

REVIEWER'S REPORT

by Assoc. Prof. Dobrin Paskev, PhD,
Associate Professor at the Department of "Medical Laboratory Assistant",
Medical College,
Medical University "Prof. Dr. Paraskev Stoyanov", Varna

Subject: Dissertation titled "Analysis and Evaluation of Psychological Factors in Patients with Chronic Kidney Disease in Pre-dialysis and Dialysis Stages" authored by Dr. Alexandra Borislavova Stavreva, full-time PhD student at the Second Department of Internal Medicine, PhD Program "Nephrology", Professional Field 7.1 Medicine, for obtaining the scientific degree "Doctor".

On the basis of Order No. R-109-401 of the Rector of MU–Varna dated 30.09.2025, Decision under Protocol No. 46/29.09.2025 of the Faculty Council, and Report No. 103-6377/30.09.2025 from Prof. Dr. Yoto Yotov, PhD, Dean of the Faculty of Medicine at MU–Varna, I was appointed to prepare a review of the dissertation titled "Analysis and Evaluation of Psychological Factors in Patients with Chronic Kidney Disease in Pre-dialysis and Dialysis Stages" for the acquisition of the educational and scientific degree "Doctor" by Dr. Alexandra Borislavova Stavreva, in the Field of Higher Education: 7.0 Health Care and Sports; Professional Field 7.1 Medicine; Specialty "Nephrology".

This review has been prepared in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for its Implementation at the Medical University – Varna.

A. Brief Biographical Data

Dr. Alexandra Stavreva was born in 1995 in Varna. She completed her secondary education at the First Language High School and obtained her higher education at the Medical University of Varna, graduating in 2020. Since 2021, she has been working as a physician at the Clinic of Nephrology and Dialysis, University Hospital "St. Marina", Varna. In the same year, she was appointed as a part-time assistant lecturer, and since 2022 she has been a full-time assistant at the Second Department of Internal Medicine, Division of Nephrology and Dialysis, MU–Varna. In December 2021, she was enrolled as a PhD student in the same department. She speaks German and English.

B. Relevance and Significance of the Research Topic

The dissertation of Dr. Alexandra Stavreva addresses a modern and relevant issue in nephrology — the psychological problems of patients with chronic kidney disease (CKD) in pre-dialysis and dialysis stages. Its relevance stems from the fact that CKD is increasing in prevalence and already affects about 13% of the population in Bulgaria. This is also the first systematic scientific work in the country that examines the issue in such depth. In this regard, the research has both theoretical and practical scientific significance.

C. Evaluation of the Dissertation

The dissertation comprises 122 standard pages and includes 12 tables, 10 figures, and 4 appendices. The literature review contains 213 sources, of which 2 are in Cyrillic and 211 in Latin script. The literature overview spans 40 pages; objectives, tasks, scientific hypothesis, materials and methods – 4 pages. The author's own results are presented over 27 pages.

D. Evaluation of the Literature Review

The literature review summarizes the current scientific knowledge on the topic. The doctoral candidate demonstrates good familiarity with the relevant publications in the field and includes definitions and epidemiological data from international medical literature. A thorough analysis is made of the various issues concerning psychological risk factors among patients with CKD in the pre-dialysis and dialysis stages. It is noted that psychological distress has many dimensions and includes not only depression but also anxiety and panic, which also lead to disturbances in emotional status. The transactional model of Lazarus & Folkman is discussed — namely, the significance of major life events that require prolonged adaptation and their physiological reflection in CKD, e.g., water and sodium retention. The relationship between so-called “stress-related disorders” and the increased risk of developing CKD is highlighted. Within this context, depression is reviewed as the most prevalent disorder among CKD patients, worsening quality of life and accelerating disease progression. The research presents both pharmacological and non-pharmacological methods for managing depressive symptoms. The model of H. Leventhal concerning the perception of illness as a “life path,” as well as the “common-sense” model of illness representation, are discussed. Various stressogenic factors influencing quality of life during pre-dialysis and dialysis stages are summarized. Thus, the review successfully outlines the conceptual framework of the dissertation.

E. Evaluation of Aims, Tasks, and Methodology

The objectives set by the doctoral candidate are well-grounded in the detailed literature review and reflect the current situation in Bulgaria, namely:

1. To analyze the psychological factors in patients with CKD in pre-dialysis and dialysis stages;
2. To assess their impact on the psycho-emotional status and survival of these patients.

For the achievement of the set objectives, six specific tasks were formulated, directly related to their implementation.

A working hypothesis was developed, according to which the level of stress in the pre-dialysis stage is lower compared to the period of hemodialysis (HD) treatment.

Materials and Methods

A prospective study was conducted over the course of one year (March 2024 – April 2025) at the Clinic of Nephrology and Dialysis, University Hospital “St. Marina,” Varna. The study included 90 patients, divided into two groups: 30 in the pre-dialysis stage and 60 undergoing HD treatment. The two groups were comparable in terms of sex and age.

Additionally, a socioeconomic profile was established, covering education level, marital status, and employment.

