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ORIGINAL ARTICLE

Undergraduate dermatology education in Portugal: Current status and future directions

Ensino pré-graduado da dermatologia em Portugal: Situação atual e perspetivas futuras

Catarina Queirós[1,a,] and Luis Soares de Almeida[1,2,b]*

[1]Serviço de Dermatologia, Hospital de Santa Maria, Centro Hospitalar e Universitário de Lisboa Norte; [2]Clínica Universitária de Dermatologia, Faculdade de Medicina da Universidade de Lisboa. Lisbon, Portugal

[a]ORCID: 0000-0002-0893-628X

[b]0000-0003-4026-6105

Abstract

Introduction: Although dermatologists represent a small proportion of medical doctors in Portugal, dermatological problems are very common, particularly in primary health-care settings. Therefore, an adequate training in dermatology is essential, even for medical students who will later follow other specialties. **Objectives:** The aim of the study was to analyze the state of the art of undergraduate dermatology teaching in Portugal. **Methods:** An electronic survey was applied to the heads of the various medicine schools. Questions were directed, among other topics, toward hours of teaching, number of teachers and students, teaching and assessment methods, curriculum, and competencies covered. **Results:** The eight Portuguese medical schools responded to the survey. The number of hours of dermatology teaching across medical schools ranged from 14 h to 60 h. Teaching methods varied widely between schools, encompassing lectures, tutorials or small group learning, and clinical exposure, among others. Regarding the content of lectures, which remain the primary method of teaching, all schools include skin cancer in their curriculum. The next topics more frequently covered are eczema and cutaneous infections. All medical schools are currently assessing competency in dermatology, multiple-choice questions being used by all schools. **Conclusions:** Although some improvements have been achieved in recent years, undergraduate dermatology training still faces some problems, namely, the lack of teachers, the excessive number of students, and an insufficient resource allocation by medical school directors. To improve dermatology education in Portugal, one of the most important points would be the establishment of a pre-defined curriculum that could serve as a basis for the various medical schools. Distribution of teaching contents throughout pre-clerkship and clerkship years and access to digital platforms with selected resources would be additional forms of improving and standardizing dermatology education, to equip future doctors with the necessary skills to diagnose and manage common dermatological conditions.

Keywords: Dermatology/education. Education. Medical. Undergraduate. Portugal. Students. Medical.

Resumo

Introdução: Embora os Dermatologistas representem uma pequena proporção dos médicos em Portugal, a patologia dermatológica é muito frequente, desde logo a nível dos Cuidados de Saúde Primários. Nesse sentido, a formação adequada em Dermatologia é essencial, nomeadamente para estudantes de medicina que posteriormente seguirão outras especialidades.

Corresponding author:
*Catarina Queirós
E-mail: catarina.squeiros@gmail.com

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Objetivos: Analisar o estado da arte do ensino pré-graduado da Dermatologia em Portugal. **Métodos:** Foi aplicado um questionário eletrónico aos responsáveis das várias Faculdades de Medicina. As perguntas incidiram, entre outros tópicos, no número de horas de ensino, número de docentes e alunos, métodos de ensino e avaliação, currículo e competências abrangidas. **Resultados:** As oito Faculdades de Medicina portuguesas responderam ao inquérito. O número de horas de ensino de Dermatologia variou entre 14 horas e 60 horas. Os métodos de ensino diferiram entre as Faculdades, incluindo aulas teóricas, tutoriais ou teórico-práticas e aulas práticas, entre outros. Em relação ao conteúdo das aulas teóricas, que continuam a ser o principal método de ensino, todas as Faculdades incluem as neoplasias cutâneas no seu currículo, seguindo-se em frequência o eczema e as infeções cutâneas. Todas as Faculdades de Medicina estão atualmente a avaliar a competência dos alunos na Dermatologia, sendo as perguntas de escolha múltipla o método mais frequentemente utilizado. **Conclusões:** Embora se tenham alcançado algumas melhorias nos últimos anos, a formação pré-graduada em Dermatologia continua a enfrentar alguns problemas, nomeadamente a falta de docentes, o número excessivo de alunos e a alocação insuficiente de recursos por parte dos diretores das faculdades de medicina. Para melhorar o ensino da dermatologia em Portugal, um dos pontos mais importantes seria o estabelecimento de um currículo pré-definido que pudesse servir de base às várias Faculdades. Uma melhor distribuição dos conteúdos programáticos pelos anos básicos e clínicos e o acesso a plataformas digitais com recursos selecionados seriam formas adicionais de melhorar e padronizar o ensino da dermatologia, a fim de dotar os futuros médicos das competências necessárias para diagnosticar e/ou gerir patologias dermatológicas comuns.

