HISTORY OF DEVELOPMENT OF UNDERGRADUATE PUBLIC HEALTH EDUCATION IN BULGARIA

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SUMMARY

Objective: The study aims to present a historical review and analysis of the establishment and development of undergraduate public health (PH) education in Bulgaria from 1878 until 2019.

Methods: A search and selection of historical documents was performed, including laws, rules, regulations, government plans, programmes, scientific publications from periodical medical press, journals, specialized monographs, and books. A retrospective analysis of the normative documents related to the organization of the sanitation and public health activities, and to the provision of professional undergraduate education of the public health workforce in Bulgaria has been carried out. The required competences and tasks of the specialists exercising public health control services were extracted.

Results: The development in the public health educational activities were followed in three consecutive periods: the newly independent state (1878–1944); the socialist state (1945–1990); the democratizing state (1990–2019). The development of organized PH activities began after the liberation of Bulgaria in 1878. The historical analysis reveals a direct link between the major socioeconomic changes in the country and the organization of PH undergraduate education which passed through dynamic transformations. The professional education in the sphere of PH started with the training of feldshers, followed by sanitary feldsher and sanitary health inspectors performed in secondary vocational medical schools during the socialist period, reaching the stage of undergraduate university PH education provided by medical colleges associated with universities in the third period.

Conclusion: Despite the continuous development in the organization of undergraduate PH education in Bulgaria, its content is still not fully compatible with the basic European PH services and actions. There is a growing need for wider standardization and integration of undergraduate PH education in the EU so that the specialty can reach the status of a regulated health profession similar to medicine, nursing, and others.

Key words: history, undergraduate, public health education, Bulgaria

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INTRODUCTION

The establishment and development of undergraduate public health (PH) training in Bulgaria coincides with the restoration of the independent Bulgarian state after its liberation from the Turkish Empire in 1878. The main problems in this period were related to the urgent need to set up the principles and the regulatory framework of the healthcare system and its infrastructure. After the liberation and the signing of the San Stefano Treaty in 1878, sanitary and hygiene activities were initiated. They were aimed at protecting the health of the citizens. With the establishment of new administrative health institutions, permanent staff positions were approved. This meant that trained medical personnel was needed to provide PH service to the population.

At the beginning of the 1880s, in Bulgaria, there were only 72 medical doctors (53 Bulgarians, the rest of Turkish, Greek, Russian, Armenian, and other ethnicity) (1) for a population of a little more than 3 million (3,154,375) citizens according to the census from 1887 (2). All doctors were educated outside the country as

there was no institutionalized medical education in Bulgaria at that time and most of them were working in the twelve hospitals (7 of which military) spread in the main cities (3, 4).

The acute shortage of health personnel in the country was a public health emergency. Feldshers were the first and only solution to the problem and they were officially appointed to carry out PH control activities in the years after the liberation – the end of 19th and the beginning of the 20th century. Their work was further supported by the position of sanitary police officers whose functions and responsibilities were described and regulated with the Rules for Sanitary Police Officers in the Sanitary Police Department of the Municipal Administration (23 May 1889) and the Sanitary Act adopted in 1888 (5). At the time, having medical police was common for European countries as Germany, Italy, or Austria (6). The fact that the first Bulgarian prince after the Liberation, Alexander Joseph von Battenberg, was a German prince with an Austrian father provides some explanation for the strong German influence on the internal organization of the newly independent Bulgaria, including health and sanitation matters.

The newly established civil sanitary service was under the governance of the Ministry of Internal Affairs and its hierarchical structural organization corresponded to the administrative territorial division of the country (regional, district, municipal). A sanitary service was established in each region, managed by a regional doctor – the local representatives of the Public Health Protection Directorate, all functioning under the auspices of the Ministry of Internal Affairs and consulted by a Supreme Medical Council. Within regions, districts were established with district doctors, appointed to act as heads of district sanitary services and as advisers to the district police chief on sanitary problems. In each municipality within districts there was a municipal sanitary service, headed by a municipal doctor, subordinated to the municipal mayor (7).

