

STATEMENT OF OPINION

by

Assoc. Prof. Yoana Ivanova Simeonova, PhD,

on a dissertation for obtaining a PhD degree

AUTHORED BY:

Neli Diyanova Petrova

Dissertation topic: **Digital and e-health literacy in the training of Bulgarian nurses**

Supervisor: Prof. Iskra Mircheva, PhD

By Ordinance R-109-60/27.01.2026 of the Rector of Medical university "Prof. Dr. Paraskev Stoyanov" – Varna I was appointed as a member of a Scientific Jury on the procedure for the dissertation work of Neli Diyanova Petrova, a full-time doctoral student in the doctoral program of Public Health Management at the Medical university – Varna, professional area 7.4. Public Health, higher education field 7. Healthcare and Sports. At the first meeting ((Protocol 1/02.02.2026) of the Scientific Jury, I was instructed to prepare this opinion.

The dissertation work of Neli Petrova is written in a total volume of 149 pages, out of which 109 pages of main text, 1 title page, 4 pages of content, 1 page of abbreviations, 14 pages of bibliography and 20 pages of appendices (including 2 questionnaires and 52 tables with SPSS data processed). The text is illustrated with 40 tables and 79 diagrams. Two hundred and twenty-eight (31% for the last 10 years) literary sources in Latin were used. However, there are no sources in Cyrillic in the reference list.

Assessment of the relevance of the topic

Nowadays, reforms of the health systems happen to meet the needs and values of patients and society as well as taking into account available resources. The digital transformation of healthcare enriches ideas of improving access, safety and efficiency of healthcare services. The progress in e-Health is closely related to the acquisition of digital competence by medical specialists, and

especially by nurses, due to the work with electronic resources in the provision of healthcare services to patients. This makes the topic of dissertation of Neli Petrova relevant, timely and useful for clinical practice and reveal opportunities to implement the curriculum proposed in the training in specialty of Nursing.

Chapter one provides a critical analysis of what is well-known so far in the scientific medical literature on the dissertation topic. The volume of literature review is 24 pages (16% of the total volume), and in accordance with the requirements. It is highly informative, well-structured and demonstrates excellent knowledge of the theoretical framework and scientific research on the problem. The PhD student separates her analyses of the literature into different parts, a better structuring of the content based on her results is needed. The definitions of e-Health and digital literacy (DL) are reviewed, the conceptual framework of health literacy and the toolkit for assessing digital health literacy (eHL) are presented. Further, the focus is on the development of DL, the opportunities and challenges of implementation of digital technologies in the nurse's daily practice, as well as in the teaching and learning processes in Nursing students.

The literature review concludes with a clarification of the thesis research goal and ambitions of the PhD student for developing a training module in Nursing Informatics. However, conclusions are not made about the issues on the topic to serve them as an argument in formulating the goal and objectives of the dissertation work.

Assessment of goals, tasks, material and methods

Chapter two presents the methodological foundations of the research work. The goal is clear and specific, focused on identifying, analyzing and assessing the levels of digital and e-Health literacy among nurses and students in the specialty of Nursing in Bulgaria, by constructing and testing index structures for measuring key aspects of digital competencies. Seven objectives are proposed to fulfill the goal. I think the objective 1 is not necessary. Higher precision is required in the formulation of objectives 3-5. As the small size of the sample (N=211), it is not appropriate for the formulation of the goal and tasks to be oriented towards studying the problem at the national level.

Four hypotheses were tested in the dissertation work. Some hypotheses are needed to be formulated more clearly and correctly for better understanding the research perspective and the contributions of the thesis. In general, is accepted to work with the null hypothesis, this requirement was not met by the PhD student for

all generated scientific assumptions.

