

## **REVIEW**

**by Assoc. Prof. Dr. Nevyana Georgieva Feschieva, MD**

of the doctoral thesis

**by Stoyanka Hristova Yancheva**

on the topic:

**"Nursing Approach in Patients with Obstructive Sleep Apnea - Assessment of Physiological Changes and Favorable Outcomes"**

### **Academic Supervisors:**

**Assoc. Prof. Mariana Nikolova Dimitrova, MD, PhD**

**Prof. Dr. Mario Petrov Milkov, MD**

for the award of the academic degree "Doctor"

in the field of higher education 7.1. Healthcare and Sports,

professional direction 7.4. scientific specialty "Healthcare Management"

By order No. R 109-351/18.07.2023, issued by the Rector of MU-Varna, taking into account the report with ref. No. 102-1489/10.06.2023 by Prof. Silvia Borisova Dimitrova, PhD, head of the Department of Health Care, and with the decision of the Faculty Council of the Faculty of Public Health under protocol No. 208/07.07.2023 and report with ref. No. 104-710/12.07.2023 by Prof. Antoniya Dimova - Yordanova, MD, Dean of the Faculty of Public Health, I have been selected as an external member of the scientific jury. In the first meeting of the jury, I have been designated to present a review for the doctoral thesis on the topic "Nursing Approach in Patients with Obstructive Sleep Apnea - Assessment of Physiological Changes and Favorable Outcomes" for the award of the educational and scientific degree "Doctor" in the scientific specialty "Healthcare Management," professional direction 7.4. Public Health.

**Brief biographical data about the doctoral candidate:** She completed her undergraduate medical education at PMI in Varna in 1987 with a specialization in "nurse-general profile." In

2001, she obtained a bachelor's degree in Health Care from MU-Pleven, and in 2018, she earned a master's degree in "Healthcare Management" again in Pleven. Her professional path has been associated with UMBAL "St. Marina," where she worked as a nurse from 1987 to 2020 in the Clinic of Pulmonology and Phthysiology. Since 2017, she has been a lecturer in the Department of Health Care, and since 2019, she has been appointed as an assistant on a 0.50 position. From 2021, she has combined her teaching work at MU with work at the Psychiatric Clinic of UMBAL "St. Marina." She actively participates in the scientific life of the Department of Health Care, with 14 publications and co-authorship in textbooks for students. On October 14, 2020, she was enrolled as a regular doctoral student at the same department. Regarding her doctoral studies, she has met the bibliometric requirements of the PRAS at MU-Varna, and with the order of the Rector of MU-Varna No. R-109-300/07.06.2023, she was approved with the right to defend. No violations have been found in the procedure. She has a good command of written and spoken Russian and a basic level of English.

*Assoc. Stoyanka Yancheva has extensive experience at the Clinic of Pulmonology and Phthysiology at UMBAL "St. Marina," where she gained experience with patients with OSA, who are the subject of her doctoral thesis. She has teaching experience and a penchant for scientific research, as evidenced by her significant publication activity.*

General characteristics of the doctoral thesis: The presented doctoral thesis consists of 211 pages, including 162 pages of text, 24 pages of literature, and 4 appendices totaling 21 pages. It is illustrated with 95 figures and 10 tables. The bibliography includes 269 literary sources, of which 68 are in Cyrillic and 201 in Latin.

The doctoral thesis is structured into the following five main, well-balanced content chapters: Introduction - 2 pages; Chapter One - Literature Review - 56 pages; Chapter Two - Methodology - 8 pages; Chapter Three - Results and Discussion - 77 pages; Chapter Four - Optimizing Care for Patients with OSA (summary, conceptual project); Chapter Five - Conclusions, Contributions - 6 pages.

### **Relevance of the Doctoral Thesis**

The syndrome of obstructive sleep apnea (OSA) is recognized as a common clinical condition that occupies a significant place in terms of prevalence among our population (4-9% among men and

2-4% among women), although some studies indicate higher numbers of respiratory disturbances during sleep (RDWS). Given the serious health disruptions and long-term consequences, both medically and economically, of untreated sleep apnea, it becomes imperative to analyze the reasons leading to the underestimation of prevention, detection, and ongoing treatment of OSA. The substantial financial resources required for treatment, not currently covered by the National Health Insurance Fund (NHIF), raise questions about rationalizing the organization of care for OSA patients and involving nurses in the so-called somnological process. Their academic education and preparation for comprehensive care provide a basis for seeking opportunities for them to take on functions that would support OSA patients in all stages of preventive and therapeutic care, ultimately improving their quality of life. The lack of research in this direction makes the doctoral thesis timely and promising.

Evaluation of the Literature Review. The doctoral candidate constructs the literature review based on a large number of sources, demonstrating a very good understanding of the issue and outlining the logical framework of the evolving field of sleep medicine. Using clinical characteristics, diagnostic approaches, risk factors, and health and economic consequences, she identifies the most significant problems related to obstructive sleep apnea (OSA). By complementing this with the existing regulatory framework in our country, Assoc. Yancheva concludes that despite its proven social significance, OSA has not yet found its proper place, lacks a vision for early detection, and faces financial, organizational, and psychological barriers to effective treatment.