The sanitation and hygiene activities were further structured with the Public Health Protection Act from 1903 and all attached regulations from 1904 (7). These normative documents specified the structure of the institutions carrying out sanitary control in settlements and the obligations of the feldshers and the sanitary police officers – predecessors of today's undergraduate PH professionals. A main requirement for obtaining the positions of a feldsher or a sanitation police officer was the availability of a feldsher's diploma. Thus, the figure of the feldsher represented the first trained PH professional in Bulgaria (5, 8).

The aim of the present study is to carry out a historical review and analysis of the regulatory framework setting the process of the establishment and development of undergraduate PH training in Bulgaria from 1878 until 2019.

MATERIALS AND METHODS

A search and selection of historical regulatory documents was performed. A retrospective historical analysis of the normative documents related to the organization of the sanitation and PH administration and to the provision of professional education and training of the PH workforce in Bulgaria has been carried out. The required competences and tasks of the specialists exercising PH control were searched and extracted.

Sources of information and documents that were used included regulatory documents – laws, rules and regulations; and other text sources – government plans and programmes, and articles and publications from periodical medical press and specialized monographs, books, scientific journals, and others.

The main developments in the regulatory framework and PH training activities were followed in three consecutive historical periods: the first or "sanitation stage" – from 1878 until 1944; the second or "socialist hygiene stage" (the socialist state) – from 1944 until 1990; the third or "public health stage" (the democratizing state) – from 1990 until 2019.

The time periods were chosen to represent the main political and socioeconomic stages in Bulgarian history from the last two centuries.

RESULTS

The historical analysis is based on 103 normative documents regulating the healthcare system in the three stages (Table 1).

Table 1. Number of historical documents from each of the three periods used for the review

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Period	Laws	Regulations	Other institutional documents	Total		
First 1878–1944	10	18	10	38		
Second 1945–1989	5	20	7	32		
Third 1990–2019	14	12	7	33		
Total	29	50	24	103		

Stage One: Early Education in the Field of PH in Bulgaria in the 1878–1944 Period

The first PH professionals – the feldshers, who practiced in the newly independent Bulgarian state were educated outside the country - in Russia, Tzarigrad, Romania (4). The training of feldshers in Bulgaria was organized first in the Temporary Military Physician Assistant School in Sofia at the end of 1877/ beginning of 1878 – immediately before the Independence (8, 9). Preparations for expansion of this early feldsher's training in the towns of Plovdiv and Tarnovo began in 1878. Evidence of this is a letter to the Imperial Commissioner (2 October 1878) (3). A subsequent report (No. 348 from 17 November 1878) provided the conditions for student admission and training in the schools (3). A medical meeting from February 1879 promoted the expansion of the feldshers' training and delegated this task to the Supreme Medical Council (8). As a result, feldshers' courses with a 5-month duration started on March 1879 in Sofia, Plovdiv and V. Tarnovo. They followed the educational programme of the Russian feldshers' schools. The content of the education covered topics in anatomy, hygiene, pathology, therapy, surgery, prescription, and included military field practice, according to Dr Marin Rusev (10), head of the Public Health Protection Directorate in Bulgaria in the 1903-1908 and 1912-1918 periods (11). Five months later, the first legislative document the Rules for the Structure of Feldsher's Schools was issued on 5 September 1879 with a Decree No. 150 of the Supreme Medical Council (3, 5).

This was the beginning of the normatively regulated PH and medical education in Bulgaria which set the stage for the opening of educational institutions and for the training of feldshers, who were also the first trained specialists in the field of PH. From 1879 to 1923 the training of feldshers underwent numerous structural reorganizations (Table 2).

Approximately 1,000 feldshers graduated in Bulgaria in the 1878–1903 period, 573 of whom had professional realization outside the army, some – 356 in the civil service, and the rest in the municipal or district service (8, 12). Feldshers' training was discontinued between 1921 and 1944 (3); 1,162 sanitary sub-officers with a 3-year practice in the army were allowed to attend and successfully passed state exams, thus acquiring the legal right to work as feldshers in the civil service (3, 8). The continuous reorganization of the training of feldshers was a serious problem that was reflected in publications in medical periodicals from this period (10, 13). They were filled with angry criticism against the nihilism of the medical profession, which considered

