

R E V I E W

by

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regarding dissertation for obtaining scientific degree “Doctor of Sciences”

in field of higher education 3. Social, Economic and Legal sciences

Professional field: 3.8. Economy

Author: Irena Brukvitska

**Title: Economic aspects of the treatment of diabetic foot and their impact on the
healthcare system in Poland**

DEAR MEMBERS OF THE SCIENTIFIC JURY,

Grounds for providing this review is Order No. 816 of December 12th, 2023 of the Rector of the Higher School of Insurance and Finance (VUZF) for the conduction of procedure for the defence of a dissertation thesis for obtaining a scientific degree "Doctor of Sciences" in field of higher education 3. Social, Economic and Legal sciences, Professional field 3.8. Economy.

The procedure is conducted in accordance to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Rules for its implementation, as well as in accordance to the requirements of the internal rules of the Higher School of Insurance and Finance.

Within the framework of the procedure, to the dissertation paper on the topic of "Economic aspects of the treatment of diabetic foot and their impact on the healthcare system in Poland", the author Irena Brukvitska, PhD presents documents including CV, an abstract of the dissertation thesis, a list and summary of scientific publications, scientific articles, author's reference for the contributions of the dissertation thesis, reference for implementation of the minimum national requirements for acquiring the scientific degree “Doctor of Sciences”.

• ***BRIEF BIOGRAPHIC INFORMATION AND DATA OF THE CANDIDATE***

The dissertation submitted for review has been developed by Irena Katajina Brukvitska, Ph.D. Based on the biographical data submitted within the procedure it is presented that the candidate holds a Master's degree in the field of nursing by the University of Liublin, Poland. In 2000 obtains a PhD in the field of “Sociology”.

The candidate has submitted and published multiple scientific publications both in Polish and in English language in regards to defending the dissertation thesis and in aim to ensure publicity of the results and the contributions obtained within the framework of development of this dissertation.

It is observed that a significant part of the presented scientific publications is related to the dissertation and being personally set and published by the author and others are published in co-authorship.

The articles cover topics scoping at diagnosis, treatment and prevention of diabetes and complications occurring as a result of this chronic disease. In published articles, author by the candidate Brukvitska, PhD have been examined and submitted data on the quality of life assessment of diabetics in terms of planned physical activity.

By the documents submitted within the current procedure, it is evident that in 2023, Ms. Irena Brukvitska, PhD developed monographic book on "Economic aspects of the treatment of diabetic foot and their impact on the healthcare system in Poland", which is being reviewed by representatives of the academic community in Poland and in Slovakia.

The candidate in her current research examines in depth and presents the specifics of the implementation of activities for diagnostics, treatment and control in medical activities related to the provision of health services to patients with diabetes mellitus. The study is presented and analyzed to overview main leading symptoms of diabetes, laboratory tests to diagnose and monitor the disease, as well as symptoms characterizing the complications of diabetes

In the dissertation submitted for review, the author examines the topic of "Economic aspects of the treatment of diabetic foot and their impact on the healthcare system in Poland", paying special attention to the aspect of cost consideration in the treatment of diabetic patients, with diabetic foot syndrome. The peculiarity is that there is a

need for the use of specific therapeutic and diagnostic methods when providing treatment to such type of patients. The specific approach, part of the diagnostic and therapeutic process towards each individual patient, has a reflection in the economic and financial parameters of the realization of the activities from the medical establishments directly involved in the recovery process of patients with diabetic foot syndrome.

The dissertation has been developed in accordance to the legally established requirements.

• *RELEVANCE OF THE TOPIC AND ADVANCE OF THE GOALS AND TASKS SET*

The provision of high quality medical care is one of the most essential and significant topics, in the focus of modern health systems worldwide. Measuring the quality of therapeutic and diagnostic activity in the provision of health services is directly related to the assessment of the functioning of health systems, both at the level of an individual country and within communities of countries, including within the European Union. Achieving a high level of quality of health services and medical activities is often associated with the development and degree of financing of the healthcare system. The impact of delayed or insufficient investment in healthcare leads to an indirect increase in healthcare costs.

