

## REVIEW

**By Prof. Dr. Krassimira Borissova Yaneva-Ribagina, PhD**

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**On the dissertation work of Dr. Tihomira Mitkova Schiller “*Medical errors in dental practice - comparative analysis and model of risk management in dental practice*”**

**For the awarding of the educational and scientific degree “PhD” in the scientific specialty “Social medicine and organization of health care and pharmacy”**

I submit this review in accordance with Order No P-2021 of 30.08.2022 of the Rector of the MU - Plovdiv, by which I was elected as an external member of the Scientific Jury, and at the first meeting of the scientific jury I am assigned to write a review. The dissertation work is in the field of higher education 7. Health care and sports, Professional direction 7.2. Medicine, Scientific specialty Social medicine and organization of healthcare and pharmacy.

### **1. Biographical data and career development of Dr. Tihomira Schiller:**

Dr. Tihomira Mitkova Schiller was born in the town of Stara Zagora in 1989. She completed her secondary education at the High School with the teaching of foreign languages “Ass. Zlatarov”, the town of Haskovo in 2008. In 2014 she completed her higher education in Dental medicine at MU - Plovdiv.

From 2014 to 2017, she worked as a dentist in the dental practice “Dr. Anton Petev”, Haskovo, and from 2018 she lived and worked as a dentist in Germany. She specializes in orthodontics since 2020 in the “Dr. Nina Haining” orthodontic practice in Wendlingen, Germany.

By Order No P-1149/12.07.2021 of the Rector of the MU - Plovdiv, Dr. Tihomira Schiller was enrolled as a doctoral student of independent training in the

Department of "Social Medicine and Public Health" at the MU - Plovdiv to develop a dissertation on the topic "Medical errors in dental practice - comparative analysis and model of risk management in dental practice" with scientific supervisor Assoc.Prof.Dr. Nina Musurlieva, DDM, PhD.

She presented a Protocol for successfully passing the doctoral minimum exam in the specialty. She has completed the PhD program with the right to defense, according to Order of the Rector of MU - Plovdiv № P 1355/07.06.2022.

Dr.Schiller is fluent in German and English, holding the following certificates: DSD level C1 and Cambridge Academy level C1.

## **2. Description of the dissertation and the abstract:**

The dissertation is written on 149 standard typewritten pages in good Bulgarian, structured as follows: Introduction – 2 pages, Literature review – 46 pages, Aim and tasks – 1 page, Material and methods – 3 pages, Results and discussion – 27 p., Conclusions – 1p., Model for risk management in dental practice - 23 p., Program for Postgraduate education (or Free chosen discipline) of medical specialists on "Patient safety in dental practice" - 6 pages, General conclusions - 1 page, Recommendations and contributions - 2 pages, Bibliography - 10 pages, Appendices - 23 pages.

The text is illustrated with 7 tables, 44 figures and 42 Appendices.

The bibliography covers 211 literary sources arranged according to the Vancouver system, of which 25 are in Cyrillic and 186 in Latin. From the last 10 years (after 2012), there are 60 literary sources (28%).

The abstract, in a volume of 48 pages, corresponds to the dissertation and gives a clear idea of the essence, results and conclusions of the development.

## **3. Relevance of the topic:**

The chosen topic is current and of increasing significance for medical practice in a global aspect. In the *Introduction*, the author emphasizes the importance of the "medical error" problem, the consequences of which are very unfavorable both for the patient's health and life, as well as for health care and society as a whole. The author points out that actions such as increasing the quality

of medical care, improving communication between members of the medical team and the patient and creating strategies to avoid medical errors with the active participation of professional organizations will reduce the admission of the unwanted consequences of medical errors.

#### **4. Literature review:**

The *literature review* summarizes and interprets the information from 211 literary sources, 25 in Cyrillic and 186 in Latin, published in the period 1977-2022, with 60 (28%) from the last 10 years - after 2012. The cited and analyzed literary sources are dedicated to the study of medical error - formulations and definitions of "medical error", historical development of knowledge about medical error, reasons and ways to deal with their occurrence. The author analyzes and compares the strategies for dealing with medical errors that have been developed in the Republic of Bulgaria and the Federal Republic of Germany.

Based on the conclusions of the literature review, Dr.Schiller formulates *the aim* of the study - *To study and compare the attitude of dentists who have graduated and work in Bulgaria and those who have graduated and work in Germany, to the topics "Patient safety" and "Medical error"*.

To fulfill the goal, she has formulated 4 main tasks.

#### **5. Material and methods:**

In the Section *Material and methods*, the object of observation, the units of observation and their signs, the methods used, the instrumentation, the time, the place and the bodies of the study are described. The basis for achieving the goal and tasks are the data from surveys conducted among 137 doctors of dental medicine (DDMs), graduated and working in Bulgaria and 149 DDMs, graduated and working in Germany. The survey was conducted on-line in the period February 2020 - April 2021. The research instrument is an identical questionnaire in Bulgarian and German, consisting of 25 closed questions, the answers to which are formulated on a 5-point Likert scale.

To achieve the purpose of the study, the method of direct anonymous survey conducted on-line was used.

The obtained results were processed with statistical methods from the IBM SPSS Statistics 20.0 package.

## **6. Results and Discussion:**

In this section of the dissertation, the results are presented sequentially for the 4 tasks, being discussed and compared with results from similar studies.

In *Results and Discussion*, there are 5 sections:

### ***1. Socio-demographic characteristics of the contingent:***

The distribution of the respondents by country and by factors - age, gender, years of experience, type of practice in which they work, presence of a specialty and received additional training in the field of health services - was established. The sample is dominated by women ( $72.37 \pm 2.64\%$ ), persons in the 25-35 age group ( $48.60 \pm 2.95\%$ ) and those with 6-15 years of work experience ( $34.27 \pm 2.81\%$ ).