Table 2. Changes in structures and qualification degrees in historical periods

Time period		Name of educational institution	Educational qualification degree
First	March 1879– October 1879	First military feldshers' schools in Sofia, Plovdiv and V. Tarnovo	6- to 8-month courses
	1879–1884		Secondary medical education
	1895–1903	Civil feldshers' schools in Sofia	
	1914–1915		
	1880–1884		Secondary education
	1888–1891	First military feldshers schools in Varna and Sofia; Sanitary sergeant school	
	1914–1915	- Gamary Sergeam Scribbi	
	1892–1919	Sanitary division detachments in Sofia, Plovdiv, Ruse, Pleven, Vratsa, Sliven	8-month courses
	1921–1944	Equivalency exams for sanitary sergeant graduates from division detachments	Requalification courses for feldshers
Second	1946–1950	Institute for medical technicians (feldshers), nurses, midwives	College degree
	1951–1975	Medical school for feldshers	Secondary medical education
	1966–1975	Medical school No. 3 at United medical school in Sofia – Sanitary Inspector programme	College degree in medicine
	1975–1980	Medical college	College degree
	1980–1990	Institute for training of health professionals with secondary vocational education	Secondary vocational education
Third	1990–1996	Medical college	College degree
	1997–2003	Medical college	Specialist in
	2004–2007	Medical college – Health Inspector programme	Specialist in
	2008–2019	Medical college – Public Health Inspector programme	Professional bachelor's degree

feldshers' training as superfluous despite the shortage of doctors in the country (13, 14). The idea of creating an institute for the education of sanitary agents started to gain prominence, but the society was not ready to recognize and support it (14).

Stage Two: Establishment of Specialized PH Vocational Training (1944–1990)

From September 1944 a long chain of processes led to a drastic political transformation of Bulgaria – from a constitutional monarchy with a multi-party parliament into a non-democratic one-party hegemony, followed by a 40-year domination of a Soviet model of socialist party political governance. By the end of 1944 the number of health professionals had increased to 3,516 doctors, 824 dentists, 695 pharmacists, 1,070 midwives, 372 nurses, and 826 feldshers (the PH professionals at the time) (15).

The first important structural change affecting the healthcare system was the establishment of the Ministry of Public Health (independent from the Ministry of Internal Affairs) (9 September 1944) (8). The following socialist reorganization of the health sector had the following main characteristics:

- Intensive nationalization of all private health structures was carried out: private medical and dental practices, hospitals, private x-ray laboratories, private pharmacies, all private health services were prohibited and nationalized (12).
- Universal comprehensive "free" medical care was introduced.
 It was financed entirely by the state budget and governed only by the Ministry of Public Health and its local organs (11).
- A forty-year period (1949–1989) of uncritical "blind" recognition and exclusive application of only Soviet medical and health science and Soviet models of healthcare organization and education of health professionals followed. The manage-

ment of health care not only involved but was dominated by political (the Communist party) structures at all levels – national, regional, local (11, 15).

The first three of the 4 socialist decades were characterized by massive financial investments in the health sector – establishing material infrastructure, increasing the number of newly built health care and health educational institutions, increasing the number and variety of health professionals whose distribution across the country was strictly controlled until the second half of the 1970s (8, 15). The priority of the health policy in that period was health prevention. Most of the preventive activities were delegated to the established network of sanitation and epidemiology stations responsible for the health protection of the population, continuous sanitary surveillance, and for overcoming the greatest challenges of that period – control of malaria, diphtheria, tetanus, polio, tuberculosis, and other infections (12, 16).

All political, structural, organizational healthcare reforms had to be backed with a sufficient number of educated health professionals (12). The number of medical universities increased from one to five, and a significant number of new professional high schools were established for the training of various health professionals at secondary vocational level (2 to 3 years – less than the 4–6 years of university education, but more than secondary).