Palavras-chave: Dermatologia/educação. Educação. Medicina. Graduação. Portugal. Estudantes.

Introduction

Dermatology and venereology are a medical and surgical specialty that contemplates the diagnosis, treatment and prevention of diseases of the skin, mucous membranes, and appendages. It also includes the approach to sexually transmitted infections, cutaneous manifestations of systemic diseases, and systemic manifestations of cutaneous diseases, as well as the promotion of good skin and sexual health[1]. In general, dermatology is considered a non-acute, outpatient centered specialty[2], with dermatologists representing only 0.8% of the Portuguese physicians in 2021.

Nonetheless, skin complaints are commonly encountered both by Primary Care Physicians and in Emergency Departments. Indeed, studies have shown that skin diseases are one of the main reasons for seeking primary healthcare, with frequencies ranging from 5.5% to 22.5% of all visits[3]. Moreover, skin diseases are among the seven most common problems in primary care, and more than half of them can be resolved by non-specialists[3,4]. Regarding Emergency Department admissions, studies have estimated that approximately 5-10% of all visits are due to skin complaints[2,5-7]. When pediatric admissions are analyzed, the frequency of dermatological diseases accounting for Emergency Department visits is even higher, ranging from 4% to 40% of patients observed[8].

Moreover, it is well recognized that skin cancer is the most common cancer worldwide[9]. The impact of behavioral factors in the prevention of skin cancer is well established, and prognosis is positively influenced by an earlier diagnosis, further emphasizing the potential goal of physicians from other specialties in this field.

Despite all these observations, the previous surveys have highlighted the lack of adequate dermatology training in medical schools, a finding that is common to several countries[10,11]. The goals of this study were, therefore, to assess the curriculum of dermatology undergraduate education in Portugal, in an effort to find and define the core competences in undergraduate dermatology teaching, the best teaching method and the best time to learn dermatology.

Methods

A survey was sent electronically to the undergraduate dermatology teaching directors or division directors at each of the eight Portuguese medical schools (Appendix 1). Responses were received during the last trimester of 2020. Questions were directed toward hours of teaching, number of teachers and students, teaching and assessment methods, curriculum and competencies, and general comments on the status of dermatology education.

Results

The eight Portuguese medical schools responded to the survey. Fig 1 shows the number of students at each medical school.

The number of hours of dermatology teaching across medical schools ranged from 14 h to 60 h (Fig. 2). All this teaching is delivered during the clerkship years

