

To the Chairman of the Scientific Jury
appointed by Order No. P-2021/30.08.2022 of the Rector of MU-Plovdiv

OPINION STATEMENT

by Prof. Dr. Rosen Gospodinov Kolarov, DMD, PhD

Medical University - Varna, Faculty of Dental Medicine, Department of Oral Surgery
of a dissertation work for awarding the educational and scientific degree "Doctor"

Field of higher education: 7. **Healthcare and sports**

Professional direction: 7.1. **Medicine**

Doctoral program: "**Social medicine and organization of healthcare and pharmacy**"

Author: Dr. Tihomira Mitkova Schiller,

Doctoral student of independent training at MU - Plovdiv

Department: **Social Medicine and Public Health**

Topic: "Medical errors in dental practice - a comparative analysis and a dental practice risk management model"

Research supervisor: **Assoc. Prof. Nina Musurlieva, DD, PhD, MU - Plovdiv, Faculty of Public Health, Department of Social Medicine and Public Health**

1. General presentation of the procedure and the doctoral student

The present review was prepared based on the Order of the Rector of MU - Plovdiv No. P-2021 / 30.08.2022, with an appointed Scientific Jury under the procedure for public defense of the described dissertation work. The presented set of materials on paper and electronic media are in accordance with Art. 115 (1) of the Procedure for the acquisition of the doctorate in the MU - Plovdiv; Regulations of MU-Plovdiv dated 06.11.2014 and were provided to me within the statutory period. The doctoral student has attached three publications related to the topic of the dissertation work. All documents are prepared and presented properly.

2. Brief biographical data for the doctoral student

Dr. Tihomira Mitkova Schiller, was born on 26.02.1989 in Stara Zagora. From 2008 to 2014, she studied Dental Medicine at the FDM of Medical University - Plovdiv and completed her higher education with excellent results in the semester and the state exams. Dr. Schiller's work experience began in 2014 as a dental doctor in the "Dr. Anton Petev" Dental Practice in the town of Haskovo, where she practiced until 2017. From 2018-2020, she worked as a dentist in management positions at the "Hansen" Dental Center in Stuttgart, Germany. Since November 2020, Dr. Schiller specializes in "Orthodontics" in the Orthodontic Practice "Dr. Nina Heinig" in Wendlingen, Germany. In June 2021, Dr. Schiller was enrolled as an independent doctoral student at the Department of "Social Medicine and Public Health" at MU-Plovdiv with scientific supervisor Assoc. Prof. Nina Musurlieva.

Dr. Schiller is a member of:

- German Dental Association Baden-Württemberg

She is fluent in German and English and holds the following certificates: DSD level C1 and Cambridge Academy level C1.

3. Topic relevance and appropriateness of the set goals and tasks

The topic of the dissertation examines an extremely current and important problem for medical and dental science and practice. The goal is clearly formulated, the tasks are defined correctly and are carried out using modern research methods.

Knowledge of the problem

In her dissertation work, Dr. Tihomira Schiller shows in-depth knowledge of the topic she is developing.

She has made a thorough critical analysis of the literature, formulating the unresolved issues on the subject, namely:

1. Patient safety is a problem, the solution of which requires the attention and efforts of both doctors, medical specialists and patients, as well as the system as a whole, including all management structures at different levels.
2. The creation, maintenance and improvement of systems for signaling, collecting and analyzing information on adverse events make it possible to reflect the scale and reasons for their occurrence. Such systems enable the development of efficient solutions and ways of intervention and corrective action.
3. The systematic approach, the analysis of the available data, as well as targeted measures to achieve a safer environment should be a priority in the efforts to ensure a better quality of health care for every European citizen.
4. The issue of patient safety should be an integral part of the education and training programs of medical professionals in their capacity as persons providing daily health care.
5. The problems related to the safety of the patient and the admission of a doctor error are a current problem, both for Bulgaria and Germany.
6. In Bulgaria and Germany, there is no mandatory scientific discipline in the curriculum of Medical Universities, dedicated to the topics of "Patient Safety" and "Medical error".
7. Gaps in communication between members of the medical team and doctor-patient are among the main causes of medical malpractice.
8. Bulgaria lacks a register for reporting adverse events.
9. There are differences in the legal regulations concerning the rights of patients in Bulgaria and in Germany.
10. Implementation of a quality management model is important for patient safety

Dr. Schiller demonstrates skills in conducting scientific research independently.