The training of feldshers was restored in 1949 in the capital and 4 years later (in 1953) the specialty "sanitary feldsher" was offered at the medical school in Ruse. In the middle of the 1960s, a reform of the organizational structure of the sanitation and epidemiology system was initiated with a Decree of the Council of Ministers No. 11 of 15 March 1966 and Decree No. 257 of 19 March 1966 the State Sanitation Inspectorate (17–19). A new profession and specialty – sanitary inspector – was established and developed. The graduates of the programme became the only

professionals with undergraduate PH education responsible for the state sanitation control in the field (20). The education of sanitation inspectors started in the same year, 1966, as a three-year programme (20–22). The Department for Sanitary Inspectors was administratively associated with the medical school (heir to the First Military Physician Assistant School) in Sofia, and used the structures and equipment of the Medical Academy for educational activities. The educational programme, while following the Russian model, is said to also be coordinated with the Western traditions in the field (22). Until 1983 the training of sanitary inspectors was carried out only in the medical school in Sofia, when the same specialty was offered at the Institute for Training of Health Personnel in Varna. This expansion institutionalized the undergraduate three-year public health education characterized by the following main features:

- It followed a study plan of 36 disciplines from three main groups: general subjects, general medical and specialized PH subjects. The last group included sanitary chemistry, social hygiene, food hygiene, hygiene of childhood, radiation hygiene, epidemiology, parasitology, health law, community water supply and sewerage, housing construction, heating and ventilation, social psychology, microbiology, occupational hygiene, and occupational diseases.
- The education had a strong focus on practical skills for sanitary control in all possible environments. The study hours for practical training have been increased to more than 1,300 for the 3-year period.

With the beginning of the socialist sanitary reform the Ministry of Public Health issued Regulations for the State Sanitary Control (SG No. 68/30 August 1966) according to which the position of sanitary inspector could be occupied only by undergraduates of the same specialty (or sanitary feldshers) (20). Their professional qualification included activities related to the state sanitary control in settlements; in public and cultural establishments; in transport; in the working environment; control of air, water, and soil; control over the design, construction, and reconstruction of industrial, communal, educational, etc., buildings and facilities; the production, storage, transport, and trade of any products that affect the health of the population. With the adoption of the new Public Health Act from 1973, the responsibilities and competences of sanitary inspectors were substantially increased (23).

Public Health Training After 1990

A second transitional period of significant political, socioeconomic, and legislative changes occurred in Bulgaria after 1990 which affected the health policy of the country and the training of PH professionals, including sanitary inspectors.

All aspects of the undergraduate PH education were affected: name of the specialty, requirements for the educational institutions providing the training, the educational qualification degree (EQD) acquired by the graduates, and the content of the study plans and programmes.

The sequence of the reforms affecting the type of educational structures and the educational degrees are presented in chronological order in Table 2.

The name of the specialty changed from sanitary inspector through health inspector (2004) into public health inspector in

2008. The requirements for the educational institutions changed from secondary specialized medical schools through independent colleges into medical colleges based within the structure of medical universities. The EQD acquired by the graduating professionals also changed in accordance with the upgrade of the institutions – from diploma for secondary vocational medical education, through college degree and public health inspector specialist to professional bachelor's public health inspector degree.

Today the Public Health Inspector programme is nationally regulated, following strict unified state requirements regarding the curriculum including 27 disciplines, 1,660 study hours of theoretical education and 1,060 hours of practical training. The education is structured in 3 years (6 semesters with 30 ECTS credits per semester) and finishes with state theoretical and practical exams. The number of graduates in the Sanitary Inspector programme increased, as in 2004 the specialty was established in a third educational institution – the Medical College of Plovdiv.

Nowadays, the training of PH professionals in Bulgaria is carried out in 3 medical colleges in Sofia, Varna and Plovdiv. In 2009, a new Public Health Protection and Control programme with a bachelor's degree and a 4-year duration (8 semesters) was established at the Faculty of Public Health at the Medical University of Pleven. This led to a radical change in the training of bachelors in the field of PH, imposed by the desire to provide a better perspective for the graduates' professional realization. The new specialty complies with the unified state requirements and further builds on them.

DISCUSSION

Undergraduate PH education has had a long and evolving history in Bulgaria. It has continuously adapted to striking political and socioeconomic changes in the country, affecting also the context of PH practice and the organization in the field of higher education. Generally, the process of PH education development has unfolded in three main periods.

