

**REVIEW**

**From Prof. Dr. Krassimira Borisova Yaneva-Ribagina, PhD**  
**Department of Dental Public Health, Faculty of Dental Medicine,**  
**Medical University, Sofia**

**On the dissertation of Dr. Victoria Dinkova Mandova**

***"Dental care for children with hemophilia"***

**For awarding the degree "PhD" in the scientific specialty "Social Medicine and Organization of Health and Pharmacy" in the professional field**

**7.2. Dental Medicine**

I present this review according to Order № P-1347/07.06. 2022 of the Rector of MU - Plovdiv, by which I was elected an external member of the Scientific Jury, and according to Protocol № 1 /08.06. 2022 I'm appointed to prepare a review. The dissertation is in the field of higher education 7. *Healthcare and sports*, Professional field 7.2. *Dental medicine*, Scientific specialty *Social medicine and organization of healthcare and pharmacy*.

**1. Biographical data and career development of Dr. Victoria Mandova**

Dr. Victoria Dinkova Mandova was born in Plovdiv on January 14, 1990. She graduated at the Language High School "Plovdiv" in 2009 with a diploma of excellence. In 2015 she graduated from the Faculty of Dental Medicine, Medical University, Plovdiv as Master in Dental Medicine. From 2017 to 2020 she acquired a specialty in "Social Medicine and Dental Public Health".

In 2016 she started working as a dentist in her own dental clinic. Since 2017 she has been appointed as an assistant in the Department of Social Medicine and Public Health at the Faculty of Public Health, Medical University - Plovdiv, where she continues to work.

Dr. Mandova is enrolled in a free form of PhD-program by Order of the Rector of MU - Plovdiv № P-1962 / 06.11.2020 to develop a dissertation on

"Dental care for children with hemophilia" with research supervisor Prof. Dr. Rumen Stefanov, PhD. She presented a Protocol for successfully passed exam for doctoral minimum in the specialty. She has completed the PhD program with the right to defense, according to Order of the Rector of MU - Plovdiv № P-2277 / 31.05.2022.

In her CV Dr. Victoria Mandova presents data on active scientific activity - participation in scientific forums on topics such as dissertation and other fields of medicine and dentistry, a one-month specialization at the Medical University of Bonn, Germany, in Institute of Experimental Hematology and Transfusion Medicine and Center for Hemophilia.

She is a member of the Bulgarian Dental Association (BgDA), the Bulgarian Scientific Society of Public Health (BSSPH), the Union of Scientists in Bulgaria (USB), the Bulgarian Public Health Association (BPHA) and the European Public Health Association (EUPHA).

She is fluent in English at B2 level and German at B1 level.

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

The dissertation is written on 158 standard typewritten pages in good Bulgarian, structured as follows: Introduction (2 pages), Literary Review (44 pages), Purpose and tasks (1 page), Exhibition with Material and Methods (7 pages), Results and Discussion (66 pages), Summary (2 pages), Conclusions (1 page), Suggestions and Recommendations (2 pages), Contributions (1 page), Publications related to the dissertation (1 page), Annexes (11 pages), Bibliography (14 pages). It is illustrated with 14 tables and 42 figures. The bibliography includes 158 literary sources, arranged in "Vancouver style", of which 31 are in Cyrillic and 127 - in Latin. From the last 10 years there are 93 literature sources (59%).

The abstract, in a volume of 53 pages corresponds to the dissertation and gives a clear idea of the nature, results and conclusions of the work.

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

Hemophilia is an inherited disease associated with impaired blood clotting. The blood clot that clogs the damaged blood vessel is formed by platelets and a

dense fibrin network that are activated by protein factors. In hemophilia, there is a genetic deficiency of some protein factors, which is the reason for difficult blood clotting. Carriers of the defective gene are women, and the disease occurs in men.

In dental practice there are many manipulations related to bleeding - changing dentitions, tooth extractions, accidental injuries during routine work, anesthesia, incisions, tooth calculus removal and others. Profuse bleeding and difficult clotting in these cases are a risk to the health and lives of patients. On the other hand, the fear of bleeding in the mouth, even with daily brushing of teeth, is the reason why many people with hemophilia neglect their oral hygiene, which worsens their oral health. Working with such patients is a challenge for dentists, and its successful overcoming depends on the awareness of both physicians and patients about hemophilia and the necessary specific measures.

This requires a broader study of the awareness of patients with hemophilia, their parents and dentists about the relationship between oral health and hemophilia. This makes the chosen topic relevant and timely.