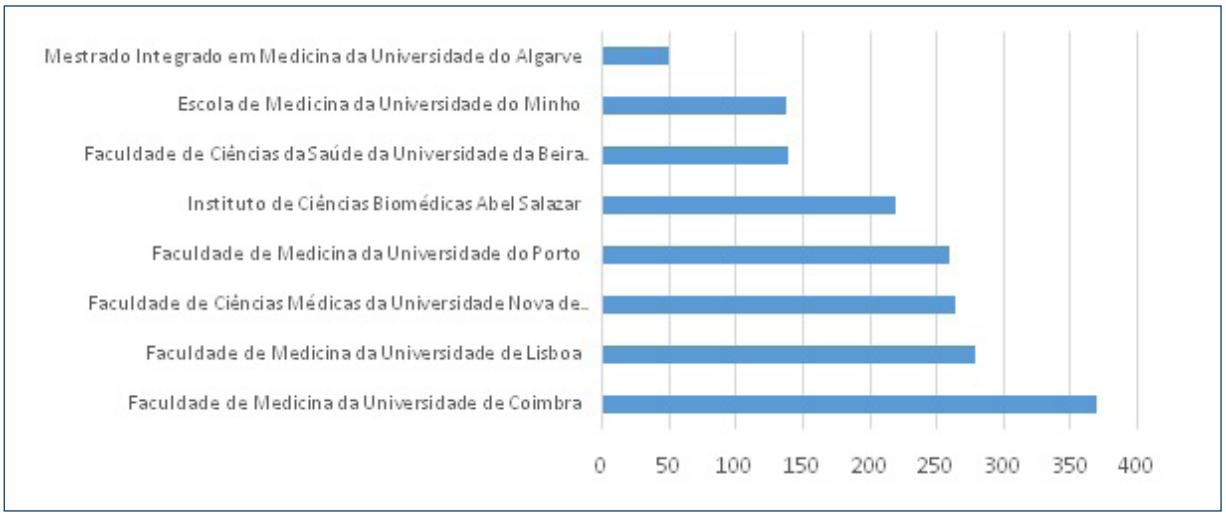

Figure 1. Number of students per year in each of the eight Portuguese medical schools.

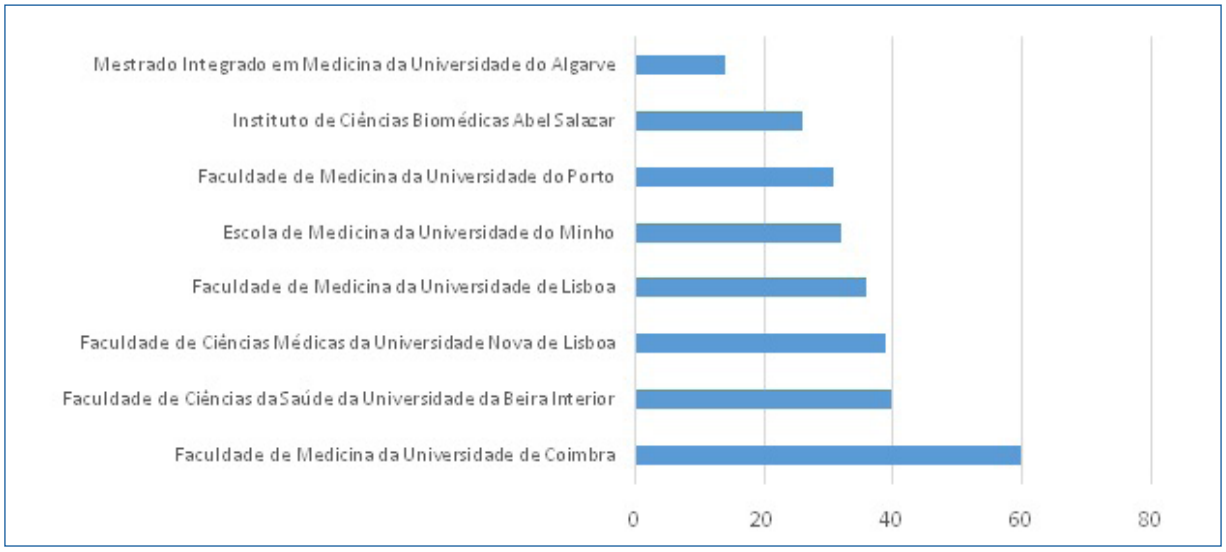

Figure 2. Number of hours dedicated to dermatology education in each medical school.

(two medical schools in the 4th year, five in the 5th year, and one in the 6th year). In seven out of the eight Portuguese medical schools, dermatology teaching is part of another curricular unit, usually combined with medical specialties or with plastic surgery; just in one school, dermatology is an independent course. Dermatology teaching is semiannual in four schools and annual in three schools. In one medical school, dermatology teaching occurs as an isolated block of 2 weeks, with all learning occurring during that period.

