REVIEW

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of the dissertation thesis entitled:

KNOWLEDGE, ATTITUDES AND PRACTICES RELATED TO THE CONTROL OF CROSS-INFECTIONS IN DENTAL LABORATORIES

Author: Nela Georgieva Kalpakchieva

Scientific supervisor: Prof. Klara Georgieva Dokova, MD, PhD.

for the award of the educational and scientific degree "Doctor (PhD)" in the field of higher education 7. Healthcare and Sports, professional field 7.4 Public Health, specialty "Health Care Management"

This review has been prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Regulations for the Development of the Academic Staff at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna. The scientific jury for the procedure was appointed by Order No. R-109-62 of 27 January 2026 of the Rector of the Medical University - Varna.

1. Procedure Information

By order of the Rector of the Medical University - Varna No. R-109-94 of 1 February 2023, Nela Georgieva Kalpakchieva was enrolled as a full-time PhD student in the doctoral program "Health Care Management". A protocol certifying the successful completion of the doctoral examinations has been presented. Following a decision of the Department Council of the Department of Health Care regarding the candidate's readiness for defense and the proposal for a scientific jury, the doctoral candidate was granted the right to defend by Order No. R-109-62 of 27 January 2026.

In connection with the procedure, a complete set of materials has been submitted, including all required documents:

- the dissertation thesis;
- the abstract;
- declarations of originality and authenticity of the submitted materials for defense;
- copies of scientific publications;
- an author's report demonstrating compliance with the minimum national requirements;
- curriculum vitae, official records, administrative acts, and other supporting documents.

The submitted documentation, provided in both hard copy and electronic format, complies with the requirements for the award of the PhD degree and with the Regulations for the Development of the Academic Staff at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna.

2. Professional biography and career development

Nela Georgieva Kalpakchieva was born in 1976 in Razgrad. Her educational background reflects a consistent and purpose-driven development in the field of health care.

In 2012, she obtained a Professional Bachelor's degree in Dental Technology from the Medical College – Varna. She subsequently advanced her qualifications by earning a Bachelor's degree (2018) and a Master's degree (2019) in Health Care Management at the Medical University "Prof. Dr. Paraskev Stoyanov" –-Varna.

Her academic training was further enriched through specialization in Public Health, which expanded her theoretical perspective in the field.

Her professional career began in clinical practice as a dental technician (2012–2018), where she acquired substantial practical experience. In parallel, she developed her teaching career, initially as a part-time lecturer and, since 2018, as a faculty member at the Medical College of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna, in the Dental Technology program.

Her academic development naturally progressed to doctoral studies. Since 1 February 2023, she has been enrolled as a full-time PhD student in the doctoral program "Health Care Management" at the Department of Health Care, Medical University - Varna.

The doctoral candidate has authored scientific publications, participated in a research project related to the dissertation topic, and taken part in international scientific forums, which demonstrates active research engagement.

Based on the submitted documentation, it can be concluded that Nela Kalpakchieva possesses professional qualifications and practical experience directly relevant to the subject of the dissertation. Her educational and professional background is consistently oriented toward the field of infection control in dental practice, providing a solid foundation for the successful implementation of the research. Her development demonstrates continuity and clear direction, which merits a positive assessment.

3. General Characteristics of the Dissertation

The submitted dissertation comprises a total of 161 pages and is structured into logically consistent and well-balanced main sections: introduction (2 pages), literature review (41 pages), aim, objectives, material and methods (10 pages), results and discussion (71 pages), conclusions and recommendations (4 pages), conclusion (1 page), contributions (1 page), references (13 pages), and appendices (12 pages).

The main volume of the work is devoted to the presentation and analysis of the results, which reflects the research-oriented nature of the dissertation and the author's effort to substantiate the conclusions with well-founded arguments.

The structure is logically sound and appropriately balanced. The core of the dissertation is dedicated to the empirical research, which represents an appropriate approach for the development of this type of doctoral work.

The text is illustrated with 34 figures and 39 tables. The dissertation includes three appendices, comprising: a questionnaire designed to assess the level of knowledge, attitudes, and practices of dental technicians related to the prevention and control of cross-infections in dental laboratories; a questionnaire examining the disinfection and communication practices of dentists in relation to infection control; and the Guidelines for Infection Control in Dental Health-Care Settings – 2003 (adapted translation).

