

## **REVIEW**

By Associate Professor Miglena Simonska-Tsatsova, PhD,  
South-West University “Neofit Rilski”, professional field 7.4. Public Health, of the  
submitted scientific works for participation in the competition for the academic position of  
Associate Professor in the professional field 7.4. Public Health, announced by New  
Bulgarian University in the State Gazette, Issue № 23/19.03.2021, with a candidate of  
Chief Assistant Professor Polina Mihova Mihova-Pavlova, PhD

Polina Mihova-Pavlova graduated with a Bachelor degree in Computing Systems and Technologies in Medicine from New Bulgarian University in 2004. In 2006 she obtained a Master’s degree in Public Health with a specialization in Computer Technologies in Biomedicine, and in 2020 in Logopedics. She defended a doctoral dissertation on “Telemedicine functions of the Medical Information System” in the professional field 5.3. Communication and Computer Engineering at New Bulgarian University (NBU).

She has extensive professional experience as a lecturer at New Bulgarian University, where she was appointed as an assistant professor in 2004, and since 2010 has held the academic position, incorporating her acquired skills and qualifications in Telemedicine and Speech and Language Pathology with Computer Systems and Technologies. At the present she is a director of the Programme Council of the Department of Health Care and Social Work at NBU.

Her research interests are in telemedicine, electronic health, health information systems, health informatics, standards in medical practice, electronic health records. She is fluent in English.

### **I. Assessment for compliance with the minimal national requirements and the requirements of New Bulgarian University**

The scientific works and scientific activities presented by the candidate meet the minimum scientific requirements for the academic position “Associate Professor” in the area of higher education 7. Health Care and Sport, professional field 7.4. Public Health, according to art. 26 of the Act on Development of the Academic Staff in Republic of

Bulgaria, Art. 1a and Annex to Art. 1a, para. 1 of the Regulations for the Implementation of the Law for Development of the Academic Staff in Republic of Bulgaria (New SG 56/2018, I force from 06.07.2018; am. and supl., SG 15/2019) and the Regulations for Implementation of the Law for Development of the Academic Staff in Republic of Bulgaria of New Bulgarian University.

## **II. Scientific work and results**

Polina Mihova has submitted the following research papers for participation in the competition:

- One habilitation work – monograph;
- One co-authors in a monograph “Health Information as a social regulator”;
- Two issues of chapters from collective monograph;
- Seven articles and reports in scientific journals, refereed and indexed in world-known databases with scientific information
- Eighteen publications in non-refereed journals or edited collective volumes.

Polina Mihova is a co-author of a monograph “Health information as a social regulator” and a textbook “Electronic Healthcare”, which present the structural classification of the types of information systems, the basis for their implementation in medicine. These studies are a prerequisite for the development of her habilitation work and they are evidence of the consistent and systematic entry into this field. Her previous studies and publications are a groundwork for writing a separate monograph.

The presented monograph on "Applied software solutions in healthcare" has a volume of 161 pages and is an innovative work with a practical-applied character, distinguished by an in-depth analysis of the application of software products in medicine in the world and in our country. Mihova examines historically the development of medical and health information systems from the 1950s to the present by decades, making a connection between the innovations in computer technologies and their implementation in healthcare. The parameters to be met by the information system are also classified. The need for the application of software products in medicine and healthcare is justified to support the transfer of data between professionals and facilitate their daily work. The first two chapters are characterized by a critical analysis of the achievements and shortcomings in the field of

medical information technology. They highlight a clear author's position on the need for development of medical informatics in our country to be evidence-based in practice. Chapter 3 presents three author's software with evidence of their applicability, based on the knowledge and competencies of the author, user's feedback through discussions and questionnaires, and a study of the structure of each of the implemented units. Based on what has been written, the following contributions to the habilitation work can be summarized:

1. Critical analysis of the application of information technologies in healthcare and medicine at home and abroad
2. Development of SWAT analysis of "cloud computing service in medicine" for generation, processing and storage of innumerable data sets
3. Development and implementation of three software solutions:
  - Electronic health record in obstetrics and gynecology practice
  - Co-authorship in the Medical Information System for the Center for Emergency Medical Care - Sofia region
  - Information system for organizing and managing the work schedules of the medical staff at the Military Medical Academy - Sofia.

The software solutions are based on numerous studies and customer feedback, accompanied by the relevant Protocol for their implementation. They have been developed in accordance with a number of regulatory documents in the healthcare of the Republic of Bulgaria and consumer institutions.

4. Development of an author's compiled dictionary of the basic concepts in medical informatics.

Proof for the active scientific activities of the candidate are the other publications for participation in the competition, published in refereed and peer-reviewed journals, which are mainly co-authored, proof of the P. Mihova's teamwork skills. Some of them have been published in journals indexed in Scopus and Thomson Reuters (Web of Science). All works stand out for their interdisciplinary character.