Teaching methods varied widely between schools, encompassing lectures, tutorials or small group learning, and clinical exposure, among others. Lectures remain the primary method of teaching, with all the eight schools using this format as a primary method of conveying dermatology education. The number of lectures in different schools ranges from 3 to 15, with a median of 9. Five schools use tutorials or small group learning as an additional method of teaching. All these sessions take place in an amphitheater, using slides as the primary method of teaching. Clinical exposure classes are employed by the eight medical schools, ranging between 2 and 15 classes. In this type of learning, the groups of students are significantly smaller, comprising between 1 and 12 students per class. These classes take place in the outpatient department in four schools, and both in the outpatient department and in the ward in the other four. In addition to these conventional teaching methods, five schools use digital platforms as an additional resource for students.

Regarding the contents of lectures, all schools include skin cancer in their curriculum, with at least one lecture covering this topic. The next topics more frequently covered are eczema and cutaneous infections caused by bacteria, virus, and fungi, issues included in the curriculum of six medical schools. Acne, psoriasis, cutaneous infestations, cutaneous manifestations of systemic diseases, and sexually transmitted infections rank third among the most commonly included topics, each appearing in the curriculum of five schools. Less frequently addressed topics include adverse drug reactions, urticaria, and rheumatologic diseases, among others.

All medical schools assess competency in dermatology. Multiple-choice questions are used by all schools, ranging in number between 7 and 60 questions. Written answers are less popular, being employed only by two schools. Oral examinations are used in five schools; in two of them, these are mandatory to conclude the subject, whereas in the remaining three, oral examinations are reserved to those students who want to improve their grade. Slide-based practical examinations and objective structured clinical examinations (OSCEs) are additional evaluation techniques used by three and two schools, respectively.

Overall, five schools consider that the number of students is higher than ideal, thereby impairing dermatology learning. Regarding time reserved for dermatology, almost all faculty schools consider it sufficient, although most of them defend that it should be an autonomous curricular unit. Other barriers identified in preventing effective dermatology teaching include a lack of faculty members and insufficient resource allocation by medical school directors.

Discussion

The high prevalence of skin disorders is currently a well-recognized subject, with recent studies demonstrating that they are the cause for seeking medical care in as much as 47.2% of cases, ranking above all other diagnoses[3,12]. This value, alongside with the diversity and potential severity of skin disorders, underlines the need to train physicians in the recognition, diagnosis, and treatment of these conditions, regardless of their specialty[8].

By the end of medical training, doctors are often ill/inadequately? Prepared to diagnose and manage skin disorders, a result of the poor provision of training at an undergraduate level[10]. In a survey from Kelly et al., for example, only 10% of the students inquired felt their present knowledge of dermatology was sufficient, while 43% of respondents did not find their undergraduate dermatology education satisfactory[10]. In another survey directed at primary care residents, < 40% of them felt prepared to manage common skin disorders[13].

Undergraduate dermatology teaching is also a concern for medical schools. Indeed, in the same survey from Kelly et al., 75% of medical schools acknowledged that medical students did not currently receive sufficient dermatology teaching[10]. Delivering high-quality dermatologic instruction can prove difficult because of time constraints, limited clinical teachers, an excessive number of students per class, and a lack of standardization across the various medical schools[12,14]. This problem was also observed in our study, where most schools pointed the excessive number of students as one of the most negative factors.

Regarding time spent on dermatology instruction, we observed that, in Portuguese medical schools, it ranges between 14 and 60 h/student, with a median of 34 h. This is much higher than in others countries such as Canada, where an average of 20 h are spent on undergraduate dermatology education[15]. Although this number has increased 25% over the past decade[11], the majority of schools still would like to have more time dedicated to dermatology teaching[15]. In Portugal, most schools find time dedicated to dermatology education sufficient. Nevertheless, the wide variation in hours of teaching across the country reflects the lack of uniformity within medical curriculum, highlighting the need for an uniformization.

