

OPINION

**From Prof. Dr. Silvia Trifonova Trifonova-Pramatarova,
University of National and World Economy (UNWE), Sofia**

of a dissertation for the award of the scientific degree “Doctor of Sciences”

in Area of Study 3. Social Sciences, Economics and Law

Field of Study 3.8. Economics

Author: Dr. Irena Brukwicka

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

1. General description of the presented materials

By order No. 816 of 12.12.2023 of the Rector of the Higher School of Insurance and Finance (VUZF) Prof. DSc. of Law Boris Velchev, I have been appointed as a member of the scientific jury to ensure a procedure for the defense of a dissertation on the topic “Economic aspects of the treatment of diabetic foot and their impact on the healthcare system in Poland” for the award of a scientific degree "Doctor of Sciences" in the Area of Study 3. Social Sciences, Economics and Law, Field of Study 3.8. Economics. The author of the dissertation is Dr. Irena Brukwicka, Department “Finance and Insurance”, VUZF.

The materials presented by the VUZF include all the necessary documents for the procedure, namely: CV in English, copy of the diploma for the acquired educational-qualification degree "Doctor", dissertation in Russian, abstract in Russian, abstract in Bulgarian, a list of publications and summaries, a certificate of fulfillment of the national minimum requirements for acquiring a scientific degree "Doctor of Sciences" in a professional direction 3.8. Economics, scientific jury order, presentation by Dr. Irena Brukwicka, reference of contributions in Bulgarian.

In the abstract, the candidate has attached a total of 22 publications, including: 1 monograph, 4 scientific editions of scientific monographs, 2 scientific papers and 10 published chapters in collective monographs.

2. Brief biographical data about the candidate

Irena Brukwicka has an educational and scientific degree "doctor" in Humanities in the field of Sociology from Institute of Sociology, Faculty of Social Sciences of the University of Silesia in Katowice, Poland since

2010. In 2021 she graduated as a specialist in Psychiatric Nursing from the Center for Postgraduate Education of Nurses and Midwives in Warsaw. She completed her MA in Nursing at Nursing Faculty of the Medical University of Lublin in 1996, and BA in 1991 at the Medical Vocational Study in Jarosław. Dr. Irena Brukwicka has extensive practical experience in this field and many additional qualifications.

3. Characterization and evaluation of the dissertation work

The dissertation work of Dr. Irena Brukwicka has a total volume of 263 pages. It is structured in an introduction, three main sections, a conclusion, a bibliography and an appendix. List of figures, list of tables and list of graphs are provided. The work contains 48 tables, 66 graphs (diagrams) and 5 figures. The bibliography includes a total of 300 literary sources.

The **main goal of the research** is to show the trends in the Polish system for reporting the treatment and care of diabetics in the treatment of diabetic foot syndrome (DFS). These trends are related to the priority of medical organizations in the implementation of specific therapeutic measures in patients with DFS. There are many indications that these considerations are primarily related to the economic sphere of the treatment being carried out. The paper poses the following research questions:

1. Do economic aspects in the treatment of DFS influence the treating organization's decision for limb amputation?
2. Does the NHS condone lower extremity amputation in the treatment of DFS by shifting the burden of its own budget onto the Social Security Administration?
3. Are the increases in direct and indirect costs of diabetes care primarily due to complications of DFS?.

In order to answer these questions, several research hypotheses have been formulated. The applied methods of scientific research in the dissertation are mainly the following: method of induction and deduction, method of analysis and synthesis, comparative analysis, empirical analysis, descriptive analysis, factor analysis, graphical and tabular analysis, critical analysis and others.

The main applied research method is empirical research, which consists in collecting and developing an analysis of the payment system for the treatment and care of patients with diabetes mellitus in the treatment of DFS, as it is of great importance from an economic point of view in the choice of treatment methods. This can be expressed in an economy of current treatment procedures. This study is a kind of summary of the state of payment of treatment procedures depending on the methods of treatment of DFS during the last 10 years, based on the collected and systematized data.

The first section of the dissertation is devoted to the analysis of the epidemiology of type II diabetes and complications in the context of global health care costs. In this regard, the economic aspects of the pathophysiology of macro- and microangiopathic complications in diabetes mellitus were investigated. Special attention has been paid to the prevention of the formation of diabetic foot syndrome as an important element in reducing the costs of its treatment. An analysis of the role of the treatment of diabetic foot syndrome in the medical industry has been made.

