

## REVIEW

from

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**Subject:** defense of *Maria Mladenova Georgieva's* dissertation on the topic "Healthy well-being and psychological support of patients with heart failure" for getting the educational and scientific degree "Doctor" field of higher education 7. Healthcare and sports, at professional direction 7.4 Public Health, scientific specialty "Health Care Management"

By order No P-109-38 from 25.01.2023 of the Rector of the Medical University "Prof. Dr. P. Stoyanov - Varna, and by Protocol No 1 from 01.02.2023 from the first meeting of the Scientific Jury, I have been appointed to present a review according to procedure for the acquisition of an educational and scientific degree "Doctor", with candidate Maria Mladenova Georgieva.

This review has been prepared in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDAS), and the Rules for the Implementation of the LDAS (RILDAS) and the Regulations for the Development of the Academic Staff at the Medical University - Varna.

### **Procedure data**

In connection with the procedure, a set of materials is presented, including the required documents:

- dissertation;
- abstract of the dissertation;
- declarations of originality and authenticity of the submitted documents for protection;
- copies of scientific publications;
- curriculum vitae, diplomas, protocols, orders, etc.

The presented set of materials, on paper and on electronic media, is in accordance with the procedure for acquiring the Educational and Scientific Degree "Doctor" and the Regulations of the Medical University of Varna.

### **Brief data on the doctoral student's career development and qualifications**

Maria Mladenova Georgieva graduated in 2008 from the Medical University of Varna "Prof. Dr. P. Stoyanov". She acquired a "Bachelor" degree in "Healthcare". In 2010, she acquired a Master's degree in "Health Care Management" at the Medical University of Varna "Prof. Dr. P. Stoyanov". Since 2019, she has been a full-time doctoral student at the Faculty of Public Health, Department of Health Care at MU-Varna.

Maria Georgieva's professional realization and experience began in 2009 at Lukovit Medical Center as a nurse at the neurology department. In the period 2010 - 2011, she worked in the Intensive Cardiology Clinic at UMHAT "St. Marina", Varna. From 2011 to 2017, she worked as a nurse at the II Cardiology Clinic - non-invasive at UMHAT "St. Marina", Varna. Since 2017, she has been a part-time teacher at the Medical University of Varna, Faculty of Public Health, Department of Health Care and works as a senior nurse at the II Cardiology Clinic - non-invasive at UMHAT "St. Marina", Varna.

### **General characteristics of the dissertation**

The submitted for review dissertation, created by Maria Mladenova Georgieva, has a volume and is in a form that meets the requirements of the Law on the Development of the Academic Staff in Bulgaria and the Regulations for the Development of the Academic Staff of the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna. It contains 172 standard pages and is structured in five chapters: chapter one - literature review – contemporary view of the problem; chapter two - aim, tasks, material and methodology of the study; chapter three – results and discussion; chapter four - management of heart failure - a challenge in nursing care practice; chapter five - conclusions, proposals, and contributions. The presented dissertation work is illustrated with 36 figures, 10 tables, 2 diagrams, and 7 appendices. The bibliographic reference includes 208 literature sources, of which 31 are in Cyrillic, and 177 are in Latin.

### **Evaluation of the actuality of the topic**

The selected topic for the PhD work "Healthy well-being and psychological support in patients with heart failure" is extremely up-to-date and a subject for dissertation. Cardiovascular diseases are socially important diseases and are the leading cause for morbidity and mortality worldwide, a problem which is particularly relevant for our country. Heart failure is the final stage of the development of a previous cardiovascular disease, characterized by high rates of mortality, disability and morbidity. One of the ways to deal with the severe and progressive course of the disease is the monitoring and close follow-up of the condition of patients with

heart failure. This makes possible to reach optimal management of the disease, favorably affects the prognosis and reduces rehospitalizations. The actuality of the topic of the dissertation is determined by the possibility for the nurse, alone or in a multidisciplinary team, to follow up, monitor, and educate patients with heart failure, as well as to carry out activities related to secondary and tertiary prevention of cardiovascular diseases. Creation of organizational models for cardiac nursing care is an innovative approach to the clinical and theoretical development of health care professionals, with the possibility of specialization and future certification.

### **Evaluation of the Literature Review**

Written on 47 pages, the review shows the awareness of the literature of the doctoral student on the issues of Cardiovascular diseases and, especially, on heart failure. Chapter one - literature review – the actuality of the problem is presented in ten parts:

- Definitions and classification of heart failure;
- Epidemiology of heart failure;
- Risk factors predisposing to heart failure;
- Clinical presentation and prognosis in patients with heart failure;
  - Clinical manifestation of heart failure;
  - Complications in patients with heart failure;
  - Prognosis in patients with heart failure;
- Hospitalizations and rehospitalizations due to heart failure;
- Quality of life in patients with heart failure;
- Anxiety and depression in patients with heart failure. Comorbidities;
- Risk factors for the occurrence of anxiety and depression in patients with heart failure;
- Signs and symptoms of deterioration in patients with heart failure - maintenance and control;
  - Observation and assessment of the patient's condition;
  - Maintaining healthy behavior in relation to the factors having a negative impact and leading to worsening of heart failure;
- Nurse-led heart failure clinics – international experience.

