

To the
Chairman of the Scientific Jury,
determined by Order No. R-109-153/13.03.2025
of the Rector of the Medical University of Varna

Review

by

Assoc. Prof. Dr. Sevda Mihaylova Yantcheva, PhD

as an external member of the Scientific Jury

of the dissertation work on the topic:

"Assessment of changes in HDT (hard dental tissues) in patients with bulimia"

for awarding the scientific and educational degree "Doctor"

in the doctoral program "Therapeutic Dental Medicine" in the professional field 7.2. Dental Medicine
from the field of higher education 7. Health and Sports

Author: Dr. Mariyana Rosenova Kirova

Department: "Conservative Dentistry and Oral Pathology",

FDM, MU "Prof. Dr. Paraskev Stoyanov" - Varna

Regular form of doctoral studies

Scientific supervisor: Assoc. Prof. Dr. Tsvetelina Iliyanova Borisova-Papancheva, PhD

General presentation of the procedure and the doctoral student

The set of materials presented is based on the requirements of the Law on Academic Staff Development in the Republic of Bulgaria and includes Order No. R 109-539/ 03.12.2021- city of Varna for enrollment as a full-time doctoral student in the Department of "Conservative Dentistry and Oral Pathology", Faculty of Dentistry, Medical University "Prof. Paraskev Stoyanov" - Varna of Dr. Marijana Kirova with scientific supervisor Assoc. Prof. Dr. Tsvetelina Iliyanova Borisova-Papancheva, PhD; protocol No. 40/26.02.2025 from the meeting of the departmental council of the Department of "Conservative Dentistry and Oral Pathology" with a favorable decision on readiness for public defense;

Order No. R 109-153/ 13.03.2025- city of Varna for enrollment with the right to defense within one year of Dr. Kirova; autobiography with the signature of the doctoral student; copy of the diploma for completed higher education with the degree of "Master" in Dental Medicine from the Faculty of Dentistry, Medical University - Varna (01.08.2019); protocols of exams passed according to the doctoral minimum; list of publications related to the dissertation; bound dissertation work and printed abstract.

Doctor Mariyana Kirova was born on 09.03.1993 in the city of Varna. In 2012, she graduated from secondary education at the "Frédéric Joliot Curie" Language School, Varna. In 2019, she graduated as a "Master of science" in Dental Medicine at the Faculty of Dentistry, Medical University - Varna. In 2019, she was appointed full-time assistant professor at the Department of "Conservative Dentistry and Oral Pathology" at the Faculty of Dentistry, Medical University - Varna. She participates in the students' teaching of the pre-clinical and clinical courses of Conservative Dentistry. In 2021, she was a full-time doctoral student at the Department of "Conservative Dentistry and Oral Pathology". Since 2019, Dr. Kirova has been practicing as a dentist at the University Medical Centre-Varna. From 2020 to 2023, she specializes in "Operative Dentistry and Endodontics". She is fluent in English, Spanish, and Microsoft Office tools. Dr. Kirova has good communication and teamwork skills.

Topic Relevance

In the modern world, there is an increased desire to look beautiful and perfect. Being slim and attractive is a kind of guarantee that you will be accepted and appreciated by society. An elegant, slender figure is one of the attributes valued today, especially among younger people, and is imposed by media personalities they want to resemble. Unfortunately, a perfect appearance is not always a sign of health and a healthy lifestyle. The desire for an ideal slim figure is increasingly causing mental and life-threatening eating disorders. They are associated with frequent episodes of uncontrollable overeating for a short time, followed by desperate efforts to prevent weight gain as a consequence. One of these diseases is Bulimia nervosa. Here, attempts to avoid weight gain after overeating are associated with inducing vomiting of the food eaten, using laxatives, diuretics, excessive physical exertion or exhausting starvation. This behavior leads to a metabolic disruption in the entire organism, which is logically reflected in the oral cavity and the teeth. Often, these changes can be the first noticeable signs of a mental illness associated with an eating disorder. For these reasons, I find the topic of the dissertation work, "Assessment of changes in the HDT in patients with bulimia," relevant and valuable for development. I am not aware of this topic being considered in our country. According to a study conducted in Bulgaria in the period 2010-2011. 20% of girls and 8% of boys between the ages of 10 and 19 are at risk of developing some eating disorder, as mentioned in the preliminary analysis of the available data in connection with the dissertation work. Developing the problem of HDT damage in patients with bulimia will benefit the dental scientific community, dentists and patients who have bulimia and similar eating disorders.

