

## OPINION

By Prof. Rinaldo Shishkov MD, PhD, DSc.

Regarding Doctoral Dissertation Defense of

Simona Bogdanova-Petrova MD

On the topic: **” Pain as part of the rheumatological manifestations of the COVID-19 virus infection”**

Scientific Supervisor : Assoc.Prof. Tanya Shivacheva MD, PhD

By the order of the Rector of the Medical University – Varna № P-109-198/16.03.2023г., I have been appointed to prepare an opinion on the above-mentioned topic /as an internal member of the jury/ for the acquisition of an educational and scientific degree "Doctor" by Simona Bogdanova-Petrova MD.

**According to the procedure**, all the requirements of the Government and University regulations of MU-Varna have been met.

The dissertation work of Dr. Simona Bogdanova-Petrova is presented in a volume of 127 pages and a 33-page bibliography containing 419 titles. The data presented in the text are illustrated by 9 graphs, 20 figures and 53 tables.

The structure of the work is in 11 sections including: Introduction, Literature review on the topic, Formulation of the research (Aim, Tasks, Hypotheses), Material and methods, Results and discussion, Analysis and interpretation of own results and those from the literature, Conclusions, Contributions, Limitations of the study and Appendix (presenting the assessment tools for anxiety and depression, as well as those for assessing muscle and joint pain)

The ratios between the sections of the work are adequate and balanced.

The chosen topic is current with scientific and applied-practical significance.

**Introduction**, with which the author introduces us to the topic and motivates its importance.

**Literature review** - well structured. It represents a critical analysis of the current literary data on the problem, examined in many ways and in detail. The lack of literary data from Bulgarian authors is understandable, given the very recent pandemic situation. This makes it difficult for

the author to interpret the results, especially regarding fear, depression and anxiety, which in their psychogenic aspect have a situational and cultural character. Here, in the literature review, the theoretical-methodological grounds for the construction of the conceptual framework and the specific terminology are clarified. In this regard, I assess the topic of the study as relevant, which is well motivated by the author.

**Design and methodology of the study:** The object of the study are 364 patients over the age of 18 years. 235 of them were diagnosed with COVID-19 and 130 patients with chronic pain in inflammatory joint diseases undergoing therapy with anticytokine drugs.

**The purpose** of the research is clearly and adequately formulated. It is concerned with the relationship between laboratory, imaging studies, and mental manifestations in depression, fear, and anxiety through analysis of clinical, laboratory studies, and depression and anxiety scales. **The research methods** selected are appropriate for the study objectives.

**Statistical analysis** was performed using appropriate methods and models.

Regarding the presentation and **analysis of author's own results**, I have no particular comments. Work was done correctly and competently, the requirements for that type of studies were met. The author used a clear and precise presentation style. The obtained results are by their nature original, given the fact that they refer to the Bulgarian population and to a newly emerging disease with a recent history, which did not allow other researchers to conduct similar studies in Bulgaria.

The results of the somatic and psychological assessments presented and analyzed in this way make it possible to examine and describe the specific data from the somatic spectrum in relation to the psychological aspects of depression, fear and anxiety in a psychosomatic and somatopsychic aspect. This is largely true of all "flu-like illnesses".

The **conclusions** drawn are correct and derive from author's own research and correspond to the set goals and objectives.

The statistical processing and illustration of the results with graphs and figures is excellent.

The contributions are well structured, deducible from literature data, own research and analysis.

In a certain sense, the contribution nature of the work is related not only to those specifically indicated by the author, but on the one hand it confirms, and on the other hand it contributes to the assessment of the pain syndrome as a psychosomatic syndrome for the entire palette of



psychosomatic pathology. Also, as a contribution of the work, of practical value are the indicated guidelines for a psycho-social approach in the treatment of the pain syndrome in COVID-19, which is practically valid for all types of pain syndromes.

The work is written in good language with excellent knowledge of the subject.

**The citations** are done correctly with excellently selected sources.

**The conclusion** is a summary and self-evaluation of what has been done. Scientifically interesting and practically useful is the author's idea to study the pain syndrome not only as a phenomenon accompanying an inflammatory disease, but also to look for a connection with the psycho-social attitude in a period of an extreme pandemic with extremely high mortality and the related fear, depression and anxiety in the sick people.

Dr. Bogdanova-Petrova has appropriately included in her dissertation a short text about limitations of the study. They are objective and practically could not be corrected during the study period given the peculiarities of the pandemic COVID-19 situation in our country and the study period.

The presented dissertation abstract reflects sufficiently fully and accurately the text of the dissertation work.

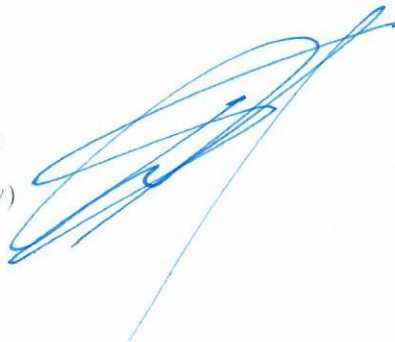
**In conclusion:**

The dissertation submitted for review by Dr. Simona Bogdanova-Petrova reviewed significant problems await from a theoretical and applied point of view. Despite the difficulties of an organizational nature and not so definitive data related to the disease COVID-19, the author has coped very well with the tasks set, the formation of hypotheses, the selection and application of research methods, as well as with the analysis and summary of the obtained results. Demonstrated excellent knowledge of the subject, broad awareness and ability to analyze and evaluate literature data. The study itself had an appropriate research design and was carried out conscientiously and correctly.

There are well-defined personal contributions. All this gives me reason to vote positively for the awarding of the educational and scientific degree "Doctor" to Dr. Simona Bogdanova-Petrova.

Submitted an opinion:

(Prof. Dr. R. Shishkov)

A handwritten signature in blue ink, consisting of several overlapping loops and lines, positioned to the right of the text 'Submitted an opinion: (Prof. Dr. R. Shishkov)'. The signature is somewhat stylized and difficult to decipher as a specific name.