

STATEMENT

by Assoc. Prof. Dr. Miroslava Veselinova Yordanova-Chaprashikyan, DMD

On the dissertation for the award of EDS "Doctor"

Professional field: Dental Medicine

Author: Dr. Manoela Mitkova Kalaydzhieva

Form of doctoral studies: Independent study

Department: Orthodontics, FDM, MU - Plovdiv

Topic: Retention phase - assessment of the risk factors for relapse and prognosis for stability of the orthodontic treatment result

Scientific supervisor: Assoc. Dr. Silvia Krasteva, DMD

МЕДИЦИНСКИ УНИВЕРСИТЕТ
ПЛОВДИВ
Вх. № П. 5338.1 20.06.2022 г.

1. General presentation of the procedure and the PhD student

The presented set of materials on paper/electronic media is in accordance with Article 70 (1) of Section I. Acquisition of educational and scientific degree "DOCTOR" and scientific degree "DOCTOR OF SCIENCE" at MU-Plovdiv; Regulations of MU-Plovdiv from 28.01.2021 and includes the following documents:

- Application to the Rector of MU-Plovdiv for disclosure of the procedure for defense of the dissertation
- CV in European format with the signature of the PhD student
- notarized copy of higher education diploma
- ordinances for enrollment in doctoral studies, interruption of studies (due to maternity) and for continuation of studies; for completion with the right to defense
- ordinance for conducting an exam according to the individual plan and the respective protocol for passing the exam or doctoral minimum in the specialty
- Minutes of the Department Council for preliminary discussion of the dissertation work and the decisions taken for starting the procedure and for the composition of the scientific jury
- dissertation work
- abstract
- list of scientific publications on the topic of the dissertation
- copies of scientific publications
- list of participations in scientific forums
- declaration of originality and authenticity of the attached documents
- other documents related to the procedure

The PhD student has submitted 3 full-text publications on the topic of the dissertation and 2 participations in international scientific congresses.

The dissertation consists of 235 pages, 90 figures, 46 tables and 4 appendices. The bibliographic reference includes a significantly large number of literary sources – 426, of which 9 in Cyrillic and 417 in Latin.

Dr. Manoela Mitkova Kalaydzhieva was born on April 23, 1988. In 2013, she graduated as a Master of Dental Medicine at the Medical University - Plovdiv. In 2014, she began teaching as an assistant professor in the Department of Orthodontics at FDM-MU - Plovdiv after successfully passing an entrance exam. Dr. Kalaydzhieva teaches clinical and preclinical seminars of 3rd, 4th and 5th-year students both in Bulgarian and in English. She is also successfully involved in the training of Erasmus students. Since 2020, she has been enrolled as a PhD student in independent study at the

same department. The doctoral student is a member of scientific organizations such as BOS, BDA, Bulgarian Scientific Society of Dental Medicine, EOS, EAS, BAOS, WFO. She regularly improves her orthodontic knowledge and skills by attending specialized congresses and orthodontics courses.

2. Relevance of the topic

The variety of factors leading to relapse of the orthodontic deformity and instability of the treatment result are the reason why choosing the right retention appliance is still a challenge for orthodontists. Doubts and disagreements also exist regarding the protocol of wearing a retainer. The scientific research discusses the changes occurring in the retention phase of orthodontic treatment, carried out with different retention appliances. This makes me consider the topic chosen by the PhD student to be relevant and significant in scientific and practical terms.

3. Knowledge of the problem

The problem has been studied in detail. It is noteworthy that information from over 420 sources has been given on the specifics of the dissertation topic. Some of the studies are from the last 2 years, which unequivocally proves the interest of orthodontists (including Dr. Kalaydzhieva) in searching for scientifically sound data on the issue of orthodontic retention. Dr. Kalaydzhieva is well acquainted with the problems in the planning of the retention phase and targets them in her dissertation.

4. Research methodology

The research methods on all tasks are described precisely and in detail and are completely reliable for achieving the goal. Collection and analysis of the opinion of orthodontists in Bulgaria on issues regarding the retention phase was done with the help of a survey. All the requirements for a proper survey have been met. In order to more comprehensively study the quantitative changes in certain biological parameters (sagittal, transverse dimensions of the dental arch, position of incisors), the PhD candidate correctly used both biometric and cephalometric methods for the completion of the 2nd, 3rd and 4th tasks. The choice of statistical methods has been made according to the objectives of the individual tasks.

5. Characteristics and evaluation of the dissertation and contributions

The scientific study submitted for evaluation is correctly constructed. It has all the necessary parts in proportional sequence: introduction and literature review -58 pages, aim, tasks, material and methods – 23 pages, results and discussion – 110 pages, inferences and conclusions – 5 pages. The literature review is very well structured and detailed. The literary material is creatively quoted. Different schools and theories developed over the years according to philosophical considerations about the stability of the orthodontic result are systematized. The risk factors for relapse and the most commonly used retainers are described, but also a look at the latest technological products is provided. Information is provided on the retention protocols applied worldwide, as well as the methods for quantitative assessment of the stability of therapeutic changes. Conclusions, at the end of the literature review, on the inaccuracies and omissions of the various studies on the topic guided the PhD student. Dr. Kalaydzhieva sets a comprehensive goal, which she tries to achieve by formulating 5 tasks. They follow a good sequence. Sufficient material was collected from the questionnaire study, as well as from two target groups of a clinical trial: 1 group of patients with prescribed Hawley retainer in the upper dental arch and a fixed retainer in the lower dental arch; a

2nd group with prescribed vacuum-formed retainer in the upper jaw and a fixed retainer in the lower jaw. The material in the clinical study was specified according to certain criteria (demographic, type of growth, skeletal class of the orthodontic discrepancy) and selected according to a specific type of orthodontic treatment. This brings correctness in the interpretation of future results.