The classification and the epidemiology of heart failure are described in detail. Cardiovascular diseases are a leading risk factor for morbidity and mortality in our country and in Europe. New strategies for achieving a better quality of life for patients with cardiovascular diseases are described which are aimed at timely diagnosis, initiation of treatment and follow-up of all socio-economic groups at risk of developing heart failure. In recent years, heart failure has been defined as a global pandemic because it affects about 64 million people worldwide. It

is a common syndrome with an increasing incidence worldwide. An estimated 64.3 million people live with heart failure worldwide. The problem of pointing the major risk factors for heart failure, which are classified into two main groups, is discussed in detail. The first group are the social risk factors related to lifestyle, contributing to the development and progression of heart failure - smoking, alcohol abuse, lack of physical activity, a diet high in salt and fat, obesity, chronic stress, social isolation, and socio-economic relations. The second group of risk factors are arterial hypertension, the high cholesterol levels, poorly controlled diabetes mellitus and other medical conditions, as well as medication related.

In the literature review, special attention is paid to the psychological problems, such as depression and anxiety disorders that patients with heart failure may develop. These disorders are common but still not very well recognized but may lead to negative health and cardiovascular outcomes. Depressive disorder in patients with heart failure may be associated with an increased risk of death or new cardiovascular events

The impact of any risk factor is closely related to the lack of information of patients and their families, and with the need for follow-up and prompt implementation of primary and secondary prevention measures. Intensive, systematic, tailored, and planned training and the actual support provided by a nurse would increase the patients' competencies, as well as would affect the change in their behavior and lifestyle, which favors reducing the impact of the risk factors affecting heart failure.

The presented overview of the literature is thematically focused, logically constructed using serious sources of information. With its independent importance, it is an excellent foundation for creating an adequate methodology of the own research. With the overview presented in this way, the doctoral student fulfills the requirement for ESD "Doctor" - to be able to use and to analyze scientific literature and, based on it, to formulate research goals.

#### **Evaluation of the aim, tasks, material and methodology of the study.**

The aim of the proposed dissertation work is to improve the well-being and quality of life of patients with heart failure, by applying a Model for ambulatory nursing care. The aim is clearly and precisely defined, corresponding to the topic and content of the independent studies. To achieve such formulated aim, the doctoral student has defined nine tasks that detail the steps for studying the problem.

- To study the epidemiology of heart failure in Bulgaria and Europe.
- To explore the international experience of nursing care in the management of heart failure.

- To identify the factors leading to the progression of heart failure - the implementation of the therapeutic plan, control of body mass, control of blood pressure, dietary and exercise regime, etc.

- To define the biological and psycho-social determinants of the quality of life of patients with heart failure by means of validated questionnaires and scales for determining the complex care and for indicators improvement.

- To monitor the functional capacity of patients with heart failure, by applying the 6-minute walking test, New York Heart Association (NYHA) functional class evaluation, and, as a result, improvement of functional capacity, getting used the patients to a certain physical activity.

- To evaluate objectively the health status of the patients, through laboratory testing of the biomarker NTproBNP.

- To assess the psychological state and patients' predisposition to depression and anxiety, and through insuring short- and long-term psychological support.

- To analyze the results of applied complex care for the patients with heart failure, by evaluating the rate of rehospitalizations.

- To develop a model for the implementation of ambulatory nursing care in the priority areas of activities in patients with heart failure.

The *subject* of the present research investigation is the healthy well-being of patients with heart failure. Depending on the subject of the research activity, the dissertation includes two main components of the scientific research - prospective and empirical research

*Objective* of the study:

- Medical documents verifying objectively the condition of the patients with heart failure;
- Literature/electronic resources about good clinical practices, about organization of nursing activities and care for patients with heart failure;
- Patients with heart failure hospitalized in a cardiology clinic and after their discharge.

In the present study, overall 72 patients with heart failure II-IV NYHA functional class who were treated in the Second Clinic of Cardiology, Department of Non-Invasive Cardiology of UMHAT "St. Marina" – Varna are included in the study. The collection of information was carried out in the period from February 2020 to September 2022.

The study of the quality and duration of life, functional and psychological status of the patients with heart failure, including rehospitalizations, was conducted in a prospective and empirical manner.

For the needs of the analysis of the collected information content, a framework has been developed which included:

- demographic data;
- physical examination;
- physical parameters – arterial blood pressure, heart rate, and body weight;
- biological and psycho-social determinants of quality of life;
- health self-assessment.

The collection of information was formed through a physical examination, in the Department of Non-Invasive Cardiology at the Second Clinic of Cardiology at the UMHAT "Sveta Marina" - Varna, medical documentation, and questionnaires.

