

Professional Dental Education in the Modern Russian Federation: Current Status and Prospects

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Abstract

Background: In the Russian Federation, dentistry has become a very popular career choice among applicants, leading to a significant increase in the number of graduates from dental faculties and universities, as well as a growth in the number of educational institutions providing higher medical education in dentistry.

Objectives: The aim of this study was to review the current status, requirements, and prospects of dental education in the Russian Federation.

Methods: Statistical, informative, and analytical official reports in Russia, as well as foreign information sources, cross-sectional studies, and the data on official websites of higher education institutions were analyzed.

Results: In the Russian Federation, there has been an increase in the number of dental universities and faculties, as well as the number of dentistry students over the past 10 years. There is a surge in the number of admitted students, the number of dentists graduating from universities, and clinical residents of dental specialties. At the same time, the tuition fees are the highest for all specialties and are going up every year. There is also an increase in the total number of dentists, and they are concentrated in Moscow and other big cities in the country.

Conclusion: Currently, in the Russian Federation, we can speak of the skewness of medical education toward dentistry. To meet the challenges facing dentistry, it seems reasonable to match the future dental workforce with the future needs of the population. The current situation in the healthcare system of the Russian Federation needs to be improved for medical dentistry education and dental health staffing, and all these issues can only be solved by introducing fundamental changes.

Keywords: Dentistry, Dentist, Medical Education, Health Care Policy, Russian Education

Background

The aim of medical education is to prepare physicians to deliver the fundamental values of medicine and embrace a deep sense of duty and commitment to their patients. Medical education practice varies from country to country (1-3). Medical education has eventually evolved into a process involving three discernable stages, including specialized, postgraduate, and continuous education (1-3).

In most countries, the dental education system begins after secondary school, and the dentistry course usually lasts at least five years (4). Historically, two main models of dental education are recognizable: odontology and dentistry. Odontology-based curricula are primarily oriented toward the oral cavity and maxillofacial region, whereby dental students may focus less on specific body systems and more on the head and neck. In turn, the "dental approach model" is based on studies on the oral cavity and its diseases in

the broader context of overall human health and disease. In educational systems based on the "dental model", students are educated alongside medical students using a common curriculum that includes basic sciences and clinical disciplines in medicine, where the technical and clinical aspects of dentistry are often not learned until the fifth year of study. This results in additional curriculum hours being devoted to recognizing and treating whole-body diseases rather than focusing on oral problems. Both educational models have strengths and weaknesses. The "dental model" emphasizes an intermediate approach and studying and treatment of common diseases of the body. With a stronger medical background, dentists are likely to interact better with physicians, delivering joint efforts of general practitioners and dentists more effectively. However, the disadvantage is that dentistry students who study general medicine may lose the precious time to learn adequate and basic technical topics of dentistry (4, 5). Educational organizations in North and South America, Western Europe, Japan, India, and Australia more commonly use the odontological model and recognize dentistry as an autonomous discipline. In contrast, the "dental model" of education is more common in Eastern Europe and China, where dentistry is more commonly seen as a specialty of general medicine (4, 5).

In recent years, the Russian Federation has seen an increase in the number of dentists, who tend to concentrate in large cities of the country (6, 7). Rakova T. is studying personnel policy in the healthcare sector and believes that there is an oversaturation of the market for dental services in the private medical sector (7).

Some Russian scientists suggest that over the next few decades, the dental industry will experience a labor surplus, which will create economic problems for both doctors and dental clinics (7, 8).

The same problem is shared with other countries. For example, Cheng F. wrote about the status of Taiwan and the imbalanced geographic distribution of dentists across that region (9). The continuation of the current expansion of dentists' staffing capacity may exaggerate this imbalanced geographic distribution, so a mechanism must be in place to control the overall number of dentists to avoid escalation of these problems.

Gabriel M. and Cayetano M. studied the issue of geographical distribution in Europe (10) and highlighted the geographic disparities of dentists as a challenge for healthcare systems. After all, staff policies

have a direct impact on access to dental services and public oral health. Personnel policy and training of specialists are interrelated and should be taken into account in this complex situation.

Objectives

The aim of this study was to review the current status of dental education, as well as its requirements and perspectives in the Russian Federation.