Characteristics and structure of the dissertation work

The work submitted to me for review, "Assessment of changes in HDT in patients with bulimia", is structured correctly and is illustrated with 54 figures, 35 tables, and five appendices. The total volume of the work is 170 pages, distributed as follows:

1. Introduction - 4 pages

2. Literature review and analysis of the literature review - 50 pages
3. Aim and objectives - 1 page
4. Material and methods - 13 pages
5. Results and discussion - 69 pages
6. Conclusion - 1 page
7. Conclusions - 1 page
8. Contributions - 1 page
9. Publications and participations related to the dissertation - 1 page
10. Bibliography - 19 pages
11. Appendices - 6 pages

There are 299 cited literary sources, 18 of which are Cyrillic. The dissertation has made efforts to reflect the achievements of the Bulgarian scientific community, which contributes to clarifying the topic being developed.

In the text of the dissertation, the literary sources are not indicated with numbers, as they should be in the bibliography, but are given with authors names and publication years. This does not fully comply with the standards adopted for scientific citation in a dissertation work.

Knowledge of the problem - literature review

The literature review is well structured. The main characteristics of eating disorders are presented, including bulimia nervosa. The etiology and prevalence by gender and age of the indicated chronic eating and behavioral disorders are examined. It is striking that these diseases are mainly prevalent among young people (15 - 30 years old) and are more common in women than men (10:1). The etiology includes genetic, biological, behavioral, psychological and social factors. Eating disorders are challenging to detect, as patients tend to deny and conceal their illness to avoid the need for professional help and due to shame from others.

The dissertation examines in depth the clinical picture in patients with bulimia and the oral and dental changes caused by chronic self-induced expulsion of gastric contents, nutritional deficiency and subsequent metabolic damage. Characteristic manifestations in the mouth are - atrophy of the mucous membrane, gingivitis, necrotic dysplasia of the salivary glands, salivary adenopathy, xerostomia, dental hyperesthesia and erosions of the HDT. The dissertation consistently focuses on the characteristic damage to the teeth, which is a consequence of bulimia: dental erosions, hyperesthesia, and caries. The mechanism of occurrence and the clinical manifestations of erosions in enamel and dentin are described. Different classifications of this non-carious damage to the HDT are presented in detail, along with the index systems for its assessment. The BEWE (Basic Erosive Wear Examination) index was subsequently used for this scientific research. Dental hyperesthesia's are the second most common oral symptom in patients with Bulimia Nervosa. They are described in depth in the literature review - etiology, pathogenesis, algorithms and diagnostic scales. The

dissertation also focuses on dental caries, as tooth surfaces, subject to frequent acid attack after self-induced vomiting, can be more easily penetrated by cariogenic microorganisms and affected by a carious process.

The role of saliva (composition, buffer capacity, pH, clearance) in developing dental damage in patients with eating disorders is examined. Saliva is also presented as a diagnostic factor.

The treatment approaches for restoring damaged HDT in patients with Bulimia nervosa are indicated, non-invasive and invasive.

The literature review shows a thorough knowledge of the problems. The review has a correct, logical structure and a scientific style.

