

## OPINION

**By Assoc. Prof. Hristina Ivanova Milanova, MD, PhD**

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Basis for drawing up the opinion: By order of the Rector of Sofia University "St. Kliment Ohridski" № RD 38-616/20.11.2023, I am appointed to provide an opinion on the defense of Dr. Gerasimova.

**Subject:** Procedure for the defense of a dissertation on the topic:

**“A CLINICAL APPROACH BASED ON THE BIOPSYCHOSOCIAL MODEL IN  
THE TREATMENT OF CHRONIC NECK PAIN”**

for acquisition of the educational and scientific degree “Doctor” (PhD) in PhD program  
"Physiotherapy, resort science and rehabilitation"

**Author of the dissertation: DESISLAVA METODIEVA GERASIMOVA, MD**

Independent doctoral student

Scientific area 7. Healthcare and sports

Professionally direction 7.1. Medicine

Scientific specialty "Physiotherapy, resort science and rehabilitation"

**Scientific Supervisor:** Assoc. prof. Dr. Iskra Takeva, MD, PhD

### **General presentation of the procedure and the PhD candidate**

The opinion is prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Implementation, the Regulations on the conditions and procedure for acquiring scientific degrees and borrowing on academic positions in Sofia University "St. Kliment Ohridski".

Submitted paper/electronic materials are in accordance with the procedure for acquiring the scientific and educational degree "doctor" and the regulations of the SU. In reviewing the dissertation submitted to me for opinion, there is no evidence of plagiarism. I declare the absence of a potential conflict of interests.

Dr. Desislava Gerasimova graduated in medicine in Craiova, Romania in 2001. From 2001 to 2008, she worked as a family doctor in Vidin, and since 2009 she has been a clinical resident in Physical Medicine and Rehabilitation in Hospital "St. Anna" - Sofia. In 2013, after successfully passing the exam, he acquired the specialty "Physical and Rehabilitation Medicine". She completed postgraduate qualification courses: Laser therapy; Postisometric

relaxation and mobilization of peripheral joints; Stress management training with biofeedback. Graduated specialist in manual therapy. Consultant on logotherapy and existential analysis consultant.

### **Relevance of the topic and knowledge of the scientific problem**

Dr. Gerasimova's dissertation presents a problem of increasing clinical significance in perspective related to the application of the biopsychosocial model as part of the clinical approach in the treatment of chronic neck pain. As a response to the sustained trend for chronic pain to become a significant health problem due to its high incidence, interest in the development of new therapeutic strategies is growing. Timely and complex physical rehabilitation with a patient-oriented approach is an important and necessary factor to achieve an optimal level of functional recovery, and the application of the biopsychosocial model as an integrative approach would enrich the therapeutic strategies. From this point of view, Dr. Gerasimova's research is current and interesting, as it is aimed at investigating the effectiveness of the biopsychosocial model in the treatment of chronic cervical pain.

### **Characteristic and evaluation of the dissertation work**

The dissertation submitted for opinion is structured according to the accepted standard and includes an introduction, literature review (67 pages), research methodology (8 pages), results and analyzes (101 pages) and discussion (11 pages), conclusions and contributions (4 pages), bibliography (11 pages). It is written on 202 standard pages. The material is illustrated with 7 figures, 4 histograms, 45 diagrams and 47 tables. The list of used literature includes 175 titles, of which 29 are in Cyrillic and 146 are in Latin. The reference is up-to-date and comprehensive, with 49% of the sources being from the last 10 years.

In **the introduction**, the relevance of the topic is well outlined and the reasons for the choice are demonstrated.

The **literature review** is well structured and contains enough informational material. It is written competently, at a high scientific level. Contemporary views on the definition, classification and modulation of pain and the associated psycho-emotional and morphological changes are presented. Theories of pain generation and the biopsychosocial model are reviewed. The etiopathogenesis of chronic neck pain, the methods of diagnosis, clinical picture and the treatment of chronic cervical pain with a focus on physiotherapy are reviewed. Attention has been paid to therapeutic interventions, consistent with the biopsychosocial model and directions for psychoemotional impact. The analysis of the literary data and the resulting summary give the doctoral student a reason to precisely formulate the purpose of his research.

**The dissertation's objective** is specific, corresponding to the problem posed and stated in the title - to track and compare the therapeutic effect of a physiotherapy program combined with methods of influencing the psycho-emotional state compared to a conventional physiotherapy program for chronic neck pain. The tasks of the dissertation development are clearly formulated and correspond to the set goal.