In Portugal, all dermatology training is delivered during clerkship years. In the literature, the ideal timing of dermatology contents delivery remains to be addressed. Whereas in the United Kingdom, the most dermatology education is delivered during the 4th year[16], in Canada, for example, 75% of content is delivered solely during pre-clerkship years[11]. Despite these differences, the majority of schools agree that teaching in both pre-clerkship and clerkship years is important[11]. Indeed, a significant amount of dermatology is based on perceptual skills and prior exposure, pattern recognition process being an important skill that dermatologists must develop. Therefore, clinical exposure is of the greatest importance, with studies showing that even a short clinical placement significantly improves student knowledge and competency[16-18]. In Portugal, all schools include clinical exposure in their curriculum, although the number of classes varies from 2 to 15. Although it would be beneficial if clinical exposure times were more uniform across schools, the inclusion of this type of

classes in every school is already an advantage in comparison with other countries, where clinical exposure is not mandatory during medical education[11]. An increasing number of students, the small size of dermatology departments, and the lack of faculty members directly involved in teaching all contribute to this scenario.

Our study also revealed a high degree of variability in the contents covered in lectures among the various schools. Indeed, skin cancer is the only subject included in the curriculum of all the eight schools, followed in frequency by eczema and cutaneous infections, issues included in the curriculum of six medical schools. This lack of standardized curricula has already been identified in other countries and has led to the development and adoption of a national curriculum for undergraduate dermatology teaching in countries such as Canada, with encouraging results[11,19]. It would be of the greatest value if Portuguese medical schools also developed such a plan, in an effort to uniformize competency across them.

Regarding teaching methods, in recent years, many novel ones have been applied to undergraduate medical education. The visual aspect of dermatology, in particular, allows for instruction to be provided using many modalities. OSCE style teaching and slide-based learning with the use of standardized cases are examples[20,21]. These methods are particularly useful in settings where there is a shortage of teachers, such as occurs in most Portuguese medical schools. Moreover, electronic learning has the advantage of crossing geographical boundaries even during pandemic times, providing students access to a wealth of resources at a time when face-to-face classes are not possible[11]. At present, five Portuguese medical schools are using digital platforms as an additional resource, the most popular being the Moodle platform.

In our study, we also found that all Portuguese medical schools are currently assessing competency in dermatology, mainly using multiple-choice questions. This contrasts with other countries, where dermatology questions in final examinations are not mandatory in every school[10]. Of course, if we want medical students to acquire sufficient knowledge in this area, it is essential that they undergo some type of evaluation, ideally similar, and balanced in all schools.

Conclusion

Although some improvements have been achieved in recent years, undergraduate dermatology training still faces some problems, namely, the lack of teachers, the excessive number of students, an insufficient resource allocation by medical school directors, and the lack of a standardized curriculum. These deficiencies certainly influence students' acquisition of knowledge, potentially influencing their future abilities, skills, and attitude, regardless of the specialty they choose later. Indeed, a poor knowledge of dermatology can compromise their approach to these patients in both primary care and hospital settings, putting additional pressure on specialist care waiting lists. To improve dermatology education in Portugal, one of the most important points would be the establishment of a pre-defined curriculum that could serve as a basis for the various medical schools. Distribution of teaching contents throughout pre-clerkship and clerkship years, the involvement of residents in dermatology training, and access to digital platforms with selected resources would be additional forms of improving and standardizing dermatology education, to equip future doctors with the necessary skills to diagnose and manage common dermatological conditions.

Authors' contributions

Both authors have made substantive intellectual contributions to this work and take public responsibility for it. LSA designed, implemented research, and analyzed the results. CQ has collected data and drafted the manuscript. The final version has been approved by all the authors.

Supplementary data

Supplementary data are available at Portuguese Journal of Dermatology online (www.portuguesejournalofdermatology.com). These data are provided by the corresponding author and published online for the benefit of the reader. The contents of supplementary data are the sole responsibility of the authors.

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Conflicts of interest

The authors have no conflicts of interest to declare.

Ethical disclosures

Confidentiality of Data. The authors declare that they have followed the protocols of their work center on the publication of data from patients.

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