The reference list includes 178 sources, demonstrating the doctoral candidate's strong familiarity with and sound orientation in the contemporary international scientific literature on the subject.

4. Relevance of the Dissertation

The prevention and control of infections represent a key priority in contemporary public health, as they are directly related to patient safety, the quality of health care delivery, and the reduction of the adverse consequences of infectious diseases. Healthcare-associated infections continue to be among the most common preventable complications in medical practice, with well-documented impact on morbidity, length of treatment, and healthcare costs.

Within dental practice, this issue acquires specific dimensions. The nature of procedures involving exposure to blood, saliva, and aerosols creates a tangible risk of transmission of a wide range of pathogens, including hepatitis B and C viruses, HIV, as well as bacterial agents. In this context, infection control is not merely a professional requirement but a fundamental component in ensuring a safe environment for both patients and healthcare professionals.

Dental laboratories constitute an important, yet often underestimated, component of the dental care continuum. They function as an intermediate link between clinical practice and the fabrication of medical devices, placing them in a position of increased risk for involvement in the transmission of cross-infections.

Despite the existence of international guidelines and standards, a number of studies indicate that infection control practices within these settings are heterogeneous and, in some cases, insufficiently effective.

A particularly important aspect of the problem is the role of the human factor—namely, the level of knowledge, attitudes, and actual practices of professionals. The existence of a regulatory framework and established protocols does not, in itself, guarantee their effective implementation.

For this reason, the assessment of knowledge, attitudes, and practices is increasingly recognized as a key tool for evaluating the actual situation and identifying gaps within the system.

At the national level, the issue of infection control in dental laboratories remains relatively underexplored, with limited data available on the level of awareness, attitudes, and routine practices of professionals. This underscores the need for systematic research to provide an evidence-based foundation for improving education, organizational models, and control mechanisms.

In this context, the chosen dissertation topic is not only highly relevant but also clearly practice-oriented. It aligns with contemporary requirements for an integrated approach to infection risk management and contributes to the advancement of scientific knowledge in the field of public health and health care.

5. Evaluation of the Literature Review

The literature review examines the main aspects of the problem under study and demonstrates the doctoral candidate's good level of awareness and sound orientation in the current state of scientific research in the field.

It is structured into eight sections: the relevance and significance of infection prevention and control in dental laboratory practice; international policies and guidelines for infection prevention and control in dentistry, with a focus on dental laboratories; the regulatory framework governing infection prevention and control in dental laboratories in Bulgaria; the risk of cross-infection in dental laboratories and the current state of the problem; knowledge, attitudes, and practices related to infection prevention and control in dental laboratories; professional training in infection control for dental professionals; the state of the problem in Bulgaria based on empirical studies; and conclusions drawn from the literature review.

The literature sources used are sufficient in number and include scientific publications by researchers, as well as official national and international legislative and regulatory documents and analytical reports, all of which have been appropriately cited by the doctoral candidate.

Structurally, the review is clearly organized and logically coherent. It traces the development of concepts related to infection prevention and control—from general principles and international policies to the specific characteristics of dental laboratory practice.

Leading international organizations and their recommendations are examined, alongside European approaches and the national regulatory framework, thereby providing a broad and well-substantiated context for the study.

Particularly noteworthy is the integration of the Bulgarian regulatory framework into the overall analysis, which enables a meaningful linkage between international standards and actual practice in the country. In this way, the review acquires not only theoretical depth but also a clearly articulated practical orientation.

Significant attention is devoted to the analysis of the knowledge, attitudes, and practices of dental professionals, which represents a key aspect in assessing the effectiveness of infection control. The data presented from international studies provide a solid foundation for formulating the research problem and convincingly justify the need for conducting a study in the Bulgarian context.

Nela Kalpakchieva demonstrates strong ability to systematize and synthesize scientific information, successfully identifying the main trends and key problem areas within the subject under study.

The review concludes with a coherent summary, which serves as a natural transition to the formulation of the aim, objectives, and methodology of the dissertation research.

Overall, the literature review provides a solid theoretical foundation upon which the dissertation is built and contributes substantially to the scientific rigor of the research conducted.

6. Evaluation of the Aim, Objectives, Material and Methods

The aim of the dissertation is clearly and precisely formulated and is fully aligned with the relevance of the problem under study. It is focused on investigating the knowledge, attitudes, and practices related to the control of cross-infections in dental laboratories, thereby encompassing the key aspects of the research topic.