Aim and tasks

The purpose of the research is "To analyze the relationship between Bulimia nervosa and poor oral health, due to the role of self-induced vomiting as a risk factor, to clinically examine the oral damage resulting from the disease." Three clinical tasks have been selected, one of which has two subtasks, which are sufficient to realize the set goal and present a dissertation for the award of the scientific and educational degree "Doctor."

Material and methods

To implement the clinical tasks, 30 patients with proven eating disorder Bulimia nervosa were selected, without other severe systemic diseases that require dental treatment. As a control group, another 30 patients were selected, without eating disorders and other severe systemic diseases that also require dental treatment. The criteria for selecting patients are clearly stated. The declaration of informed consent for participation in the study is attached (Appendix 5). I highly appreciate the efforts of Dr. Kirova and the scientific supervisor - Assoc. Prof. Dr. Borisova-Papancheva to gather a representative group of patients with bulimia.

The methods for the relevant tasks are described correctly and clearly, allowing for the experiments' reproducibility. The number of examined surfaces, teeth, and tooth surfaces allows for achieving results from which objective and reliable scientific conclusions can be drawn.

Task 1 analyzed the saliva qualities of bulimic patients compared to the control group of healthy patients, using the Saliva Check Buffer Kit (GC America). The test allows for collecting information about the level, viscosity, and consistency of unstimulated saliva and the pH, quantity, and buffer capacity of stimulated saliva. Task 2.1. examined the frequency of primary and secondary carious lesions, filled teeth and their localization. The generally accepted WHO index - DMFT and a corresponding scale for each indicator were used. The results were reported through a precise examination using a periodontal probe, mirror, and good lighting. A study of the DMFS index was also correctly added, which allows for a more specific designation of the tooth surfaces affected by caries, which is essential when reporting the results in bulimic patients - here, due to the acidic effect of the induced vomitus, involvement of specific tooth areas is observed. Task 2.2 examined the clinical picture, localization and size of erosive defects in the same patients. Attention is paid to good teeth surface drying to distinguish the initial signs of dental erosion. The BEWE index, a 4-point scale, was used to assess the severity of erosion, depending on the amount of affected HDT. The study is

registered by teeth and dental sextants, forming a final sum. The values of the final sum are related to assessing the level of risk in patients and their management, which has direct practical benefit for the patient and the doctor. Task 3 examined dentin hypersensitivity in patients with bulimia in response to tactile stimuli and cold thermal stimuli. A visual analogue scale was used to assess pain sensation, which is easy for patients to perceive and has values from 1 to 10.

Results and discussion

The results and discussion of the three main tasks are presented clearly and thoroughly. Modern statistical methods were used. They are illustrated with figures, tables and photos that help perceive the information.

The results of task 1 show that patients with Bulimia nervosa show statistically significantly reduced salivary secretion, compared to the control group of patients (unstimulated saliva). The viscosity of saliva in patients with bulimia is increased, and the pH of saliva is more often reduced. Based on the results obtained, these conclusions confirm the increased risk in such patients of the occurrence of erosive processes, due to the acidic environment and the reduced protective capacity of saliva. The amount of stimulated saliva in healthy patients and those with bulimia does not show differences. This saliva has a reduced buffer capacity in the studied group with bulimia, which indicates a risk of inability to neutralize the acids that enter the oral cavity after vomiting. Again, circumstances increase the likelihood of acid demineralization of the HDT. The results of task 2.1. logically show significantly increased values for the two studied indices, DMFT and DMFS, in patients suffering from Bulimia nervosa. The large number of available fillings indicates that these patients seek dental care and take care of their teeth. For them, appearance is essential. However, the high number of secondary caries indicates a rapid progression of carious processes in the mouth. The study of the erosive processes of the HDT, conducted for the dissertation, confirms the typical localization of these defects - the palatal surfaces of the upper incisors and the occlusal surfaces of the molars. The palatal surface of the molars is affected by a longer duration of the disease. A large proportion of involvement of both enamel and dentin has been established. The affection of dentin indicates a longer duration of the process. The authors observe only enamel involvement in bulimia for about 1 year.