A basic characteristic in evaluating the effectiveness of the functioning of the health systems, involves the establishment of the level of quality of health services, and this indicator must be managed in a manner that guarantees the achievement of the desired health results for the population.

Diabetes is a socially significant disease due to the high frequency and widespread degree of spread. The disease is recognized as one of the most significant health problems worldwide, both in terms of distribution and in view of the development of late complications that can lead to serious adverse effects for patients - including blindness, chronic renal failure, amputations of limbs, vascular complications, myocardial infarction, cerebral disease, stroke.

The dissertation paper pays attention to some of the significant factors that justify the specificity of the disease. Achieving the specifically set out in the scientific study is tied to formulated specific research issues that are directly related to the priority of medical

organizations in the implementation of specific therapeutic measures in patients with diabetic foot syndrome.

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The dissertation work contains research and analysis, in a theoretical and empirical terms, of the system of paying activities in the treatment of diabetes, and in particular when taking care of the treatment of diabetic foot syndrome in Poland.

• *CHARACTERISTICS AND EVALUATION OF THE DISSERTATION AND RESEARCH METHODOLOGY*

The dissertation contains 258 pages (additionally to the main content of the dissertation 5 pages of attachment has been included). Structurally the dissertation includes an introductory part, 3 (three) chapters, conclusions, contributions and bibliographic reference sources.

The dissertation paper is highly illustrated presenting 48 tables, 66 diagrams and 5 images.

The bibliography consists of total of 300 sources, including monographic books, scientific articles and legislative acts. Wide range of titles and sources is included. Within the reference sources of the dissertation, national and international normative legal acts are included. Additionally scientific and literature sources could be outlined. The First chapter examines and presents epidemiology of type II diabetes and complications in the context of world health costs.

Chapter Second chapter is dedicated to the analysis of socio-economic costs in the treatment of a diabetic foot.

Specifically, social economic aspects in the realization of the cost of treating patients with diabetic foot are thoroughly examined and presented in the context of: - Costs for conservative treatment of diabetic ulcers - stationary and outpatient conservative care for patients with diabetic leg ulcers - economic importance. - The limb amputation in diabetic foot - cost of preparation for surgery, surgical treatment, immediate postoperative period and outpatient treatment.

- The role of multidisciplinary treatment of diabetic foot - economic aspects. The

Third Chapter is dedicated to the economic and financial analysis of the restorative benefits for the treatment of a diabetic foot in the Republic of Poland. In this part of the dissertation in four separate sections are presented:

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- Services provided within the framework of diabetes in Poland - analysis of available data.
- Prognosis for the number of benefits provided within the treatment of diabetes in the Republic of Poland.
- Therapeutic procedures that end with amputation - analysis of the available data. - Analysis of the indirect and intangible costs of treating complications in diabetic foot syndrome - the results of its own studies.

Based on the analysis of the sources on the topic in accordance to the formulated goals and tasks of the scientific research, the author of the dissertation has formulated the following research hypothesis:

Hypothesis 1: Worsening the economic status of the sample examined of clinical cases of patients, where there is a change in control parameters, depending on: 1. the time of the onset of the disease diabetes, 2. The onset of a symptom of the diabetic foot.

Hypothesis 2: The quality of life of diabetics with diabetic foot syndrome is worse than diabetics without diabetic syndrome.

Hypothesis 3: The indirect cost of treating complications related to diabetic syndrome is mainly related to: 1. retirement, 2. Disability, 3. Costs for health and medical care. The methods used within the dissertation work have been precisely selected and properly used. Research methods supplements one another, allowing the information to be evaluated in various ways.