On the grounds of the analysis of the scientific research carried out so far on the problem, the purpose of the scientific study was formulated, namely:

"To investigate and compare the attitude of dentists who have completed their education and practice in Bulgaria and those who have graduated and work in Germany in respect to the topics of "Patient Safety" and "Medical Error".

The presentation is written in good scientific language.

5. Research methodology

The realization of the goal has been achieved through the implementation of four main tasks, namely:

1. To make a socio-demographic characterization of all respondents participating in the survey.
2. To study the attitude of dental doctors from Bulgaria and Germany in respect to the topics "Patient Safety" and "Medical Error".
3. To develop a model improving patient safety and minimizing the risk of medical error.

4. To develop a postgraduate training program (or optional subject) for medical professionals on "Patient Safety in Dental Practice" Formulated in this way, the tasks enable the objective to be proven.

The research included the following:

Object of observation:

The object of the study is the attitude of dental doctors who have completed their education and practise in Bulgaria and those who have graduated and work in Germany, in respect to the topics of "Patient Safety" and "Medical Error".

Units of observation:

A) **technical unit:** for the purposes of the study, District Colleges of settlements in Bulgaria and Germany were randomly selected.

B) **logical unit:** in accordance with the purpose and tasks of the study, each person is a dental doctor, included in the representative sample of the total number of dental doctors, in the relevant age groups and settlements, who meets the basic criteria, that the respondents have completed their studies in Bulgaria or in Germany and that they work in the respective country.

Observation items:

Factorial - gender, age, experience, specialty, place of work, place of graduation.

Resultant - importance of fatigue for making mistakes, importance of communication, importance of the place of follow-up for recognizing reasons for making mistakes, etc.

Study location:

The study was conducted in Bulgaria and Germany.

Study Time:

The survey was conducted in the period February 2020 - April 2021.

Research bodies:

The study was conducted with the personal participation and control of the doctoral student.

The number of logical units is sufficient for the formulation of conclusions of good scientific value.

The following methods of research and analysis of the obtained data were used in the implementation of the set tasks:

➤ Sociological method - The survey of the opinion of the respondents was conducted using a direct anonymous survey.

➤ Statistical method - Data were entered and processed with the statistical package IBM SPSS Statistics 20.0. $p < 0.05$ was chosen as the level of significance at which the null hypothesis is rejected. The following methods were applied:

1. Descriptive analysis – to describe the structure of the studied variables.

2. Variance analysis for quantitative variables and frequency analysis for qualitative variables.

3. Non-parametric analysis - χ^2 test Pearson's test and Fisher's exact test - to test hypotheses about the presence of a relationship between categorical variables.

4. Correlation analysis - the Cronbach coefficient α is 0.853, the Spearman-Brown coefficient $r_{sb}=0.722$ was also calculated. Their high values confirm reliability. Covariates were examined using Pearson (r) and Spearman-Brown (r_{sb}) coefficients.

5. Graphical analysis – for visualization of the obtained results.

Toolkit: Questionnaire for surveying the opinion of dental doctors

Two identical questionnaires were used in Bulgarian and German, respectively.

After pre-given instructions about the topic of the survey and how to fill out the questionnaire correctly, the respondents were asked to answer the twenty-five questions contained in it. The questions are divided into the following sections:

- Characteristics of the contingent
- The role of education and postgraduate qualification in acquiring knowledge about errors
- Willingness to share information about mistakes made
- Determinants of making mistakes
- Culture of blame and reporting of medical malpractice

All questions are of a closed type, the answers to the questions include:

- five-point **Likert scale**

• No, I do not agree at all • Closer to No • I cannot decide

• Closer to Yes • Yes, I completely agree

- Alternative **yes and no** answers

The reliability of the questionnaire was established by evaluating the internal consistency and by the test-retest method.

6. Characterization and evaluation of the dissertation work

The dissertation meets the requirements for dissertation development according to the Regulations of MU-Plovdiv and the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB). It contains 149 pages, 7 tables, 44 figures and 42 appendices. The bibliography includes 211 literary sources, of which 25 are in Cyrillic and 186 are in Latin. The results are comprehensively and correctly described, analyzed and interpreted. The dissertation concludes with conclusions based on the results, discussion and generalizations made from the study.

7. Contributions and significance of the development for science and practice

The following theoretical and practical contributions are outlined in the dissertation, as follows:

Contributions of a theoretical nature

1. The opinion of dental doctors in Germany and in Bulgaria was compared and evaluated on the topics related to medical error and patient safety.

2. A survey was conducted among dental doctors in Bulgaria in order to establish the needs and specifics of their activity in terms of quality management of healthcare services.