All data in the study were processed using a specialized standard statistical package for a personal computer - SPSS® for Windows, version 24.

### **Evaluation of results and contributions**

The results are presented and discussed according to the investigated objects. As a general characteristic of the results presentation, the precision in the application of statistical methods, skillful search for cause-and-effect relationships, continuity between literature data / good practices, the established research goals and tasks, and proof or rejection of research hypotheses should be noted. The results are presented in excellently designed figures and tables, and logical scientific thought is evident in their discussion.

In more than  $\frac{1}{4}$  of the patients, the outpatient cardiology care was managed by a nurse, while in the rest of the patients it was managed by a cardiologist and a nurse. Inclusion criteria were met, and the same nursing care algorithm was applied. The proposed model for ambulatory nursing care shows a positive effect on the management of symptoms in patients with heart failure. The practical application of the Model for ambulatory nursing care improves the quality of life of patients with heart failure, improves ejection function of the heart, the physical capacity which is confirmed by the positive results on NT proBNP and on 6-minute walking test. The role of the nurse is aimed at providing coordinated care, covering both health and educational aspects. In partnership with the medical specialists, comprehensive cardiac care is provided which gives us reason to propose accreditation of the created for the purposes of the study innovative Model of nursing care in patients with heart failure. The ambulatory cardiac care model is coordinated by a nurse experienced in the care of patients with heart failure. The model includes two basic packages of health care, divided into five visits and conformed to the specifics of the disease and to the necessary tools to assess the patient's condition. The created nursing care model makes it possible to apply an individual approach to each patient for faster

adaptation to the changes in lifestyle imposed by the disease. The multidisciplinary care approach is prioritized in this newly created model in which the nurse is the main driver and coordinator, in interaction with other specialists - physicians, physiotherapists, psychologists, psychiatrists, nutritionists, etc.

Cardiac nursing care reduces the risk of second or subsequent rehospitalizations of the patients with heart failure. The rates of depression and anxiety at the end of follow-up were found to be reduced or completely eliminated compared to baseline. The education of patients and their relatives has a beneficial effect on adaptation to the changes and limitations imposed by the disease.

Thus, the formulated conclusions are presented synthetically and are based on the analyzed data and results.

On the basis of the conclusions, proposals and results of her own studies, **contributions of a theoretic-knowledgeable and practical and applied nature** are extracted.

*Contributions of a theoretical-knowledgeable nature:*

- Establishing the initiation of theoretical and clinical nursing in the field of cardiology practice.
- Scientific foundations have been laid in nursing practice in providing activities and care for patients with heart failure which leads to the expansion of the theoretical and practical knowledge of health care professionals.
- Observation and assessment of the condition of patients were carried out, using a proprietary clinical research methodology.
- Data on the physical condition of patients with heart failure are presented.
- For the first time, a model was developed for the organization of cardiac nursing care in outpatient setting.

*Practical and applied contributions:*

- Guidelines for the care of patients with heart failure have been developed, which optimize processes in cardiac health care.
  - A Heart Failure Control Checklist has been developed for registration which provides information on the patient's behavior in complying with conditions for living with heart failure.
  - For the first time in the country, an office for monitoring patients with heart failure, led by a nurse, was built.
  - Developed and implemented in practice is the first of its kind complex, targeted and in-depth cardiology model for care of patients with heart failure in an outpatient office.
  - The role and significance of the heart failure nurse as the main driver in a multidisciplinary team is outlined.

- The factors favoring the progression of heart failure in a specific patient have been identified - failure to implement the therapeutic plan, difficult control of body weight, poor blood pressure control, wrong dietary and exercise regime.

The submitted *abstract* reflects the essential elements of the study and meets the technical requirements.

Overall, 4 full-text publications related to the topic of the dissertation are presented, with the leading author - Maria Mladenova Georgieva, two of which are in English. Three publications from participations in scientific forums and published in collections of reports are also presented.

### **Conclusion:**

The dissertation of **Maria Mladenova Georgieva** on the topic "**Healthy well-being and psychological support in patients with heart failure**" is an up-to-date, in-depth and of high scientific value product, innovative in design and character. It is executed according to contemporary rules and practice, providing a wealth of new information, with significant theoretical and applied contributions. It fully meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Rules for its Application, as well as the Regulations for the Development of the Academic Staff at the Medical University of Varna. The personal involvement of the PhD student is indisputable which proves her preparation and ability to carry out qualitative research work. The results of the dissertation have a multi-layered nature and contain potential and ideas for future research and multi-functional applications.

In conclusion, I give a positive appraisal of the presented dissertation, and convincingly recommend the Members of the Scientific Jury to award the educational and scientific degree "Doctor" to Maria Mladenova Georgieva in the scientific specialty "Health Care Management", professional direction 7.4. "Public health" in the field of higher education 7. Health care and sports.

07.03.2023

Prepared the review:

/Prof. Diana Ivanova, PhD/