The objectives are logically structured and consistently develop the main aim. They encompass both an analytical component, related to the assessment of the current state, and an empirical component, involving the investigation of specific participant groups.

There is clear internal coherence among the individual objectives, which enables a systematic and comprehensive examination of the problem.

The formulated research hypotheses are clearly defined and consistent with the stated aim and objectives, providing a solid framework for the conduct of the scientific study.

The methodological approach is appropriately selected and tailored to the specific characteristics of the research problem. The inclusion of two main groups - dental technicians and dentists - represents a significant strength of the study, as it allows for a comprehensive analysis of the problem and enables the examination of interactions between the different participants involved in the dental care process.

The scope of the study provides a sufficient empirical basis for drawing well-founded conclusions. The selection of participants is aligned with the objectives of the research and allows for a realistic representation of practices related to infection control.

There is a clear effort to include relevant groups and factors, which enhances the analytical value of the results obtained.

The methodological tools employed are appropriate and comply with contemporary standards for conducting empirical research in the field of public health.

The combined approach, integrating theoretical analysis and empirical investigation, enables a comprehensive examination of the problem. Through the applied research instruments, structured data were collected on the knowledge, attitudes, and practices of the study participants, fully aligned with the objectives of the research.

The selected methods allow for quantitative assessment of the studied variables, identification of relationships between individual factors, and comparative analysis across different participant groups. This provides a sound basis for in-depth analysis and reliable interpretation of the results.

The organization of the study is clearly presented and well structured. The stages of the research are distinctly defined and logically interconnected, ensuring internal coherence of the research process.

There is effective coordination among the different components of the study, which facilitates efficient data collection and processing. Comparability between the study groups is ensured, which is an essential prerequisite for the validity of the analyses conducted.

The statistical methods applied are appropriate to the nature of the data collected and allow for their reliable processing and interpretation. The approach adopted ensures the validity of the results obtained and provides a sound basis for drawing well-founded conclusions.

Overall, the aim, objectives, and methodological framework are well aligned and form a solid foundation for the conduct of the scientific study. This demonstrates the doctoral candidate's ability to plan, organize, and independently carry out research with clearly defined logic and consistency.

7. Evaluation of the Results, Conclusions, and Contributions

The results of the conducted study are presented in a systematic and coherent manner, fully aligned with the stated aim and objectives. They cover the key aspects of the problem under investigation and reflect a comprehensive analysis of the knowledge, attitudes, and practices related to the control of cross-infections in dental laboratories.

Particular merit should be attributed to the comprehensive nature of the study, which includes both dental technicians and dentists. This approach allows the problem to be examined in its entirety and enables the analysis of interrelationships among the different participants involved in the dental care process.

The findings provide a realistic overview of infection control practices and outline key directions for their improvement.

The analysis of the results demonstrates a clear correspondence between the objectives formulated in Chapter Two and their empirical implementation in the present chapter. Each of the stated objectives is explicitly reflected in the results presented, indicating strong internal coherence and consistency of the study.

The objectives related to assessing the knowledge of professionals regarding infection control are addressed through data that allow for the evaluation of both the level of awareness and the understanding of fundamental principles of infection control.

The objectives focused on the analysis of attitudes are developed through findings that reflect professionals' perspectives on the implementation of infection control measures and their perception of the importance of the issue.

The objectives related to the investigation of practices are addressed through the analysis of actual behavior in the professional setting, enabling a comparison between theoretical knowledge and its practical application.

A particular strength of this chapter lies in the integrated approach to analysis, whereby the results are not considered in isolation but in their interrelationships. This enables the identification of associations between knowledge, attitudes, and practices, in direct alignment with the primary aim of the study.

The findings indicate discrepancies between the level of awareness and the actual behavior of professionals, which is of significant importance for evaluating the effectiveness of infection control measures. These results provide a deeper understanding of the factors influencing the implementation of standards in practice.

The objectives aimed at examining the interaction between dental laboratories and dental clinics are addressed through findings that highlight the role of communication and coordination in the process of infection control.

This aspect of the study broadens the scope of the analysis and allows the problem to be considered in its systemic entirety, representing a significant contribution of the dissertation.

The doctoral candidate demonstrates the ability to interpret the results within the context of the initially formulated research questions, which indicates a solid scientific background and clarity in research logic.

The discussion of the results is well-argued and situates the findings within the context of existing scientific literature. A comparison with data from international studies has been undertaken, allowing for the positioning of Bulgarian practice within a broader scientific and professional context.