Within the framework of the dissertation, a study has been carried out and an analysis has been developed, the results of the study confirm that the quality of life of patients with diabetes who are diagnosed with diabetic foot syndrome is significantly lower than the level of patient quality of patients with diabetes that did not develop diabetic foot syndrome. The thesis is argued, the deterioration of the quality of life in the first group of patients is relevant to indicators such as somatic, psychological and social characteristics.

Specific norms of national legislation are being used, based on which measurement

methods and indicators for reporting the level of intangible costs of treating diabetes mellitus, in the context of the element quality of life are based and implement to patients.

The research methods provided within the in dissertation includes analysis and synthesis, analogy, systematic methods of research, as well as dialectical methods.

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• ***EVALUATION AND CHARACTERISTICS OF THE ABSTRACT TO THE DISSERTATION*** A 30-page abstract (in Bulgarian language) has been submitted and presented along to the dissertation. It includes general characteristics of the dissertation, structure and content reference to the dissertation. The brief abstract presents the main focus of the dissertation including emphasis in the results and conclusions obtained.

My overall assessment to the abstract of the dissertation shows that it contains the ground aspects of the paper and presents the main findings and key points of the dissertation with the necessary clarity.

• ***CONTRIBUTION AND SIGNIFICANCE OF THE DISSERTATION ON SCIENTIFIC AND PRACTICAL GROUNDS***

The presented dissertation paper on “Economic aspects of the treatment of diabetic foot and their impact on the healthcare system in Poland“ is a complete scientific research dedicated to important aspects of financial, economic and social relations regarding overcoming and prevention of socially significant disease, such as diabetes (with diabetic foot syndrome).

The dissertation paper examines the fact that indirect costs - generating loss of productivity due to the shortened and exhausted economic potential of the sick population, lead to a decrease in production in the economy. Delays the onset of complications from the disease and reduce the risk of manifestations of complications, damage or death of the patient.

Based on the overall evaluation and analysis of the dissertation work presented within the current procedure, specific contributions which are of scientific-theoretical nature, and also of a practical and applied importance could be highlighted.

In analyzing and developing the aspects examined, the author identifies essential components and key requirements related to the application of differentiated approach to

treat patients with diabetic disease, including those with complications that have a manifestation of diabetic foot syndrome.

The results of the study under the course of the dissertation are contributing and are of importance for the planning and implementation of activities with respect to patients with diabetic diseases. The need for further studies of the key factors, which determine the differences in medical care and to provide healthcare in the context of improving the diagnosis, treatment and control of diabetes, has been presented.

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• *ASSESSMENT OF FULFILLMENT THE MINIMUM NATIONAL REQUIREMENTS*

By the documents presented within the procedure, it is evident that the scientific work provided by the candidate on the conduction of the dissertation paper and the scientific production presented are in accordance to the criteria and the minimum national requirements for obtaining a scientific degree "Doctor of Sciences" in the field of higher education 3. Social, Economic and Legal sciences, Professional field 3.8. Economy.

• *NOTES AND RECOMMENDATIONS*

I recommend to the candidate, in regards to the importance and relevance of the research topic on the dissertation, to expand the scope of research by studying, analyzing and presenting mechanisms to improve the quality of life of patients with diabetes mellitus (in diabetic foot syndrome) in the context of optimizing the amount of investment in healthcare, by being the specifics of the functioning of the healthcare system in the Republic of Poland.

CONCLUSION

In regards to the fulfilment of all legally based requirements on the development and defence of a dissertation for obtaining a scientific degree "Doctor of Sciences" in accordance to the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Rules for its implementation. Considering the overall assessment of the achieved contributions in the dissertation presented, **I provide a positive assessment on the dissertation and propose to the honourable members of the scientific jury to vote for the obtaining of a scientific degree "Doctor of Sciences" by Irena Brukvitska, PhD** in the field of higher education 3. Social, Economic and Legal sciences, Professional field 3. 8. Economics.

10.01.2024 Reviewer: *signature* Prof. Mariela Deliverska, LL.M, PhD, DSc.