Methods

This was a descriptive comparative study focusing on analyzing primary data collected from the official web pages of Russian governmental organizations. Scientific publications and articles on this topic were also scrutinized. Other data resources included statistical analytics and materials published in Russian and foreign news agencies, statistical reports of the Ministry of Health of the Russian Federation, Federal State Statistics Service (Rosstat), Federal State Budgetary Institution, and the Central Research Institute for Organization and Informatization of Health Care of the Ministry of Health of the Russian Federation. Analyses of the dynamics of enrollment and graduation of dental students were also reviewed.

Results

Overview of the Russian Federation's Geographical and Demographic Status

The Russian Federation is geographically one of the largest countries in the world, encircling 11 time zones, 8 federal districts, and 89 entities consisting of republics, regions, cities of federal subject significance, and autonomous regions. However, the population of 145 million people for such a large territory is relatively small and concentrated mainly in the European part of the country, where there are differences in access to medical care and the distribution of human resources working in the healthcare sector (11, 12). The capital Moscow is the largest city with a population of approximately 13 million (13, 14).

Evolution of Dental Education in the Russian Federation

Higher education in the Russian Federation in dentistry is recognized as a specialty (1, 3). Training is provided by academies, universities, institutes, and other educational institutions and organizations (3, 13).

Dental education can be obtained at the expense of the state (free of charge) if there are free positions in the higher education institution. Also, education in some institutions requires paying a fee by students or

their parents. In addition, the Russian higher education system provides a targeted dental training opportunity at the expense of a particular organization that pays for the course. After graduation, the graduate will have to work in the same organization for at least 3-5 years (1, 3, 15).

In the Russian Federation, medical and pharmaceutical personnel are trained in 62 higher education organizations under the jurisdiction of the Ministry of Health of the Russian Federation, 45 medical faculties affiliated with classical universities under the jurisdiction of the Ministry of Education and Science of the Russian Federation, and private educational organizations (1, 3, 13) (Figure 1).

The medical education system in the Russian Federation is regulated by "Federal Law No. 273 on Education in the Russian Federation" issued on 29 December 2012 and "Federal Law No. 323 on the Fundamentals of Health Protection of Citizens in the Russian Federation" pronounced on 21 November 2011. The "Federal Law No. 273" determines the need to observe the continuity of the educational process (3, 15, 16).

Regarding today's medical education in the Russian Federation, the following important changes have taken place and are taking place:

- Since 2013, the introduction of professional standards
- Since 2011, cancellation of internships for general practitioners
- Since 2016, the replacement of certification of doctors by accreditation
- Since 2013, the implementation of a continuous medical education program

In accordance with the "Federal Law No. 273-FZ, 29 December 2012, on Education in the Russian Federation", the medical education system is carried out on the basis of "Federal State Educational Standards" and "Federal State Requirements", which assume the followings:

Uniformity of the territorial educational space across the Russian Federation

- Integration of basic educational programs
- Variations in the content of educational programs corresponding to different educational levels
- State guarantee of ensuring the standard level and quality of education based on the uniformity of mandatory requirements for the implementation of basic educational programs and assessment of their outcomes (3, 15, 16).

Requirements for Dental School Admission

Admission to dental faculties and universities is a process designed to select students who are capable of obtaining a diploma in dentistry and possessing the qualities to become a full member of the medical profession. There is no unified or special system for admission to dental and medical higher education institutions in the Russian Federation. As a rule, secondary school graduates enter through the Unified State Examination (USE). For admission to a dental or medical specialty, it is necessary to obtain minimum passing scores in three subjects: Russian language, chemistry, and biology. Higher education institutions may set their own criteria for minimum scores (3, 15, 16).



Figure 1. The location of dental education institutions in the Russian Federation, adopted from (1)

Also, in addition to the USE, points obtained by participation in conferences, Olympiads, competitions, etc. are counted. At the same time, the quality of admission to higher education institutions is assessed by the minimum passing scores obtained in the USE and the average scores of applicants admitted to medical and dental universities. For foreign students, instead of the USE, applicants are offered to take special entrance exams to universities (3, 15, 16).

Dental School Curricula

Dentistry education in the Russian Federation encompasses a five-year full-time study program.

