

# Undergraduate Geriatric Dentistry Programs in Spain

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**Abstract:** The increasing size of the elderly population in Spain underlines the need for the dental profession to pay particular attention to the oral health needs of older patients. The aim of this study was to perform a preliminary assessment of the Geriatric Dentistry education programs in Spanish dental schools and highlight the models being employed for the geriatric training programs in these schools. The assessment was designed to be a cross-sectional study, which involved all the dental schools ( $n = 19$ ) in Spain. Using a simple, 12-item questionnaire, information regarding the geriatric dental education programs in the schools was collected from their official websites by researchers from the University of Seville. In the first instance, the information was collected from the dental schools' websites and included the history, frequency and characteristics of the geriatric dental program. The deans or their deputies from those schools with a geriatric dental education programme were then asked to validate the data obtained from the websites. Only eight (42%) of schools offered a specific geriatric dentistry course. Seven of these schools were public and only one was private. The other 11 Spanish dental schools (five public and six private) did not offer a specific geriatric dentistry course. Seven out of the eight schools taught the course using a didactic teaching method and none of these seven included a clinical component in the program. No school had a specific geriatric dentistry clinic within the school, neither did they run geriatric clinics at remote locations or operate mobile dental clinics for geriatric patients. This study has described the current provision of dental undergraduate education in geriatric dentistry in Spain. The results suggest that there is a need to develop the curriculum content, design, implementation and evaluation of geriatric dentistry programs. Research should also focus on assessing the access to and improvement in the oral care of the elderly population.

**Keywords:** Geriatric Dentistry, Dental Program, Curriculum Development

## Introduction

Over the past few decades, the world has experienced a gradual increase in the percentage of people aged 65 years and over. The Spanish population, like the rest of the Western world has not been left behind. As of 1 January 2011, the National Institute of Statistics in Spain put the elderly population at 7.8 million (16.6%) out of a total population of 47.1 million people. This is a significant increase from the 10.6% recorded in 1975 (NISS, 2011). Projecting forward, the United Nations Population division predicts that by the year 2050, the elderly population in Spain will be 35.7% of the total population, meaning that one out of every three Spaniards

will be aged 65 or over. This would be the highest percentage in Europe (Population Division, 2001).

As this elderly population increases, evidence suggests that their demand for dental services will increase. This may be related in part to the retention of more natural teeth, as a consequence of advances in preventive and restorative dentistry, as well as a heightened awareness that edentulousness and old age are not synonymous. For the elderly, it is desirable to maintain a natural, healthy and functional dentition through life, as it plays various functional and aesthetic roles. Tooth loss can be distressing and can lead to serious psychosocial consequences which can affect the

person's wellbeing and quality of life (Gerritsen *et al.*, 2010). The goal must be to make aging a pleasant experience by promoting good oral health well into the late sixties and beyond. Social interactions, self esteem, dietary choices and nutrition in old age should be enhanced by good oral health. In developed countries, studies have indicated that in most industrialized countries, at the turn of the millennium about 20% of elderly people were edentulous (Fiske, 2000; Budtz-Jorgensen, 1999).

Several models for geriatric dental education exist across the globe (Shah, 2010; IMGD, 2012). However, in Spain, very little is known about the presence of or the type of models employed for undergraduate geriatric dental education by the nation's nineteen dental schools. Geriatric dentistry has typically been taught in various countries at three levels: Undergraduate, postgraduate or as part of continuing professional development (Shah, 2010). There is very wide variation in their duration, course contents and level of specialization (Bullock *et al.*, 2010). A study conducted across some European dental schools (three Spanish dental schools included) showed that most (93%) of the schools that were surveyed had some form of geriatric dental education. There were various combinations of didactic and clinical components, some of which were taught onsite (in geriatric clinics) or at remote locations. It was also taught as a part of other core dental disciplines such as Oral Medicine and Prosthodontics (Preshaw and Mohammad, 2005). In the United States (US), where more extensive studies have been conducted, all pre-doctoral programs were reported to have some form of geriatric dentistry in their teaching curriculum with '63% of schools having a geriatric program director or chairman of the geriatric section'. Ninety-eight percent of US schools had required didactic components (Mohammad *et al.*, 2003). To the best of our knowledge, an assessment of the state of geriatric dental programs and/or models for undergraduate geriatric dental education has not been conducted in Spain.