In addition to the action of stomach acid from induced vomiting and its high demineralizing potential, the authors attach importance to the reduced salivary flow, which was established by the results of task 1. I agree with their hypothesis. I agree with the need for an individual approach and monitoring of cases, regardless of the indicators obtained through BEWE - the whole mouth index. It is interesting that patients suffering from bulimia are not informed about the increased acidity in their mouth and are not familiar with the correct oral hygiene behavior to maintain adequate dental hygiene and alkalization of the oral environment. This field needs to be worked on. The results of task 3 - study of dental hyperesthesia in patients with Bulimia nervosa, show that 96.67% of them suffer from hypersensitivity to HDT. In 47.15% of the teeth with erosions, hypersensitivity to cold, thermal and mechanical stimuli is observed. The dissertation establishes a correlation between the BEWE index and the individually determined dental hypersensitivity. With an increase in the BEWE index, dental hypersensitivity increases, which indicates an active erosive process.

The discussion of the results is exhaustive. Dr. Kirova's own results are compared with the available data from the scientific literature. Hypotheses are expressed with understanding and scientific vision,

based on their results and the clinical research process conducted. This allows Dr. Kirova to reach correct conclusions and formulate the conclusions of her work.

The in-depth work and understanding of the problems enabled the dissertation candidate to compile a protocol for the prevention and treatment of oral complications resulting from bulimia nervosa, which is a contribution to the clinical practice of dentists.

Contributions and significance of the development for science and practice

The conducted research allows the doctoral candidate, Dr. Mariyana Kirova, to draw thirteen conclusions on the tasks set, characterizing the oral cavity processes and HDT related to bulimia nervosa. The presented findings are significant for developing scientific knowledge and dental practice.

Five contributions are presented with an original, 4 with a confirmatory nature and 1 with an applied nature, which I fully accept.

I want to highlight the authors' recommendations to dental practitioners. These recommendations are based on the dissertation work results and conclusions. Authors create the protocols for the prevention and treatment of oral complications resulting from the disease bulimia nervosa.

Publications and activity related to the dissertation

In connection with the dissertation, 3 publications have been made in scientific journals. In all three publications, Dr. Mariyana Kirova is the first author.

3 participations in scientific congresses have been presented.

The publication and scientific activity is fully sufficient to popularize the directions of the scientific research of Dr. Mariyana Kirova in connection with the dissertation work.

Abstract

The abstract corresponds to the content of the dissertation work. On 72 pages, an introduction, the purpose, the tasks, the material and methods, the results of the development and their discussion are presented. The conclusions, conclusion, contributions, publications and participation in scientific forums in connection with the dissertation follow. 16 tables and 35 figures are included.

Conclusion:

The dissertation work "Assessment of changes in hard dental tissues in patients with bulimia", presented by Dr. Mariyana Rosenova Kirova, contains scientific and applied results that represent an original contribution to science. The development is up-to-date and is the personal work of the dissertation candidate.

The dissertation work shows that Dr. Mariyana Kirova possesses scientific knowledge and professional skills in the scientific speciality of Therapeutic Dental medicine. Dr. Mariyana Kirova has developed the ability to conduct scientific research and formulate scientific conclusions independently.

I give a positive assessment to Dr. Mariyana Rosenova Kirova's dissertation, "Assessment of changes in HDT in patients with bulimia. " According to the Law on the Development of the Academic Staff in the Republic of Bulgaria, he meets all scientometric criteria for acquiring the educational and scientific degree "Doctor."

I vote with conviction "yes" and propose to the esteemed members of the scientific jury to vote positively for Dr. Mariyana Kirova to acquire the scientific and educational degree "Doctor" in the scientific speciality 03.03.01 Therapeutic Dental Medicine.

11.05.2025

Sofia

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

(Assoc. Prof. Dr. Sevda Mihaylova Yantcheva, PhD)