After completing this educational program, a graduate should also pass the initial accreditation in the specialty of dentistry, which consists of three stages: testing, performing practical tasks in simulated conditions, and solving situational tasks in the format of electronic cases. After this examination, the specialist can take the position of a dentist and carry out his/her professional activities in accordance with professional standards. The graduate can also continue his/her training in residency to master a narrower specialty (1, 3, 16) (Figure 2).

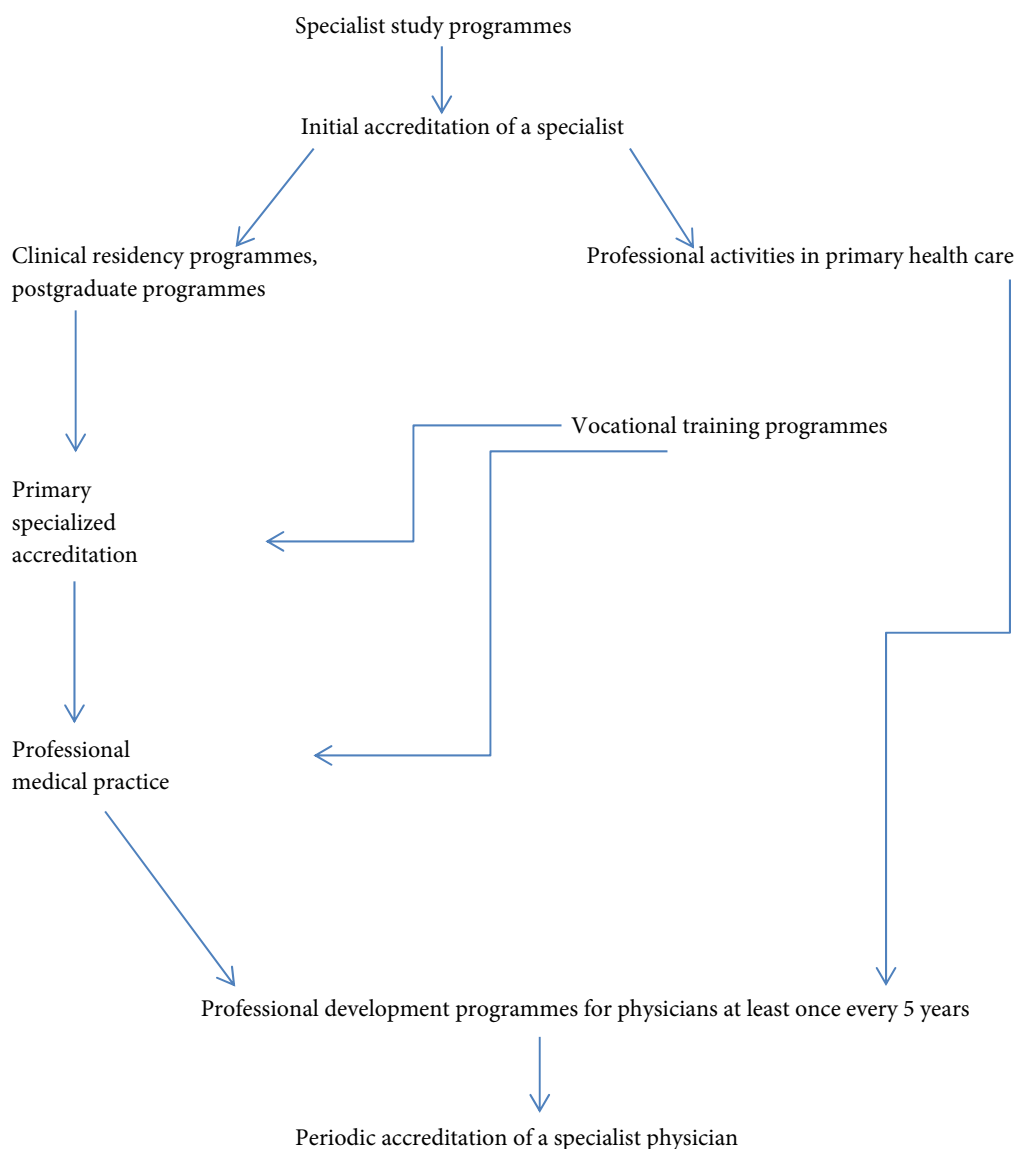


Figure 2. Schematic demonstration of the main stages of higher medical, postgraduate clinical and continuing professional education in the Russian Federation, information source (3, 16)

Staff training in the residency course of dental specialties is carried out in seven areas: pediatric dentistry, orthodontics, orthopedic dentistry, therapeutic

dentistry, general practice dentistry, surgical dentistry, and maxillofacial surgery (3, 16) (Table 1).