With significant theoretical and applied contributions stand out the author's participation in the development of teleconsultation solutions for the connection between two hospitals (Mihova, Vinarova, Pendjurov, 2009), an web application of health database for antioxidants - vitamins (Vinarova, Mihova, Pendjurov, 2010), the elaboration of a computerized system, including electronic medical records and a telemedicine module

(Mihova, Vinarova, Pendjurov, Ranchev, 2012), the creation of a method for implementing open software libraries for processing medical images stored in DICOM format (Mihova, Petrov, Andonov, 2015). Proof of the applied nature of the contributions are the software developments implemented in practice.

The interdisciplinary nature of Polina Mihova's scientific production is also evident in publications related to the research of important for Public health and Higher education aspects such as the application of information technology in children with developmental disabilities (Pendjurov, Mihova, 2012), information and communication technologies in the field of therapy and rehabilitation (Mihova, Stankova, Pendjurov, 2013), online educational platforms in higher education (Petrov, Mihova, 2018), WHO documentation on sanitary norms of EM pollution and health risk assessment in exposure to low frequency radiofrequency fields (Stancheva, Mihova, 2014), circumstances related to the reporting of bad news in medical professions (Stankova, Mihova, 2018), a computer-based model for the assessment of aphasia based on Kertezs' Western Aphasia Battery (Pendjurov, Mihova, Dashovski, 2014).

Polina Mihova's publications enrich the theory and practice in a range of health professions, such as physician, nurse, psychologist and speech therapist, and through them she proves that interdisciplinary teams can contribute to increasing the efficiency of these professionals.

Direct evidence of the impact of publications and software solutions implemented in practice are the citations provided by the author:

- Seven citations in scientific journals, referenced and indexed in world-known databases with scientific information;
- Two citations in monographs and collective volumes with scientific review;
- Nine citations in non-referred per-review journals.

Polina Mihova's research skills are also evident from her participation in research projects, such as an international project under the Erasmus + program for the development of an online learning environment for E-Health. Evidence for the application of the results of the project activities are the projects "Communication disorders in children with bilingualism - assessment methods", "Intensive program: special abilities and talents - patterns of cognitive processes in people with disabilities", "Training of pedagogical specialists for prevention of school violence, aggression and other negative manifestations",

related to the application in a real practical environment of diagnostic methods for children with bilingualism, methods of working to overcome violence and aggression in schools and the introduction of an interdisciplinary approach to research and support for people with disabilities, focusing on the combination of disorders and talents, with a new look at the treatment of cognitive disorders in these individuals.

### **III. Educational and teaching activities**

Chief Assistant Professor Polina Mihova-Pavlova is a lecturer at the Department of Health Care and Social Work at NBU. She gives lectures and conducts seminars in disciplines related to her competencies such as "Problems in health and safety, prevention, communication interactions", "Standards for electronic management in health care", "Priorities in health care", "Quality management and medical standards in health systems", "Management of information sources in the health sector", "Procedures for implementation, management and control of social services", etc. All the courses of which she is a holder are developed for work in the electronic training module "MOODLE - NBU". She also teaches in the programs "Digital Humanities" and "Language and Speech Pathology" in English, in the development of which she takes an active part. She is also involved in the supervising the internship in the master's program "Health Care Management".

Her active work with students includes organizing student participation in a conference, providing recordings of practical sessions with patients for students who cannot participate in real time, providing electronic resources for observing therapeutic sessions by students, working with students with special educational needs. The average grade from the students' opinion survey is over 5.50.

Proof of the teaching skills of Chief Assistant Professor Polina Mihova are her courses and seminars in Nicosia, Cyprus in 2018 and 2019, as well as two workshops on E-health in Bulgaria in 2020.

### **IV. Administrative and public activity**

Polina Mihova conducts active administrative and public activities. She is a member of several professional and public organizations, such as:

- Bulgarian Center for Women in Technology
- ITHEA International Scientific Society
- Balkan Medical Association

- International Association of CyberPsychology, Training, and Rehabilitation (iACToR)
- AISfTeH
- Working Commission on HTA at the Ministry of Health.

She is a member of the editorial board of the Journal of Telemedicine and eHealth.

P. Mihova's participation in collective governing bodies of NBU is the position of "Director of a Programme Council". She also conducts activities to attract foreign students to the programs at Department of Health Care and Social Work.

#### **V. Personal impression of the candidate**

Although, I do not know the candidate personally, my impressions of the materials presented by Polina Mihova for the competition are for an innovative and dedicated scientist, expert and lecturer who works actively in a team and is able to achieve her goals.

#### **VI. Opinions, suggestions and notes on the activities and achievement of the candidate**

The materials presented by the candidate are evidence of extensive research and teaching experience with a number of implemented in practice achievements of her research. I recommend her to continue with the development of software solutions in Health care and to expand the scope of professionals who need to develop information and electronic products for their work through interdisciplinary collaboration.

#### **Conclusion**

Based on the above, I give a positive evaluation of the overall academic activity of Polina Mihova Mihova-Pavlova and I propose to be admitted for election by the Academic Council of the New Bulgarian University to hold the academic position of "Associate Professor" in the area of higher education 7. Health Care and Sports, professional field 7.4. Public Health.

15.07.2021

Reviewer .....  
/Assoc. Prof. Miglena Simonska-Tsatsova, PhD/