For the purpose of this study, Geriatric Dentistry education will be defined as 'that portion of the dental curriculum that deals with special knowledge, attitudes and technical skills required in the provision of oral health care to older adults' (Preshaw and Mohammad, 2005).

## Aim

The aim of this investigation was to perform a preliminary assessment of the Geriatric Dentistry education programs in all nineteen Spanish dental schools and highlight the models being employed for the geriatric training programs in these schools.

## Material and Methods

The study was designed to be a cross-sectional study. All the dental schools ( $n = 19$ ) in Spain were surveyed.

Using a simple, 12-item questionnaire (the questions are shown in Table 3), information was collected from the official websites of all the schools regarding the geriatric dental education programs. Information collected included the history, frequency and characteristics of the geriatric dental program.

Subsequently, the data were translated into the Spanish language and validated by the Dean or a Deputy from the schools whose websites indicated that there was a course in geriatric dentistry at their school.

For this study, IRB/Ethics approval was not required or sought as all the data were available on open access from the websites of all the schools and the participants were informed that it was taking place. The Deans or their deputies who validated the data from their schools gave implied consent by agreeing to this action.

## Results

There are nineteen dental schools in Spain; twelve of these are public and seven are private. Data obtained from the various school websites revealed that only 8 (42%) of Spanish dental schools offered a specific geriatric dentistry course (Table 1).

Of the eight dental schools that have geriatric dentistry programs, seven were public and the other one was private (Table 2).

The other eleven dental schools did not have undergraduate geriatric education, but in some schools prosthodontics or medical pathology departments were responsible for teaching undergraduates geriatric dentistry. When geographical distribution was considered, 8 (42%) of schools were located in the north of Spain, while 2 (11%) were in the south, 4 (21%) in the west and 5 (26%) in Madrid (the capital.) Eleven (92%) of the public schools were more than twenty years old. In contrast all the private schools universities were less than twenty years old (Table 2).

Only one school reported a clinical component in the geriatric dentistry program. Seven out of the eight schools taught the course using a didactic teaching method and none of these seven included a clinical component in the program. No school had a specific geriatric dentistry clinic within the school, neither did they run geriatric clinics at remote locations or operate mobile dental clinics for geriatric patients. No school had a separate department for geriatric dentistry or a head of the geriatric program. Of the eight schools, which taught geriatric dentistry, six (75.0%) offered the geriatric course as a mandatory requirement. ECTS credits were allocated to the course but the number of credits varied amongst the eight schools ranging from 3 credits (Santiago and San Pablo Valencia) to 7 credits (Zaragoza). The onset of the geriatric courses could not be ascertained from the school websites and most schools did not indicate the presence of a postgraduate training program for geriatric dentistry (Table 3).

Table 1. Spanish Dental Schools with a specific geriatric course in their undergraduate curriculum

Presence of specific geriatric course in the curriculum	
No	Yes
FO. Universidad de Barcelona	FO. Universidad CEU San Pablo Valencia
FO. Universidad Complutense de Madrid	FO. Universidad de Granada
FMO. Universidad del País Vasco	FMO. Universidad de Murcia
FO Universidad Internacional Cataluña	FO. Universidad Rey Juan Carlos Madrid
Universidad Católica de Valencia	FMO. Santiago de Compostela
FO. Universidad Europea de Madrid	FO. Universidad de Sevilla
FO. Universidad CEU San Pablo Madrid	FMO. Universidad de Valencia
FMO. Universidad de Salamanca	FO. Universidad de Zaragoza
FO. Universidad Alfonso X el Sabio (Madrid)	
FM. Universidad de Oviedo	
FCS. UE Miguel de Cervantes (Valladolid)	

Table 2. Presence/Absence of a geriatric dentistry course in the undergraduate curriculum of Spanish dental schools according to private or public ownership, geographical location and age of the universities