### ***2. Analysis of the questions for evaluating the quality of the studies in "Medicine" and "Dental Medicine" on the topics of "Patient Safety" and "Medical Error":***

It was established the opinion of the Bulgarian and German dentists regarding the knowledge acquired during the study about the essence, the causes of medical error and how to avoid it, the acquired knowledge about patient safety and the acquisition of additional knowledge through postgraduate training. An equal share of respondents from both groups gave a positive assessment of the education that prepared them to recognize and avoid the causes of medical errors (37% - Bg, 38% - Ger), but only 58% of German and 40% of Bulgarian DDM feel sufficiently prepared to avoid medical errors.

### ***3. The role of communication in the team and doctor-patient communication in relation to the problem of "Medical error" and "Patient safety":***

It was established the opinion of the surveyed dentists from both groups regarding their willingness to share with the patient their own errors and errors, made by other colleagues, as well as their willingness to share and discuss their

errors with superiors. There is a statistically significant difference in the answers of the two groups of respondents, with the Bulgarian doctors tending to a lesser extent to share about their errors with patients and superiors and to a greater extent about the errors of other colleagues, compared to the German doctors.

#### ***4. The role of fatigue and extra-work for making medical errors:***

The opinion of DDMs from both groups on the influence of fatigue and extra-work as risk factors for making medical errors was determined and compared. Both groups of respondents are of the opinion that fatigue and extra-work are factors that increase the risk of medical errors. Other studies demonstrating that high levels of fatigue endanger patient safety are also discussed.

#### ***5. Medical error reporting and blame culture:***

The culture of blame was investigated by analyzing the opinion of DDMs from both countries about who is more to blame for making medical errors – the doctor or the support staff, whether the error made is a sign of incompetence, should an error that has no negative consequences be reported, is there a benefit to reporting medical errors and what is the role of professional organizations in this area. In both groups, the prevailing opinion is that even the best specialists are not “immunized” to making mistakes, but this is not a sign of incompetence, and doctors from both groups tend to look for fault more in themselves than in the support staff.

German dentists are more likely to report an error, even if it has no negative consequences for the patient. The majority of respondents from both groups were of the opinion that reporting errors has a learning effect and that creating an anonymous list of errors is useful. Bulgarian dentists, in a larger percentage than German doctors, are of the opinion of a key role of the professional organization in promoting patient safety.

Here, a detailed analysis of the opinion of dentists from both groups regarding the reporting of medical malpractice, depending on professional qualification and experience, is made.

#### **7. Conclusions:**

Dr. Tihomira Schiller draws the main conclusions based on the results of the 5 sections of *Results and discussion*.

### **8. Model for risk management in dental practice (MRMDP):**

A positive practical contribution of the doctoral student is the presented model for risk management in dental practice.

To develop this model, Dr.Schiller conducted a survey among 103 Bulgarian DDMs regarding the specifics and organization of their activity. It has been established how the main tasks and activities are defined - orally or in writing, which processes are defined in writing, how collaboration with other specialists is regulated, whether and in which procedures checklists are used, when mistakes made are discussed, is there a need for additional training in this area, is there feedback with patients, what is the form of communication with patients, how is organized the procedure in case of emergency, are there and in what form are the hygiene and infection prevention rules and others.

Based on the obtained results and conclusions, the doctoral student presents a Model for risk management in dental practice, consisting of 10 main units, with the optimal functioning of which a higher quality of work will be achieved and patient safety will be ensured.

### **9. Postgraduate training program (PGT) or elective subject (ES) for medical professionals on “Patient Safety in Dental Practice”:**

Another important practical contribution of Dr.Schiller’s work is the presented annotation of a program for Postgraduate training or Elective subject on “Patient Safety in Dental Practice”. The identified gaps in the awareness and training of dentists to avoid mistakes in practice gives the doctoral student the reason to propose a Program for continuing education in this field, which can also be included as an Elective subject in curriculum for students.

The well-formulated topics of 5 lectures and 5 practical classes, intended for the entire medical staff of the medical facility will contribute to increase the awareness of medical staff and motivate them to ensure safe medical treatment for patients.

## **10. Contributions and recommendations:**

I accept without comment the candidate's self-assessment of the contributions of the dissertation and the recommendations to the dental schools, the professional organization and the DDMs, as they are consistent with the results of the study and the analyzed literary sources on the studied problem.

Dr. Schiller has published her research results in 3 articles in prestigious journals, 2 of which are in print.

## **11. Critical notes and recommendations:**

In the Chapter 4 it is not described the number and structure of the sample of surveyed Bulgarian DDMs.

## **12. Conclusion:**

The work is written intelligently, clearly, comprehensibly, with a good knowledge of the terminology in this field. The proposed Model for risk management in dental practice for Bulgaria and Program for Postgraduate training / Elective subject for medical professionals on "Patient safety in dental practice" are valuable practical aids for improving the quality of the treatment and diagnostic activity of dentists.

In conclusion, I believe that the present work is an excellently thought-out and precisely realized in-depth, defensible and significant theoretical-practical scientific study. I will vote with a convinced YES for awarding the educational and scientific degree "PhD" to Dr. Tihomira Mitkova Schiller in the scientific specialty "Social Medicine and Organization of Health Care and Pharmacy".

September, 20, 2022

REVIEWER:



Prof. Dr. Krasimira Yaneva-Ribagina, PhD

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