The second section of the dissertation is devoted to the analysis of the socio-economic costs of treating a diabetic foot. An analysis of the value of conservative treatment of diabetic ulcers - inpatient and outpatient conservative care for patients with diabetic foot ulcers – was made and the economic significance of this problem was derived. Also analyzed were the costs of amputation of a limb in diabetic foot - costs of preparation for surgery, operative treatment, immediate postoperative period and outpatient treatment. The role of the interdisciplinary treatment of the diabetic foot and its economic aspects are brought out.

In the third section of the dissertation, an economic and financial analysis of reimbursed benefits for the treatment of diabetic foot in Poland is made. The services provided in the framework of diabetes treatment in Poland were systematized and an empirical analysis of the available data was made. On this basis, a forecast was prepared for the number of aids provided within the framework of the treatment of diabetes mellitus in Poland. The available data on the performed medical procedures that ended with amputation were also analyzed. Finally, an analysis of the indirect and intangible costs of treating complications in diabetic foot syndrome is made and the results of the author's research are summarized..

4. Contributions and significance of the development for science and practice

The presented scientific research is distinguished by contributions of a theoretical and an applied nature, which are derived on the basis of the achieved results of the research.

In my opinion, the following **scientific and scientific-applied contributions** of the candidate's dissertation can be highlighted:

(1) The need for reform of the Polish system for accounting for the treatment and care of diabetics with diabetic foot syndrome has been brought out due to the established serious economic problems in the treatment. It has been established that the cost of treating complications of DFS far exceeds the cost of prevention. Behaviors are recommended that help promote health, reduce the risk of amputation, and delay the onset of disability in patients. The role of pre-delivery of interdisciplinary diabetes care leading to reduction of complications and therefore to reduction of economic costs and improvement of patients' quality of life has been highlighted.

(2) It has been established that early diagnosis and professional control of diabetes mellitus is a tactic that allows to significantly reduce the burden of diabetes and its complications on the state budget. It is expedient to continue the analysis of the received data, to further monitor the discussed epidemiological and financial parameters, as well as to conduct cyclical studies to determine measures to reduce the burden of diabetes and its complications on Polish society. . Clarification and formulation of priorities, preparation of strategies for action, determination of budget, allocation of resources and adaptation of plans should be based on existing and further analyses. This algorithm should gain speed due to the dynamics of the phenomena presented in the dissertation work.

(3) It is proposed to apply general reimbursement for modern methods of diabetic treatment, while maintaining well-defined eligibility criteria, which will allow a positive therapeutic effect. The reason is that the number of amputations increases year by year in proportion to the increase in the number of new cases of diabetes, as well as the costs of rehabilitation and therapy, socio-economic costs and occupational absenteeism. Reimbursement for optimal modern treatment methods should not be seen as an expense, but as a potential and an investment. This dissertation research encourages further research to obtain more reliable evaluations and continue to define the individual characteristics of interventions to influence their use on a larger scale and to inform decision makers about their effectiveness in the treatment of diabetes.

(4) Dissertation research is important for prioritization and resource planning, as well as for informing decision makers, which can affect economic costs to patients and the state.

5. Assessment of dissertation publications

The candidate has submitted a total of 22 publications, including: 1 monograph, 4 scientific editions of scientific monographs, 7 scientific articles and 10 published chapters in collective monographs. They are related to the issues of the dissertation research.

6. Assessment of compliance with the minimum national requirements

From the presented Reference for the fulfillment of the minimum national requirements for awarding the scientific degree "Doctor of Sciences" in the professional direction 3.8. Economics, which the candidate of Dr. Irena Brukwicka has applied, it is evident that there is an over-fulfilment of these requirements.

7. Abstract

The content and quality of the abstract correctly reflects the main results achieved in the candidate's dissertation.

8. Critical remarks and recommendations

I have no significant critical comments on the presented dissertation work. The only thing I would recommend is to highlight more clearly in the list of publications which publications have been published in scientific publications, referenced and indexed in world-famous databases with scientific information - respectively in SCOPUS and in Web of Science. On this basis, I recommend that the candidate focus on publishing articles and reports precisely in these world-renowned databases of scientific information.

CONCLUSION

Dr. Irena Brukwicka's dissertation work contains important scientific and scientific-applied contributions and **meets** the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the Regulations for the Implementation of ZRASRB. Due to the above, I give my **positive assessment** of the research conducted, presented by the above-reviewed dissertation work, abstract, achieved results and contributions, and ***I propose to the honorable scientific jury to award the scientific degree „Doctor of Sciences“*** to Irena Brukwicka in the Area of Study 3. Social Sciences, Economics and Law, Field of Study 3.8. Economics.

11.01.2024

Reviewer: 

(Prof. Dr. Silvia Trifonova-Pramatarova)