Different orthodontic schools have an impact on clinicians' individual strategies for maintaining orthodontic outcomes. The results from task 1 give an idea of the preferences and satisfaction of orthodontists at the national level to certain retention appliances and protocols. An improperly selected retainer for a specific orthodontic discrepancy could be a factor in relapse due to ineffectiveness in stabilizing the dentoalveolar parameters altered during treatment. The dissertation focuses on studying the influence of 1 fixed and 2 removable retainers on the stability of the post-treatment width and length of the dental arch as well as the inclination and crowding of incisors. The author quite reasonably decided to present (task 4) the advantages and disadvantages of the mentioned means of retention, referring to the results obtained in the previous two tasks. Task 2 presents the quantitative changes of dental arches before and after treatment and during the two-year retention period. Task 3 reports the cephalometric change in the inclination of the incisors in both jaws for the same periods. I evaluate the results of task 5 as a valuable addition to the dissertation. Serious statistical processing of the values of therapeutic and retention changes determines some morphological parameters (intercanine, interpremolar and molar widths, etc.) as objective criteria for predicting future relapse. The conclusions from the results of the five tasks clearly summarize the scientific information about the effectiveness of the studied retainers, about the potential risk factors (morphological parameters) related to orthodontic relapse and allow the doctoral candidate to draw 8 important conclusions. Some of them confirm the subjective observations of orthodontists or the scientific findings of a number of studies.

The significance and contributions of the scientific study can be assessed as scientific, scientific and practical, and applied. This is because on the one hand the knowledge about the etiology of orthodontic relapse and the methods for limiting it is supplemented with more scientifically substantiated data, and on the other hand practical advice is given to clinicians:

Scientific achievements:

1. A survey was conducted in our country regarding the retention methods and appliances used after orthodontic treatment.
2. The changes in the transverse and sagittal parameters in the upper and lower dental arches were monitored over a 2-year retention period, during which removable retention appliances were applied in the maxilla and non-removable retention appliances were applied in the mandible.
3. The changes in the cephalometric indicators of the tooth change were monitored over the 2-year retention period.

Scientific and practical contributions:

The advantages and disadvantages of three types of retainers are emphasized - vacuum-formed Essix retainer, Hawley retainer and fixed retainer.

Practical contributions: Prognostic criteria for potential orthodontic relapse are established.

6. Assessment of the publications and personal contribution of the PhD student

Dr. Kalaydzhieva presents 5 papers in connection with the dissertation. Of these, 3 are full-text publications co-authored by the research supervisor and other colleagues. Two are in a

referenced Bulgarian specialized journal of orthodontics, and the third is published in a journal referenced in Scopus. There are two participations in European and Balkan scientific congresses.

My personal impressions and long-term acquaintance with Dr. Kalaydzhieva in a professional capacity give me reason to believe that most of the results of this dissertation are the PhD candidate's own contribution. The choice of radiographic approach to monitor some signs of relapse over the two-year period after completion of the active orthodontic treatment further complicates the implementation of this research due to difficulties in motivating patients. The trials were also approved by an ethics committee.

Critical Remarks - The recommendations for correction of some factual and semantic mistakes pointed out in remarks regarding the aim and results of the scientific work presented during the completion procedure have been followed. It would be good to eliminate the discrepancy regarding the notification of subchapters in the contents and the literature review of the dissertation.

7. Abstract

The abstract is 58 pages long. It covers all parts and reflects the main results of the dissertation, which are appropriately illustrated.

CONCLUSION

The dissertation of Dr. Manoela Kalaydzhieva concerns one of the most discussed and persisting problems of orthodontic treatment, that of the inevitable and unpredictable relapse of an orthodontic deformity and the effectiveness of the methods used to limit it. Clinicians undoubtedly need in-depth information on quantitative changes in the retention phase and their relationship to therapeutic changes in biological parameters. Any attempt to predict the risk of relapse is conducive to the long-term stability of orthodontic correction. This makes me positively evaluate the work done and the results obtained.

The dissertation meets all the requirements of the Law for Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for implementation of the LDASRB and the Regulations of MU - Plovdiv. The presented materials and dissertation results fully comply with the specific requirements adopted in connection with the Regulations of MU - Plovdiv for application of LDASRB.

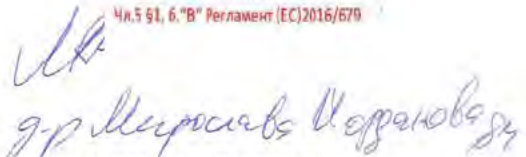
Scientific work shows that the doctoral student has in-depth theoretical knowledge and professional skills in the scientific specialty of Orthodontics by demonstrating qualities and skills for independent research.

Due to the above, I affirmatively give my *positive assessment* of the dissertation of Dr. Manoela Mitkova Kalaydzhieva and *propose to the esteemed scientific jury to award the educational and scientific degree 'Doctor'* to Dr. Manoela Mitkova Kalaydzhieva in a doctoral program in Orthodontics.

13.09.2022

DMD)

Заличено на основание
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