This adds further value to the dissertation and highlights its overall significance.

The presentation of the results is clear and supported by appropriate tables and figures, which facilitate their interpretation and comprehension. Each group of findings is logically linked to the stated objectives, and the analyses conducted demonstrate the ability to identify significant relationships and patterns.

The formulated conclusions logically follow from the conducted research and reflect the main findings in a clear and concise manner. They accurately capture the relationships identified during the study between the level of professional awareness and the actual implementation of infection control measures.

In this regard, the conclusions drawn by Nela Kalpakchieva are consistent with the results presented in the preceding chapter, which indicate that the presence of knowledge does not always translate into consistent practical behavior.

A particularly significant aspect is that the conclusions reflect findings related to variability in practices and the need for improved standardization and coordination between dental laboratories and dental clinics. This demonstrates that the doctoral candidate moves beyond a purely descriptive presentation of the data and identifies systemic characteristics of the problem.

The conclusions encompass both the individual level - knowledge and attitudes of professionals - and the organizational aspects of practice, including communication and interaction among the various participants in the dental care process. This dual perspective is consistent with the integrated approach adopted in the dissertation.

The formulated recommendations are clearly structured and differentiated according to levels of impact - addressed to legislators, professional organizations, and regulatory bodies. This approach demonstrates a systemic understanding of the problem and a commitment to addressing it through coordinated actions across different managerial and professional levels. A clear linkage is established between the research findings, the formulated conclusions, and the proposed recommendations, which is indicative of the completeness and maturity of the dissertation.

The recommendations are characterized by a high degree of applicability and demonstrate strong potential for practical impact on clinical practice, education, and regulatory frameworks in the field of infection control in dental laboratories.

The identified contributions are clearly structured and grouped into two main categories - those of a theoretical and those of an applied nature. From a scientific perspective, they contribute to enhancing knowledge of the current state of the problem in Bulgaria and to its systematization within the context of international research. From a practical perspective, the contributions are reflected in the development of guidelines and proposals aimed at improving professional practices and the training of dental specialists.

Taken together, these contributions attest to the completeness of the research and to the achieved scientific and practical significance of the dissertation.

8. Abstract and Publications Related to the Dissertation

The abstract meets the formal requirements and accurately reflects the main results achieved in the dissertation. It comprises 67 pages and is illustrated with figures and tables. It is well structured and written in a clear and precise language, providing a comprehensive presentation of the research problem and the conclusions reached.

In connection with the dissertation, the doctoral candidate Nela Georgieva Kalpakchieva has presented two publications, in which she is both a leading author and a co-author. The publications have been published in specialized journals, namely Varna Medical Forum and Scripta Scientifica Salutis Publicae. The submitted publications are directly related to the topic of the dissertation and meet the minimum national requirements.

9. Conclusion

The dissertation submitted by Nela Georgieva Kalpakchieva, entitled "Knowledge, Attitudes, and Practices Related to the Control of Cross-Infections in Dental Laboratories", addresses a relevant, significant, and insufficiently explored problem in the field of public health and health care.

The topic is developed in a consistent manner, with clear scientific logic and convincing argumentation, based on an in-depth theoretical analysis and a well-designed empirical study. The dissertation contains scientific and applied research results that represent an original contribution and comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Development of the Academic Staff at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna.

The submitted materials and dissertation results fully comply with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria.

Written in a precise and scientifically sound language, the dissertation demonstrates the doctoral candidate's in-depth theoretical knowledge and practical competencies in the field, as well as the ability to independently conduct scientific research.

The aim and objectives of the dissertation are clearly defined and convincingly accomplished. The research design and scientific reasoning are methodologically sound and supported by robust statistical evidence. The study yields substantial contributions with clear practical relevance.

In light of the above, I am convinced that the dissertation fully meets all requirements for the award of the educational and scientific degree "Doctor" in Health Care Management, within the professional field 7.4 Public Health, in the field of higher education 7. Healthcare and Sports.

I therefore give my unequivocally positive assessment and strongly recommend that the Scientific Jury confer the educational and scientific degree "Doctor" upon Nela Georgieva Kalpakchieva.

3 April 2026
Varna

Reviewer: Заличено на основание чл. 5, §1, б. „В" от Регламент (ЕС) 2016/679

Prof. Silviya Borisova Dimitrova, PhD, DSc