### **Material and methods of the study**

The studied clinical contingent was represented by 70 patients with chronic non-specific neck pain, with a two-stage follow-up, randomized into two groups, with well-defined inclusion and exclusion criteria. The research methods used for the objectification of the results and the therapeutic program are presented. The study was conducted at the Hospital "Sveta

Anna", Sofia, PRM clinic. The statistical methods used are adequate and allow an appropriate visualization of the obtained results and the drawing of the main conclusions from the conducted study.

**The results** obtained in the implementation of the set tasks are convincing, well illustrated with 1 figure, 2 histograms, 45 diagrams and 45 tables, with a marked statistical dependence. The results fully cover the tasks set by the dissertation. The methods used in the dissertation - descriptive analysis, parametric and non-parametric methods, correlation and regression analysis and others, enable the author to conduct a qualitative and targeted study. The multi-component and in-depth evaluation of the tracked indicators is impressive, as well as the very good visualization and graphic presentation,.

**In the discussion**, a logical analysis of the results is made, considering the 6 hypotheses put forward sequentially, which emphasizes Dr. Gerasimova's professional approach to the problem being developed. They are original and cross-referenced with those of other researchers. Dr. Gerasimova assessed the risk factors predisposing to chronic pain in the cervical region. Gender differences have been established in terms of improvement of self-care in the application of complex therapy in combination with methods to influence the psycho-emotional state. The doctoral student emphasizes the correlation between symptom reduction and changes in the psycho-emotional state after the therapy. Dr. Gerasimova points out the reliability of the PHQ-9 test for assessing anxiety and depression in this cohort and the need for targeted assessment and follow-up of changes in the psycho-emotional state of patients with chronic neck pain. The short-term and long-term therapeutic effectiveness of a conventional physical therapy program in patients with chronic cervical pain has been reconfirmed.

On the basis of the good theoretical and statistical analyzes realized in the study, an essential merit of the work is the establishment of the optimization of the therapeutic effect in the long term in patients with chronic pain in the cervical region by the application of complex physical therapy in combination with modalities to influence their psycho-emotional condition. This result has a contributing national character, as there are no similar studies in Bulgaria. An extended complex assessment of the accompanying psychoemotional changes based on the biopsychosocial model in these patients is also proposed. Important from a scientific and practical point of view are the proposed recommendations for expanding the therapeutic approach with methods for influencing the psycho-emotional state.

**The conclusions** drawn and **the contributions** presented logically follow the achieved results and bring the scientific and practical benefit of the presented dissertation work. The conclusions are 7, as they meet the set tasks and correlate with the formulated goal. The dissertation is distinguished by 2 original contributions. The author also notes 4 contributions of a confirmatory nature and 3 scientific and applied contributions.

**The abstract** meets the scientific requirements for this form. It reflects the main points of the study and the results obtained. In connection with the dissertation work, **3 scientific publications** are presented, as well as 1 participation in a scientific congress, all of which are directly related to the topic of the dissertation work. In all three publications, the PhD student is the first author.

#### **Critical notes**

I believe that the structuring and presentation of the results of the dissertation based on the used statistical methods of analysis slightly complicates their perception, and in my

opinion they could be presented e.g. by tracking stages or on the basis of individual indicators, which would bring greater clarity. This remark in no way reduces the scientific weight of the presented development.

### **Conclusion**

The dissertation submitted for opinion by Dr. Desislava Metodieva Gerasimova "Clinical approach based on the biopsychosocial model in the treatment of chronic neck pain" and related publications correspond in volume, quality and achieved scientific contributions based on the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the regulations for its application and the Regulations on the terms and conditions for the acquisition of scientific degrees and occupation of academic positions in Sofia University "St. Kliment Ohridski". The obtained results fulfill the set specific tasks, therefore I assume that the objective of the dissertation work has been achieved.

The doctoral student possesses the necessary theoretical knowledge and professional skills in the scientific specialty "Physiotherapy, resort science and rehabilitation". I believe that she demonstrates qualities and skills for independent conduct of scientific research.

Due to the above, I give my **positive assessment** and propose to the respected members of the Scientific Jury to vote for the awarding of the educational and scientific degree "Doctor" to Dr. Desislava Metodieva Gerasimova in the scientific specialty "Physiotherapy, resort science and rehabilitation", code 03.01.58.

25.01.2024  
Sofia

Assoc prof. H. Milanova, MD, PhD