Contributions of a practical and applied nature

1. A Dental practice risk management model (DPRMM) was created, through which to improve patient safety.

2. A postgraduate training program (or optional subject) for medical specialists on "Patient Safety in Dental Practice" has been developed.

3. Specific recommendations to various institutions have been developed, which would contribute to the development of strategies to increase patient safety and reduce the risk of medical error.

8. Evaluation of publications on the dissertation work

Three publications related to the dissertation are presented, with Dr. Schiller as the first author in all three publications, namely:

1. Schiller T., Musurlieva N., Bozhkova T., Kondeva V., Dimitrova M., Rimalovska S., Voza I., Survey Study among Dentist in Bulgaria to Develop a Model for Risk Management in Dental Practice, BioMed Research International , 2022-06-06 | Journal article, Impact Factor: 3.246. DOI: 10.1155/2022/6142445

2. Schiller T, Musurlieva N, Dimitrova-Haruil M. Survey of the Opinions of the Graduated and Practicing Dentists in Bulgaria and Germany on the Topics of Patient Safety and Medical Error. Open Access Maced J Med Sci [Internet]. 2022 Jul. 26 [cited 2022 Sep. 26];10(D):338-46. Available from: <https://oamjms.eu/index.php/mjms/article/view/10014>.

3. Schiller (Petkova) T, Musurlieva N. Quality and safety management in dental practice in Germany. Rare diseases and orphan drugs, 2022 08-03; 13(2):5-10. DOI: <https://doi.org/10.36865/2022.v13i2.160>

They have been published in prestigious magazines, both of which are in English. The obtained results quantitatively and qualitatively satisfy the legal requirements for a dissertation work.

9. Personal participation of the doctoral student

I consider the research and the observations of the patients and the resulting conclusions and contributions in the dissertation to be the personal work of the author.

10. Abstract

The abstract contains 48 pages, illustrated with 4 figures and 5 tables. It correctly reflects the essence of the research and the results achieved in the dissertation. The conclusions drawn are reflected in it. It has been prepared in accordance with the requirements of the RSARB and the regulations of MU - Plovdiv. Reflects the content of the dissertation work.

11. Critical remarks and recommendations

The set of materials from the dissertation provided to me are complete and in accordance with the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB), and the rules for its implementation, as well as with the Rules of the MU - Plovdiv. I have no comments or recommendations.

12. Personal impressions

I have no personal impressions of the author of the dissertation. However, the text provided to me shows a thorough knowledge of the problem and gives me reason to take it as his personal work.

13. Recommendations for future use of dissertation contributions and results

I recommend that Dr. Schiller format and publish her dissertation as a monograph. Thus, her work would be more accessible to her colleagues and very useful in their daily practice.

CONCLUSION

I consider the dissertation submitted to me for review by Dr. Tihomira Mitkova Schiller, a doctoral student of self-study "Medical errors in dental practice - comparative analysis and model for risk management in dental practice" completed. The same meets the requirements of the Higher Education Institutions, the relevant legislation, the Regulations for the implementation of the Law on the Development of Academic Staff in the Republic of

Bulgaria (LDASRB) and the Regulations of MU-Plovdiv. The topic of the work is contemporary and well chosen.

The literature review is comprehensive and gives a clear idea of the current state of the problem under consideration. It concludes with a critical analysis that is a good foundation for the research conducted. Based on an analysis of scientific research carried out so far, the purpose of the scientific development has been deduced. The assigned tasks give an opportunity to prove it. The studies carried out are of interest to dental science and practice. The obtained results in the dissertation work, their interpretation, as well as the presented publications related to it, I consider to be the personal work of the author. The dissertation shows that the doctoral student, Dr. Schiller, possesses in-depth theoretical knowledge and professional skills in the specialty of Social Medicine and Public Health, demonstrating qualities and skills for independent conduct of scientific research. Based on everything noted here, I accept that the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for the Implementation of the law and the relevant Regulations of the MU - Plovdiv have been fulfilled. The presented materials and dissertation results fully correspond to the specific requirements of the MU - Plovdiv.

In conclusion, I confidently give a positive assessment of the dissertation work on "Medical errors in dental practice - a comparative analysis and arisk management model in dental practice" and I will vote "YES" for the award of the scientific and educational degree "Doctor" in the scientific specialty "Social Medicine and Public Health" of Dr. Tihomira Mitkova Schiller.

25.09.2022

In charge of the Opinion Statement:

(Prof. Dr. Rosen Gospodibov Kolarov, DMD, PhD)

Задължено на основание
Чл 5 §1, б. "В" Регламент (ЕС) 2016/679