	Public			Private			Total		
	Yes (%)	No (%)	Total (%)	Yes (%)	No (%)	Total (%)	Yes (%)	No (%)	Total (%)
<b>Location type</b>									
North	2 (16.7)	4 (33.3)	6 (50.0)	0 (0)	2 (28.6)	2 (28.6)	2 (10.5)	6 (31.6)	8 (42.1)
South	2 (16.7)	0 (0)	2 (16.7)	0 (0)	0 (0)	0 (0.0)	2 (10.5)	0 (0)	2 (10.5)
West	2(16.7)	0 (0)	2 (16.7)	1 (14.3)	1 (14.3)	2 (28.6)	3 (15.8)	1 (5.3)	4 (21.1)
Capital	1 (8.3)	1 (8.3)	2 (16.7)	0 (0)	3 (42.8)	3 (42.8)	1 (5.3)	4 (21.0)	5 (26.3)
Total	7 (58.3)	5 (41.7)	12 (100.0)	1 (14.3)	6 (85.7)	7 (100.0)	8 (42.1)	11 (57.9)	19 (100.0)
<b>Age of the Universities</b>									
≥20 years	6 (50.0)	5 (41.7)	11 (91.7)	0 (0)	0 (0)	0 (0.0)	6 (31.6)	5 (26.3)	11 (57.9)
<20 years	1(8.3)	0 (0)	1 (8.3)	1 (14.3)	6 (85.7)	7 (100.0)	2 (10.5)	6 (31.6)	8 (42.1)
Total	7(58.3)	5 (41.7)	12 (100.0)	1 (14.3)	6 (85.7)	7 (100.0)	8 (42.1)	11 (57.9)	19 (100.0)

Table 3. Questionnaire and characteristics of undergraduate geriatric education programs in the eight Spanish dental schools with specific courses

Questions	Dental schools with geriatric programs							
	1	2	3	4	5	6	7	8
1. Does the school offer specific geriatric dentistry course?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. If yes, does it include (a) didactic teaching, (b) seminar groups or (c) occasional lectures?	Y (a)	Y (a)	Y (a)	Y (a)	Y (a)	-	Y (a)	Y (a)
3. Does it include a clinical component?	-	Yes	-	-	X	-	-	-
4. Is there a specific geriatric dentistry clinic within the school?	X	X	X	X	X	X	X	X
5. Does the geriatric dentistry-training program involve visits to a remote location?	X	Yes	X	X	X	X	X	X
6. Does your school operate a mobile dental clinic for treating geriatric patients?	X	X	X	X	X	X	X	X
7. Is there a separate department of geriatric dentistry?	X	X	X	X	X	X	X	X
8. Is there a separate head for the geriatric program?	X	X	X	X	X	X	X	X
If yes, what is the official title?								
9. Number of credits (ECTS) allocated to geriatric dentistry?	3	6	6	6	3	X	6	7
10. Any postgraduate training program in geriatric dentistry?	X	-	X	X	X	-	X	X
11. In what year was geriatric dentistry introduced into the undergraduate program?	-	-	-	-	-	-	-	-
12. Is it a Mandatory or elective subject?	M	E	M	E	M	M	M	M

Y = Yes, X = No, - = No information available, M = Mandatory, E = Elective

## Discussion

The increasing size of the elderly population in Spain has underlined the need for the dental profession to pay particular attention to the oral health needs of older patients. Many older people have complex systemic health problems sometimes due to physiologic changes and dentists should be well prepared to provide care for these patients. Dental graduates should be able to interpret the aging process, common medical conditions, sociologic, psychosocial factors and their impact on oral health.

This paper is the first in a series which seeks to serve as a wake up call for the Spanish dental profession towards the new role that it ought to play as custodians of the oral health of an aging population and in preparing the next generation of dental professionals to provide dental care competently for them.

Dentistry in Spain is mainly private and dental coverage by the National Health System for the elderly is limited to extractions, so elderly (and indeed all adult) patients must pay the cost of dental care themselves. The need for preventive programs and prosthodontic treatment is evident among this group. According to the last oral health survey in Spain 20% of elderly had never brushed their teeth and the prevalence of dental caries was high (DMFT = 14.66) (Llodra Calvo, 2010). Furthermore, the percentage of treated decay was only 12% (IR = 12.3) (Llodra Calvo, 2010). These data suggest the need for improvements in oral health care for the elderly in Spain (Llodra Calvo, 2010). Additionally, there are groups including institutionalized elderly or those who are functionally dependent, with a poor oral health status.