All participants signed informed consent to participate in the study. A specially designed questionnaire (presented in the appendix) included demographic data, questions regarding stress levels, depressive experiences, and assessment of social support. Statistical analysis of the collected data was performed using specialized software SPSS v.20. The results are presented in tabular and graphical form. The study was approved by the Research Ethics Committee at MU–Varna (Protocol No. 139 from 14.12.2023).

E. Evaluation of Results

1. Descriptive analysis of the two study groups.

In both groups, the majority of patients had secondary education. Educational level is important for patients' ability to understand their disease and to apply effective adaptive strategies. Thus, education remains a key factor determining mental health. Marital status is associated with social support and may reduce emotional stress. The study found that a partner was present in both groups (53% in the pre-dialysis stage and 66% in the HD group). The presence of a spouse or partner decreases tension, anxiety, and emotional distress. Employment status is significant for economic well-being and related psycho-emotional stability, with a notable difference observed between groups: 50% of HD patients were unemployed, compared to only 13% in the pre-dialysis group; 40% of the latter were still employed. Therefore, employment appears to be an important factor for patients undergoing HD treatment.

2. Comparative analysis of stress and depressive experiences.

The study found higher levels of stress and other symptoms (anxiety, fatigue, lack of concentration, sleep disturbance, feelings of worthlessness) among HD patients compared to those in the pre-dialysis stage. This is linked to the specifics of HD treatment, increasing social isolation, and other factors. Social support (family, community) was significantly higher in the pre-dialysis group, while in the dialysis period it decreased due to treatment-related factors. Particularly important is the perceived loss of control over life events, which begins in the pre-dialysis period and intensifies during HD treatment.

3. Correlation analysis between psychological factors and CKD stage.

The correlation analysis revealed that stress, nervousness, and tension were statistically higher among HD patients. The lack of control over one's life situation emerged as a central mechanism in stress development. The stronger the perceived stress, the more pronounced the emotional and functional impairments. Two key factors stood out — anxiety and sleep disturbances — which mutually reinforce each other. They are already present in the pre-dialysis stage and increase during HD treatment.

An interesting finding was that high levels of anxiety were significantly associated with lower survival rates, highlighting the need for psychological support.

Discussion

This section comprises 11 pages. The doctoral candidate compares her findings with those of foreign authors. A large portion of the cited publications are from the past decade, which makes the discussion relevant and up-to-date. It supports the important relationships established in the dissertation, enriching knowledge on the subject and offering insights that can be applied in nephrology practice.

Conclusions

Based on the data analysis, eight conclusions were formulated, which correspond well with the obtained results.

Evaluation of Contributions

The dissertation contains **scientific-theoretical** and **scientific-applied** contributions, all of which are the author's original work.

These include **three original scientific contributions** and **three applied contributions** of practical value.

Of particular significance is the fact that, for the first time in Bulgaria, the factors of stress, depression, and social support in patients undergoing HD treatment have been comprehensively and prospectively studied (original contribution). The data obtained allow for the development of a complete algorithm for prevention, treatment, and follow-up of CKD patients in both the pre-dialysis and HD stages (applied contribution).

F. Scientific Output and Recommendations to the Author

1. In connection with the dissertation, four scientific papers have been published in Bulgarian specialized journals, with Dr. Stavreva as the lead author in all of them. These publications reflect the main stages of dissertation preparation and the key results obtained.
2. The study includes a relatively small number of participants, as noted by the author. It would be beneficial to expand the research to include a larger sample, which would provide greater clarity on the issue in Bulgaria. It is also recommended that the results be published in international medical journals with impact factors, so that they become accessible to foreign researchers and cited in prominent nephrology journals.

G. Conclusion

Psychological problems in patients with renal failure date back to the introduction of HD therapy. Initially, the focus was solely on patient survival. Today, however, it is clear that for patients with CKD (both pre-dialysis and dialysis stages), life expectancy is not the only important factor. These patients suffer not only from serious somatic conditions but also from numerous psychological problems that accumulate and affect the disease course. Technological advancements make it possible to prolong life, but quality of life is equally

important. As the Roman author **Martialis** once said: “*Non est vivere sed valere vita est*” — “Life is not merely to live, but to live well.”

In Dr. Stavreva’s work, an in-depth analysis has been made of various psycho-emotional factors that negatively impact the growing population of CKD patients. The doctoral candidate outlines strategies for addressing these issues through an interdisciplinary approach involving nephrologists, psychiatrists, psychologists, and social support from both family and community.

Based on all of the above, I conclude that the dissertation of Dr. **Alexandra Stavreva**, titled “Analysis and Evaluation of Psychological Factors in Patients with Chronic Kidney Disease in Pre-dialysis and Dialysis Stages,” addresses a relevant topic, demonstrates a well-structured and precisely executed scientific study, and provides new knowledge contributing to both science and clinical practice.

It fully meets the requirements of the Regulations of the Medical University – Varna for the development of academic staff.

Therefore, I give my **positive assessment** and recommend to the members of the esteemed Scientific Jury to award Dr. **Alexandra Borislavova Stavreva** the **educational and scientific degree “Doctor.”**

23 October 2025

Assoc. Prof. **Dobrin Paskev, PhD**
Varna

Заличено на основание чл. 5, §1, б. „В“ от Регламент (ЕС) 2016/679
--