Table 1. Dental specialties, qualifications, and positions in the Russian Federation, adopted from (3, 16)

Dental specialties in the Russian Federation	Qualifications and positions
Pediatric dentistry	Pediatric dentistry, growth and development
Orthodontics	Orthodontics
General practice dentistry	General dentistry
Oral and maxillofacial surgery	Oral and maxillofacial surgery, periodontics, oral implantology
Surgical dentistry	Periodontics, oral implantology, surgical dentistry
Prosthodontics	Prosthodontics, cosmetic dentistry, maxillary orthopedics
Therapeutic dentistry	Endodontics, periodontics, aesthetic and restorative dentistry, cariology

Increase in the Number of Dental Students and Dentists

In the last few years, applicants have faced an increase in tuition fees compared to prior years, yet enrollment in universities continues to grow (1, 3). The demand for higher medical education in dentistry can be explained by the asymmetry of information related to the value of expected wages, the number of higher education graduates on the market, the unemployment rate among university graduates, and perspectives of human capital development considering higher medical education as an investment (1, 3, 17) (Figure 3).

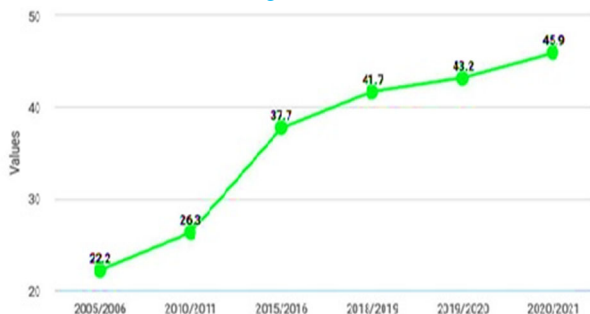


Figure 3. Total number of students enrolled in dentistry (thousand people), adopted from (3, 13, 18)

In the Russian Federation, there has been an increase in the number of dental universities and faculties along with the number of dental students enrolling in them (3, 13, 18) (Figure 4).

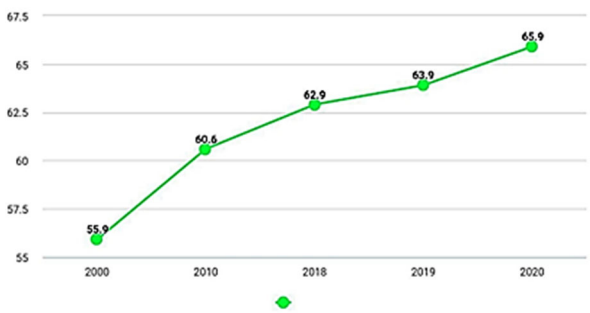


Figure 4. Total number of dentists in the Russian Federation, information source (3, 13, 18)

The community of physicians includes those acquiring higher medical education and employed in medical and preventive organizations, consumer protection and welfare services, social security institutions, medical clinics affiliated with higher education institutions, research institutes, educational institutions, etc. In terms of the total number of doctors in the Russian Federation, dentists are ranked in third place after general practitioners and surgeons (3, 15, 18).

In accordance with the "Order of the Ministry of Health of the Russian Federation No. 786n" approved on 31 July 2020 on "Approval of the Procedure for the Provision of Medical Care to the Adult Population for Dental Diseases", the recommended staffing levels are 5 doctors per 10,000 population (3, 13, 15). The general trend is a steep growth rate in the number of dentists compared to that of doctors in other specialties (3, 13, 18) (Figure 5).