#### **4. Literary review**

The literature review is an analysis of 158 literature sources and is structured in 5 subsections on: awareness of children and parents with hemophilia about oral health; awareness of dentists about the impact of hemophilia on oral health; recommendations for the promotion of oral health and dental treatment of children with hemophilia, referred to dentists; health and promotional policy aimed at improving dental care for children with hemophilia; dental care for children with hemophilia in the context of the Covid-19 pandemic.

The analysis of the literature sources gives grounds for Dr. Mandova to determine the purpose of her research.

#### **5. Purpose and tasks**

The goal is well formulated - to study the awareness and habits related to oral health in children with hemophilia and to give recommendations for improving dental care in them. To achieve this goal, 4 specific tasks have been set.

#### **6. Material and methods**

Technical units of the study are the National Camp for Families with Children with Hemophilia in the town of Strelcha, a summer rehabilitation camp for children aged 7-14 in the town of Kranevo and dental practices throughout the country.

The logical units of the study were 31 children aged 7-18 years with hemophilia, 33 parents of children with hemophilia, a control group of 108 children without hemophilia and 104 dentists. The criteria for inclusion and exclusion of persons in the groups are defined in detail.

The sociological method was used - a direct individual anonymous survey, as the questionnaires for the 4 groups of respondents were developed by Dr.Mandova.

The obtained results are processed with the statistical package of the social science software IBM SPSS Statistics v. 25. The statistical methods were used: descriptive analysis, method for testing statistical hypotheses, analysis of open questions and graphical analysis.

The study was approved by KESIMUP with Protocol №6 / 07.10.21.

## **7. Results and discussion**

In this section of the dissertation the results of the 4 tasks are presented sequentially, and are discussed and compared with the results of similar studies, published in the world literature.

**In the first task of the RESULTS section** the PhD-student has established the socio-demographic characteristics of the 4 groups of respondents.

Among children with hemophilia predominate children from 8th to 12th grade (41.94%), those living in the southwestern region of Bulgaria (51.61%), and their average age is 11.55 years.

In the group of parents of children with hemophilia women are 66.67% and men - 33.33%, the average age of fathers is 40.18 years and mothers - 36.55 years, the biggest part are parents with higher education and those, living in the southwestern region of Bulgaria.

The distribution of children in the control group - children without hemophilia - was established by age (mean age 12.3 years), level of education (almost equal distribution in primary, basically and secondary education) and place of residence (the children from south central region predominate).

In the group of dentists, their distribution by sex (women - 57.69%, men - 42.31%), work experience, possession of a dental specialty and their experience in treating children with hemophilia were established. There is a statistically significant relationship between the work experience of doctors and the treatment of patients with hemophilia.

### **Results and discussion on Task 2:**

In the second task, Dr. Mandova established the awareness and habits related to the oral health of children with hemophilia, their parents and children without hemophilia. A comparison was also made between the answers of the three groups of respondents.

The frequency and reasons for visits to the dental office, oral hygiene habits (frequency of brushing teeth, used oral hygiene products, use of fluoride products), eating habits (number of meals, use of carbohydrate foods and sweetened beverages) and self-assessment of the respondents regarding their oral health were studied.

In children with hemophilia, an increased commitment to oral prophylactic measures has been found, probably dictated by their higher awareness and concern for health. The most common reason for visiting a dentist for children with hemophilia is a preventive examination, while in the control group the reason is the need for treatment; the largest proportion of children with hemophilia have visited the dentist twice or more times a year, 100% of children with Hemophilia use a toothbrush and toothpaste, but the use of floss and toothpicks among them is limited due to concerns about injuries from improper use.

In terms of eating habits, there was no statistically significant difference between children with hemophilia and the control group in the use of sweetened beverages. But there is an interesting comparison between eating habits and self-

assessment of oral health - children with hemophilia, who describe their oral health as "excellent", rarely take sweetened drinks and share fluoride intake.

Regarding the number of meals per day (basic and intermediate), the PhD-student found a statistically significant difference between children with hemophilia and the control group, with the first group having more intermediate meals per day compared to control group.

A comparison of the self-assessment of the oral health of the three groups of respondents shows that more than half of hemophiliacs and their parents rate their health as "excellent". The proportion of hemophilic children with specific oral problems is small, and the most frequently mentioned complaint was "the way their teeth look".

Dr.Mandova compares these results with the results of similar studies, and in some cases they are analogous, in others - different.