The second part of the review focuses on the experiences of several countries in including nurses in the somnological team caring for OSA patients at various stages of medical care. The presented conceptual model of the roles of nurses, which is fundamental to her own research, occupies a central place. The doctoral candidate places particular emphasis on the practice of mandatory certification of nurses as a condition for working in the somnological team.

In terms of its content, the literature review represents a contemporary theoretical study. Due to its innovative nature, it plays a role in acquainting the medical community with the issue of sleep-disordered breathing. The section regarding the involvement of nurses constitutes an independent contribution to the doctoral thesis. The conclusions drawn from the literature review form the basis for the research objectives of the thesis.

## **Evaluation of the Objective, Tasks, and Methodology**

The objective of the doctoral thesis is to study and assess the organization of healthcare for individuals with obstructive sleep apnea (OSA), determine the role of the nurse in the stages of the somnological process, and propose approaches to optimize care. To achieve this objective, seven tasks and four hypotheses have been formulated, and a variety of methods suitable for the tasks and target groups have been applied.

The methodology includes the conduct of three separate studies, providing the necessary information for the tasks at hand. Each study is well-described with specific objectives, methods, selection of research subjects, and developed and applied tools. Briefly, the studies are as follows:

1. **Theoretical Study:** This aims to establish trends in the diagnosis, treatment, monitoring, and control of OSA worldwide and in Bulgaria. It also aims to highlight best practices internationally in providing care for OSA patients and the involvement of nurses. The method used is a descriptive review by searching selected keywords in scientific databases such as Scopus, Google Scholar, and PubMed.

2. **Quantitative Study:** This involves three branches: nurses, patients, and doctors. The objective is to study and evaluate the organization of care for OSA patients and reveal the role of the nurse in the somnological team. The study involves a total of 250 participants distributed across groups: nurses (n=140) providing care for OSA patients in hospital and outpatient settings, patients diagnosed with OSA through polysomnography or polygraphy in the same healthcare institutions (n=80), and experts (doctors) with experience in treating sleep-disordered breathing working in the same healthcare institutions (n=30). The method used is a direct, anonymous, individual survey to collect information, opinions, and assessments of OSA patients, nurses, and doctors regarding the quality, effectiveness, and opportunities for optimizing healthcare in somnology practice. Statistical methods include systematic categorization, summarization, analysis, and interpretation of statistical data with a focus on revealing the essence of observed phenomena and relationships. Statistical analysis was performed using SPSS v. 19.0. The research tools include a questionnaire for each group of respondents, incorporating some common questions for all groups for comparisons.

3. Qualitative Study: This involves in-depth interviews with patients to understand the problems in the comprehensive care process for OSA patients based on their experiences and feelings. The questionnaire includes 30 questions divided into four sections: socio-demographic characteristics, experience and feelings related to the diagnosis of OSA, experience and feelings related to treatment and care for OSA, and suggestions for improving the quality of care.

Overall, the objective, tasks, and methodology of the doctoral thesis are well-structured and comprehensive, ensuring a thorough investigation into the organization of healthcare for OSA patients and the role of nurses in this context.

### **Evaluation of Results and Contributions**

The results and contributions of the doctoral thesis have been extensively discussed. The research combines quantitative and qualitative methods and places a strong emphasis on in-depth interviews, ensuring a comprehensive understanding of the issues related to the organization of healthcare for obstructive sleep apnea (OSA) patients and the role of nurses in this context.

Here are the key positive aspects of the methodology and findings:

- Methodological Strength: The combination of quantitative and qualitative methods, as well as the in-depth interviews, demonstrates a thorough approach to research. The selection of respondent groups and healthcare structures is appropriate, and the methodology aligns with contemporary scientific research standards.

- Original Contributions: The results from the quantitative and qualitative studies provide rich information, especially regarding the needs of OSA patients and the assessment by doctors, nurses, and the patients themselves. The research highlights international best practices in involving nurses in the care of OSA patients and examines the role of the nurse as a member of the somnological team. It also proposes nursing competencies for providing appropriate care. The study is the first to explore the barriers faced by OSA patients and suggests ways to overcome them.

- Innovative Ideas: The section discussing the summary and the pilot project for optimizing care for OSA patients is highly commendable. It demonstrates independent thinking and offers a proactive approach to improving patient care, including the participation of nurses at various stages of OSA development. The proposed developments, such as patient education, a monitoring tool, and a thematic course, are innovative and practical.

-Publication: The author has published three full-text articles in Bulgarian journals, where she is the lead author in all three.

### **Conclusion**

The doctoral thesis titled "Nursing Approach to Patients with Obstructive Sleep Apnea - Evaluation of Physiological Changes and Beneficial Consequences" is a well-developed scientific work that meets contemporary research standards. It covers a wide range of methods and has a high-quality development, exceeding the requirements for a Doctor of Science (Ph.D.) degree.

The contributions, both theoretical and practical, are original and significant. The thesis aligns with the requirements of the Bulgarian Law on the Development of Academic Staff and the Regulations of the Medical University - Varna.

In conclusion, I confidently provide a positive assessment and recommend that the esteemed jury award the educational and scientific degree of "Doctor" in the scientific specialty "Healthcare Management," professional field 7.4. Public Health, to Assistant Professor Stoyanka Hristova Yancheva.

19.09.2023

*Reviewer:*

*/Assoc. Prof. Nevyana Feschieva, M.D./*