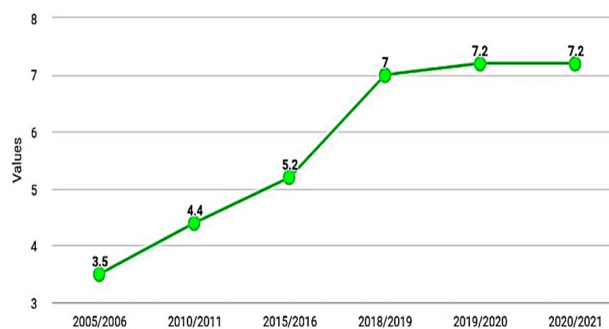


Figure 5. The number of graduated dentistry specialists (thousands of people) in the Russian Federation, information source (3, 13, 18)

Graduation from Dental Schools

After graduation from dental schools, students should pass the initial accreditation of specialists, which includes three steps:

- Testing: to assess the formation of knowledge and skills required to perform professional skills and competencies

- Assessment of practical skills (abilities) in simulated conditions: to assess graduates' practical skills in professional activity in accordance with the requirements of dentistry professional standards.
- Solving situational tasks in clinical medical situations (1, 3, 16).

Discussion

All over the world, not only in economically developed countries but also in developing countries, higher education is democratizing and becoming more accessible to most people. The aims and objectives of higher education have changed significantly over the decades. Medical universities have transformed from elitist organizations to mega institutions (3, 17). The rapid spread of higher education has brought mass character, commercialization, and inequality but has failed to trigger social mobility (17).

An increase in the size of the population, population aging, the importance of dental health and oral hygiene, and the close relationship between dental problems and general systemic diseases have increased the need and demand for dental services, requiring the creation of new dental educational institutions in many countries (3). However, demographic trends in the Russian Federation, including the low population growth, a significant lag in life expectancy (both in economically developed and developing countries), poverty, and uneven geographical distribution of the population and access to dental and medical services have resulted in a difference between people living in Moscow vs. other regions, as well as between people living in cities vs. those residing in villages in terms of living standards and access to quality medical care (3, 12, 14).

At the same time, the main factors contributing to the successful development of the market of paid dental services are standard living conditions, income growth, and the well-being of the population. However, Russia has been experiencing a decline in the true income of its population since 2014 (12, 14).

In recent years, there has been an increase in the number of dental universities and faculties across the Russian Federation, and in parallel, an increase in the number of dentistry graduates and dental students admitted. However, the number of applicants outweighs the capacity of the higher education system, and the costs of education are quite high. Despite this, applicants to medical schools have a great interest in this particular specialty due to the general opinion that

dentistry is the most prestigious and highly paid profession. A similar situation is observed in Canada. According to the 2016 Canadian Census, about 19.4% of all Quebec residents live in rural areas, while according to survey data, a significantly larger number of general dentists and professionals (90.3%) reside in the urban areas of Quebec. Apparently, the industry has an oversupply of specialists in large cities and a shortage in remote areas (10, 19). Scientists from the United States have expressed their concerns over the current situation of training dentists. Dental schools are releasing new dentists at a faster pace than the population growth. Three factors are especially important: 1) improved oral health; 2) reduced costs per patient per year, giving dentists an incentive to treat more patients to maintain revenues justifying their investment in dental education and practice; and 3) the inflow of new dentists at a faster rate than the population growth. If these trends continue, dental surges are likely to be between 32% and 110% by 2040. The main task of dental schools should be to establish the release of dentists until 2040 and not to wait until market forces reduce the surplus (19).

Conclusion

Health managers should plan to balance the composition and selection process of healthcare staff in the future to avoid shortages in one area and the overflowing of specific specialties on the other side.

The lack of appropriate human resource policies in many countries is the cause of chronic imbalance and multifaceted public health consequences: quantitative mismatch, qualitative mismatch, uneven distribution, and lack of coordination between actions and health needs. The Russian medical education system is on the threshold of reforms. Medical education, including higher and secondary education, is closely related to staff policies in the sphere of health care. When planning the training of medical specialists, it is recommended to take into account the staffing needs of different regions of the Russian Federation and the large size of some territories, as well as differences in demographic features, morbidity rates, utilization of medical services, etc. Education and healthcare managers should pay attention to the rates and types of admissions to medical universities and faculties, postgraduate clinical education fields, and employment of medical graduates. Also, another relevant issue is the quality of training of medical specialists, compliance of

training programs with modern healthcare, professional competency of doctors, etc.

Personnel policies in the sphere of Russian healthcare can be revised to take into account these issues. It is advisable to pay attention to successful international experiences in medical education and healthcare personnel policies in other countries. Key issues in human resource management in healthcare are to have systemic and comprehensive solutions at the federal and regional levels and long-term planning.

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