer questions and a problem-solving question on treatment planning for the elderly.

The evaluation of the course by the students

At the end of the first pilot year it was important to evaluate how the course design was working out in practice. Upon completion of the course the students were asked to fill in an anonymous evaluation form. They had to report on their general impression on the whole course, the content, the educational methods, the preparation of the educators, the behaviour and attitude of the educators, the time schedule of the course, the educational material, the assessment method and the skills in treatment planning of the elderly that were developed.

From the 50 students who attended the course, 34 returned the questionnaires and the results are presented in Table 1. In general, the students enjoyed the course and were satisfied with the content, the educators, the educational techniques and the teaching material. Most of them enjoyed visiting the

TABLE 1. The course evaluation (%)

	Rating scale (1 = very poor, 2 = poor, 3 = average, 4 = good, 5 = very good)				
	5 (%)	4 (%)	3 (%)	2 (%)	1 (%)
1. What is your general impression on the whole course?	8.8	64.7	14.7	11.8	0
2. What is your opinion on the content of the course?	8.8	55.9	26.5	8.8	0
3. What is your opinion on the teaching material?	14.7	61.8	20.6	2.9	0
4. What is your opinion on the time schedule of the course?	2.9	2.9	23.6	17.7	52.9
5. Were the educators adequately prepared to provide the course?	32.3	55.9	11.8	0	0
6. What is your opinion on the educators' attitude and behaviour towards you?	50	38.2	11.8	0	0
7. What is your opinion on the educational visits to the hospitals?	35.3	23.5	20.6	14.7	5.9
8. What is your opinion on the educational visits to the day centres?	14.7	47.1	20.6	14.7	2.9
9. What is your opinion on the educational techniques applied at the seminars (group discussion, questions-answers, case-vignettes etc)?	11.8	73.5	5.9	8.8	0
10. Did you improve your skills in treatment planning for the elderly?	2.9	29.5	58.8	2.9	5.9
11. What do you think of the assessment method?	26.5	53.9	19.6	0	0

hospital and the day centres and approved the assessment method that was selected.

It is important that many students believed that they had improved those skills which were perceived to be important for the treatment planning of the elderly, but this percentage must increase further. The students were not satisfied by the time schedule of the course, as seminars were organised late in the afternoon (15.00—16.00 hours and 16.00—17.00 hours), because this was the only time that seminar rooms were available (another problem of a crowded curriculum).

Some further comments on the open-ended questions were: they wanted to work on more treatment plans (52.9%), they wanted more educational visits to hospitals and day centres (23.5%) and more clinical time in gerodontology in the comprehensive care clinic (11.7%).

Discussion

The new course was designed to promote the necessary competences required for the new European Dentist, as presented and approved by the general assembly of the ADEE (Association for Dental Education in Europe) (10) at its annual meeting, held in Cardiff, in September 2004. According to this document a dentist 'must be competent in obtaining all necessary biological, medical, psychological and social information in order to evaluate the oral condition in patient of all ages'. In addition, he/she 'should have knowledge of the social and psychological issues relevant to the care of the patient. He/she should be competent in selecting and prioritising treatment options that are sensitive to each patient's individual needs, goals and values, compatible with contemporary therapy and congruent with a comprehensive oral health care philosophy'. A current gerodontology course should be based on these concepts. The key to success in Geriatric dentistry is learning to work with patients and their carers to develop treatment plans compatible with the individual needs of the patient (2). A patient-centred philosophy of treatment is expected. Competence in gerodontology requires broad knowledge, clinical reasoning, technical skills and social sensitivity. Within the limitations of the current curriculum structure we tried to include the above characteristics when developing the educational objectives of the course.

Gerodontology includes a holistic aspect of dentistry with close links to medicine, and the topics covered do not present overlaps with those taught in other specialties (9). Topics relevant to those in our course are included in the gerodontology curriculum content in other US (6) and European schools (9). In a recent study in US dental schools (6) the previously reported tendency to put emphasis on the pathological process of ageing has been reversed and more emphasis is now on the social problems related to old age and the impact on oral care.