Appropriate methodological tools were applied for the research, in accordance with the study object and subject, as well as with the goal. The PhD student studied and compared the levels of digital competence and e-Health literacy in 101 nurses and 110 students of the specialty "Nursing". However, the size of the two independent samples is relatively small, and the timeframe of 4 months is not sufficient to ensure data representativeness and the opportunity to generalize the results at the population level. A sampling procedure and the design of the epidemiological study are unclear. Also, it is not clear what is the type of SAQ survey – group or individual setting. The toolkit applied is a scale for assessing 6 main components (information and data literacy; communication and collaboration; digital content creation; safety; problem identification and solving skills; e-Health) of digital and e-Health literacy based on the Lilly Model. The questionnaire is a modified version of the DigComp integrating a sixth component (e-Health). Compiling the questionnaire some basic requirements were not met.

Relevant statistical analysis was applied, it is needed to be explained more detailed – especially with regard to descriptive statistics for quantitative data and the reliability assessment scale.

Assessment of the results

In chapter three, the study results are presented logically in fulfillment in regard to the objectives formulated. They are presented in tables and graphs. Results visualization simultaneously with tables and graphs is inappropriate to – it increases the dissertation volume but without contributing the quality. Also, the simultaneous use of the arithmetic mean and mode as measures of central tendency of quantitative data in tables is not appropriate; in case of asymmetric distribution, the median is a better option. Much precise choice of graphics is needed to present proportions. The tables in the results section and the SPSS tables in the application overlap in content, which is not needed. Entitle of tables and graphics should fully and accurately show what is done.

The results from the study showed that digital and e-Health literacy is a multidimensional construct and significant differences were reported in the level of competence in each of two groups studied. Students reported a higher level of digital creativity and information literacy, while nurses reported a higher level of competence in the safety and ethical sensitivity clusters. Statistically significant differences have been found in nurses by age and work experience – higher

education completed is associated with better digital literacy in problem solving and e-Health; less work experience is significantly associated with better skills in identifying and solving problems. Nurses reported a higher sense of responsibility and safety, especially in terms of personal data security and ethical standards. Students reported higher e-literacy, mainly in the electronic content creation and programming. Both groups reported low levels of criticism regarding the reliability of online health information, which makes the ability of individuals to make decisions based on critical thinking doubtful.

Some strengths of the dissertation are obvious: applying the psychometric toolkit for assessing the level of digital and e-Health, verification of the content validity and reliability of the scale using the Cronbach's α coefficient, as well as the pilot study conducted. The results obtained showed that the questions correlate well with each other and are able to measure the same construct.

I consider the absence of a discussion section to be a significant weakness of this thesis, which does not allow for a connection between one's own work and the other researchers, to identify the weaknesses and strengths in the methodology used, and to search possible explanations for the differences in the results.

Assessment of conclusions and contributions

The conclusions made represent concrete and logical summaries of the significant results from the study. They are a rational basis for the recommendations made to health institutions, higher education institutions, professional organizations and health management aiming to increase the nurses' digital and e-Health competence. I accept the recommendations for: the online platforms creation and use them to facilitate access to evidence-based health information, the digital communities creation to share good practices between students, teachers and nurses, and the use of modern digital technologies to improve the effectiveness of the studying the students in specialty of Nursing.

Notes and recommendations for the dissertation

Neli Petrova published 2 articles in Bulgarian Journals presenting the thesis results – the minimum requirements for group G indicators for obtaining the PhD degree within the professional area and higher education field are met.

Neli Petrova demonstrates a good academic style of expression and very good presentation of the results in her dissertation work. I propose to her to the unify the basic concepts used and some concepts in accordance with the Bulgarian health legislation. I recommend her to publish the results from this research in

foreign scientific journals.

The dissertation's summary accurately reflects the structure and content of the dissertation.

CONCLUSION:

The dissertation of Neli Diyanova Petrova is a completed research with a an actual topic, modern methodology, reliable conclusions and adequate recommendations for using the toolkit for assessing the level of digital and e-Health literacy in healthcare and higher medical education, as well as for the introduction of an elective module in Nursing Informatics in the curricula of the specialty of Nursing. The dissertation meets the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the internal rules of Medical university – Varna for the conditions and procedures for obtaining the PhD degree.

I give a positive evaluation and recommend to the honorable members of the Scientific Jury to award the educational and scientific degree of PhD in the academic field of Public Health Management to Neli Petrova.

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The statement is authored by
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