### **Results and discussion on Task 3:**

Surveyed dentists have shown good awareness of the most common hemophilia's manifestations in the oral cavity. The share of those who do not know the disease is small (11.54%). Physicians would be more confident in treating a patient with hemophilia if they worked in collaboration with specialists such as a clinical hematologist, oncohematologist, oral surgeon and others. Over 83% of the respondents expressed a desire for postgraduate training in the treatment of patients with hemophilia.

They are willing to perform prophylactic and non-invasive procedures on a patient with hemophilia, but 70% of them would refer a patient for surgical manipulation to an oral surgeon. Here, Dr. Mandova publishes a table describing high-risk and low-risk dental procedures with a risk of bleeding, and based on this separation, the patient can be correctly referred to a specialist or treated by a general practitioner.

Based on literature sources, the PhD-student presents a protocol for premedication of a patient with hemophilia before dental treatment and drugs for hemostasis used in dental practice.

#### **Results and discussion on Task 4:**

Based on literature sources and the results of her research, Dr. Mandova gives recommendations to dentists for a protocol of their treatment and diagnostic activities with patients with hemophilia - taking a thorough history, regular preventive examinations, preventive care, rules for dental restorations and endodontic, surgical, orthodontic treatment, the need for factor therapy in various types of anesthesia.

#### **Results and discussion on Task 5:**

It is widely believed that specialized national programs are needed to provide health and social care for people with rare diseases, including hemophilia. The European project (EUROPLAN) for the development of such programs provides guidelines and recommendations for their implementation and monitoring.

For the proper functioning of these programs it is necessary to establish a specialized center for dental treatment of children with hemophilia, early examinations of children with hemophilia to avoid complications during tooth eruption, training optimal oral hygiene habits.

Medium- and high-risk manipulations in patients with hemophilia should be performed by a multidisciplinary team involving various specialists, including a dentist. In order to upgrade the knowledge about rare diseases, including hemophilia, postgraduate training of specialists is needed.

The functioning of these programs requires broad public support, not only from people working in the health care system, but also from municipalities, the media, patients, youth organizations and others.

Dr.Mandova presents several lectures-games for raising the health culture of children with hemophilia, for their education in optimal oral hygiene and rational nutrition, which were tested at a summer camp in Kranevo. A Handbook of Dental Care for People with Coagulation Disorders is also presented, which describes recommendations for the prevention of dental diseases in people with hemophilia.

In the **Summary** Dr. Mandova concludes that health care, including dental care for children with hemophilia, is multicomponent, resulting in the unification of national and international programs and this would improve the quality of life of people with hemophilia.

The **conclusions** are based on the results obtained in the study.

The results of the study gave grounds for Dr. Mandova to make **recommendations** to the Ministry of Health, the National Health Insurance Fund, the National Alliance of People with Rare Diseases and the organizations of patients with rare diseases, including BgAH, professional medical organizations (BgDA), to the media and the people themselves with coagulation disorders for changes in their activities that would have a positive effect on the health of people with hemophilia.

### **Contributions:**

I accept without remarks the self-assessment of the candidate for the contributions of the dissertation, as they are consistent with the results of the study and the analyzed literature sources on the studied problem.

Dr. Mandova has popularized the results of her research in 3 published articles and 4 participations in scientific forums in Bulgaria.

### **Critical remarks and recommendations:**

I have the following critical remarks on the dissertation:

- Technical - repetition of text on pages 35 and 36; repetition of text on page 70; frequent use of English words instead of Bulgarians ("guideline"; "dental service providers" ); on page 51, in the section Purpose and tasks the tasks are 4, and in the text – 5.

- In essence - The statement that "Orthodontics is the oldest dental specialty ..." is incorrect - p.103; The dissertation would be more useful if there was an epidemiological study and it would be interesting to compare the objective dental status of children with hemophilia and their self-esteem.



The critical remarks made do not diminish the merits of Dr. Mandova's work, but they can be recommendations in her further scientific work.

**Conclusion:**

The dissertation of Dr. Victoria Mandova is a current study of dental care for children with hemophilia. The awareness and habits of children with hemophilia, their parents, children without hemophilia and dentists about dental health with properly chosen goals and objectives were studied and the results were compared with the results of similar studies published in the world literature. A Model of Health Promotional Policy for Improving the Oral Health of Children with Hemophilia and a Manual of Dental Care for People with Coagulation Disorders have been developed.

The dissertation meets the requirements for this type of research and I recommend the esteemed members of the scientific jury to award the educational and scientific degree "PhD" to Dr. Victoria Dinkova Mandova.

15 June 2022

**REVIEWER:**

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

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