The content of the course also indicates its multidisciplinary nature. Our teaching staff originated from various disciplines. However, in only 18% of the US dental schools was a multi-disciplinary team responsible for teaching (6). In Switzerland and Germany, geriatric dentistry was taught within mainly prosthodontic departments (9). In Australia, seminars in gerodontology have a strong prosthodontic focus (8), whilst in 46% of US dental schools a combination of mainly departments of prosthodontics and primary care were responsible for teaching the course (6).

In our course, two educators (one is the course coordinator) had formal training in gerodontology. This is very important because gerodontology, like

pedodontics, presents special problems and difficulties that need to be addressed to the students. Unfortunately, in most countries there are not enough trained educators in gerodontology. Fifty-eight per cent of US geriatric dentistry educators had a combination of training in gerodontology and other disciplines such as prosthodontics, oral medicine or a general practice residency (6). However, in the study of Saunders et al. (11) none of the Canadian faculty completed formal training in geriatric dentistry.

We decided to include the course in the final semester. This is very important as students must already have adequate experience in general dentistry and medicine, because the course mainly focuses on the differences in the management between the younger and the older age groups. In a recent European study, gerodontology lectures were scheduled in most cases for the fourth and/or the fifth year students (9).

The course in the first pilot year was mainly didactic. Geriatric dentistry teaching in US varied considerably amongst schools (specific course or seminars only) (6). There were similar findings in Switzerland, Austria and Germany (9). In 2001, 67% of US dental schools reported inclusion of a clinical component to the course. This was required in 54% and elective in the rest (6). In 30% of the schools, a specific geriatric clinic was operating within the school, 11% had a remote clinical site and 9% had both intra-mural and extra-mural clinical sites (6). Six German and three Swiss universities provided practical teaching in nursing homes, but only three German universities offered both theoretical and practical teaching in gerodontology (9). In the study of Saunders et al. (11) in 78% of the Canadian schools geriatric dentistry was integrated in the schools' general clinics. Practical teaching in nursing homes is rare. Until now, our students have clinical experience mainly of functionally independent older adults who visit the dental school and the day centres. We consider it to be important to further expose them to the management of the severely disabled and functionally dependent older people organising educational visits to nursing homes.

Our students were satisfied by our teaching material. In the study of Saunders et al. (11) in USA and Canada, 76% of faculty used reprints, 66% self-prepared materials and 38% textbooks. Geriatric dentistry textbooks are few in number, internationally.

The course evaluation showed that the students were generally satisfied with the course. The social contacts between generations are shown to be related to knowledge and attitudes held towards ageing (12). It is important to notice that in Greece an inter-generational social contact still exists. The students have basic knowledge about ageing and generally a positive attitude. The strong inter-generational emotional bonds are apparent particularly in the removable prosthodontics clinic, where the patients are often the students' grandparents, or other senior relatives. Moreover, as this is an elective course, most of the students who participated are expected to be interested in the topic.

Many changes are needed based upon feedback from students and staff. A formative assessment will be added, based on essay writing during the course and on the performance on the educational visits, more electronic material (case vignettes) will be produced, more group work and clinical work will be added. In addition, educational visits to nursing homes will be organised.

However, we face some significant barriers to expand our Geriatric dentistry programme, similar to those reported in other dental schools (11): having a crowded curriculum, lack of sufficient trained staff, lack of financial resources, faculty mainly working in other departments and having other teaching priorities, limited administrative support. It is very difficult to overcome those barriers unless the curriculum is significantly restructured.

Conclusion

In Athens University, we had the opportunity to develop a new elective multi-disciplinary Geriatric Dentistry course and integrate it into the dental curriculum. In the first pilot year, we placed emphasis on the didactic component of the course. The evaluation of the course has shown strengths and weaknesses. Within the limits of the existing time and resources, our goal is to improve the educational methods that we use and expand the clinical experience that is offered to the students.

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Address:
Dr Anastassia Kossioni
Department of Prosthodontics
Faculty of Dentistry
National and Kapodistrian University of Athens
Thivon 2 Goudi
Athens 115 27
Greece

Tel/fax: +30 210 8678464
e-mail: akossion@dent.uoa.gr