The first period, from 1878 to 1944, set the foundation of institutionalized undergraduate PH education in Bulgaria. It coincided with similar processes in Western European countries. In the UK, for example, in 1871, local authorities became responsible for PH and the postgraduate Diploma in Public Health (DPH) was instituted the same year (24). More than 50 years later (in 1924), the London School of Hygiene and Tropical Medicine (LSHTM) - the first PH school in the UK, was founded within the University of London with the support of the Rockefeller Foundation. This non-governmental organization (NGO) has played an important role in the development of PH workforce and capacity in Bulgaria as well (25, 26). From 1924 to 1934, thirty-seven Bulgarian doctors or specialists in other health-related fields received the Rockefeller Foundation fellowships, allowing them to obtain graduate public health training either in the US, or in specialized centres in Europe (25). At their return to Bulgaria, most of them found employment in newly established national or regional public health institutions. In the period 1932–1935 the same foundation has donated 19 million Bulgarian leva for the construction and equipment of the National Centre of Infectious and Parasitic Diseases, considered an invaluable support for the development of the public health in Bulgaria in that period (26).

The same NGO has played a significant role for PH capacity building and professional development in all central European countries starting with Czechoslovakia from 1919 (27).

Specific education related to PH was first institutionalized on an intermediate professional, above secondary and below higher (university), level in Bulgaria, which in 1946 was regulated as "semi-higher" education. Only in 2007 the undergraduate PH education was modelled according to the Bologna Process and partially synchronized with the European educational degrees with the term professional bachelor's degree. However, there is no professional bachelor's degree in other countries in the world. That specific term aims to indicate the difference between the three-year education of professionals with a professional bachelor's degree and other four-year bachelors as in nursing, physiotherapy, midwifery, etc.

This terminological mismatch between the professional bachelor's degree regulated in the Bulgarian higher education, which is not compatible with the existing EU degrees according to the declaration and Directive 2005/36/EC of the European Parliament, is regarded as the main cause for the low status of PH professionals in Bulgaria, restricting the international mobility of students and their educators and reducing the chances for professional realization of graduating professionals.

However, the problems with undergraduate PH education are not limited to the qualification degree of the graduates. The more serious problems are related to the content of the education and the competences of the graduating professionals. Today's intensive three-year PH bachelor's degree education is still strongly related to medicine and focused on hygiene control and epidemiological surveillance of infectious diseases. This now outdated model continues to have great influence on the undergraduate PH education in Bulgaria.

The activities of the Association of Schools of Public Health in the European Region (ASPHER), Open Society Institute (OSI), and other international and funding agencies geared the process of restructuring, reorganizing and coordinating PH education on international level, but these efforts are mostly directed at graduate (master) level. Since 2006 ASPHER has started intensive Europewide coordinating activities on the development of an European list of core competences for public health professionals passing through several rounds and still continuing at present (28). The European Agency for Public Health Education Accreditation (APHEA) has been established in 2011, offering substantial contribution to PH education coordination and quality standardization across Europe (29). In the last decade the European Centre for Disease Control (ECDC) joined the efforts in coordinating the competencies of public health professionals in the area of communicable disease surveillance and control, infectious disease epidemiology, emergency preparedness, hospital hygiene, and other (30).

New masters programmes in PH and many more in healthcare management have been established, institutionalized, and strive for international accreditation and recognition.

Possibilities for research and postgraduate studies of PH professionals have also been offered. Many of them are in-line with the concepts of the New Public Health and the essential PH operations.

However, the process of undergraduate PH education is staying aside from these modernizing influences affecting also the status of a substantial number of PH professionals working in the field in Bulgaria.

CONCLUSIONS

This historical analysis reveals the existence of a link between the main political, socioeconomic and legislative changes with the educational and health policy in the Republic of Bulgaria and the development of the training of PH professionals in the country. The education of PH prevention specialists in Bulgaria has adapted dynamically in the three historical stages of PH development.

Influential international factors have always played an important stimulating role regarding the direction, structure and organizational aspects of PH education in Bulgaria. However, there is a growing need for international organizations to play once again a key initiatory role for Europe-wide regulation of PH prevention as a key regulated health profession, which would be expected to lead to wide standardization and integration of undergraduate PH education in the EU.

Conflicts of Interest

None declared

Adherence to Ethical Standards

The manuscript complies with all ethical recommendations including data protection.

Supplementary Material Pertaining to Table 1

Detailed list of the documents is presented in a Supplement available upon request.

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