The role of dental education is very important in developing the competencies of dentists and designing dental health policies. Community health outcome is shown to be directly related to the education of health providers (Pritchard, 2003; Nitschke *et al.*, 2008). Educational programs in Geriatric Dentistry provide students an understanding of the complexities of aging and equip them with the knowledge and skills needed to render comprehensive oral health care to this population.

Dental educational system in Spain is a five-year DMD program that begins following high school graduation. Variations in teaching programs concerning geriatric dentistry among dental schools are evident, but this is also evident in the rest of the dental schools in Europe (Kossioni and Karkazis, 2006). The findings from this study show that Geriatric dentistry has not developed as a separate subject in majority of schools. Currently, there are no dental specialties in Spain and hence a lack of education at the postgraduate level in this and indeed all fields of oral care.

It is worthy of note that none of the schools have a specific geriatric dentistry clinic and it was of concern that geriatric dentistry was not taught at eleven universities.

In Europe, the Association for Dental Education in Europe (ADEE) has agreed that the undergraduate curriculum should include specific content on care for

the elderly and that the competences of dental students should be extended to include a clinical/didactic program in geriatric dentistry (Kossioni *et al.*, 2009).

Globally, there are significant perceived barriers to teaching geriatric dentistry at the DMD level and these have remained the same in the last three decades<sup>15</sup>. One major obstacle is the paucity of trained faculty members to teach the discipline. Others are a crowded curriculum and monetary concerns (Ettinger, 2010; Issrani *et al.*, 2012). The promotion of geriatric dentistry has to occur at different levels: Dental education (undergraduate, postgraduate and continuing education), professional organizations and collaborations between health services and policies. As efforts are being made to address these gaps, the ultimate goal for all dental schools should be the creation of separate departments of Geriatric dentistry. Efforts must also be geared towards facilitating research that will help improve the care of the geriatric population and Spanish researchers must join their global colleagues in the search for improved services and care for the elderly.

It is important to identify the variables that explain the use of health services by elderly population, so geriatric programs also have to consider social factors to provide affordable, accessible and equitable health care to this population. Barriers like transportation, financial and family problems have been identified as issues which lead to missed appointments (Fabiano *et al.*, 2005). When collecting the limited information regarding the content of geriatric dentistry program, we identified that none of schools operated a mobile dental clinic for treating geriatric patients. Only one school has a program that involves visits to nursing homes. Dental care systems for institutionalized elderly people, aimed at improving dental care access for geriatric patients should be a major part of the programs of all dental schools.

This study has some limitations; Firstly, the Bologna Process has transformed dental degrees. Spain has made significant changes to accommodate the European Higher Education Area Programs, hence, available information is limited. Further studies are needed in the following year when Bologna Process would be finally established for assessing the status of Geriatric Dentistry in Spain. A second limitation has been that the data analyzed in this study, were collected from websites and as a result some may have been out of date.. It is possible that data collected from face-to-face interviews would have been different and that some information may have been missed. Dental institutions have an important role to play, not only in the training of dental professionals but also in the planning of oral health services for the elderly, promoting geriatric oral health education and initiating and facilitating focused policies at local, provincial and national levels, thereby enhancing the oral health of the increasingly elderly population. Dental schools must equip trainees with the knowledge required to design and execute oral health promotion strategies that focus, not only on dental factors but also, on the life and cultural characteristics of older adults. Geriatric

dentistry programs must encompass not only the treatment of oral diseases and conditions, but in addition should emphasize the prevention of oral diseases and conditions to enhance oral health status and the quality of life (Ogunbodede, 2013).

## Conclusion

This study provides background to the current status of geriatric dentistry in Spain. The results suggest that there is a need to develop the curriculum content, design, implementation and evaluation of geriatric dentistry programs. Research should focus on assessing the access to and improvement in the oral care of the elderly population. Dental schools, organizations, local and state governments need to work together, using a multidisciplinary approach, in responding to the unmet needs of the elderly population.

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## Conflicts of Interest

The authors declare that they have no competing interests.

## Author's Contribution

LSM and EOO conceptualized and designed the study, LSM and DR collected the data, LSM and EOO analyzed the data. LSM and KE drafted the manuscript. KE advised the study. All authors read and approved the final manuscript.

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