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# ANALYSIS OF PROGNOSTIC FACTORS IN PROSTATE CANCER - A NEW APPROACH.

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Narcisa Teodorescu<sup>1</sup>, Ion Mierlus-Mazilu<sup>2,\*</sup>

<sup>1</sup>Technical University of Civil Engineering Bucharest, Bucharest, Romania

<sup>2</sup>Technical University of Civil Engineering Bucharest, Bucharest, Romania

## ABSTRACT

Prostate cancer stands as one of the most prevalent malignancies diagnosed in men, second only to lung cancer in terms of mortality. It represents a significant health concern, particularly given its high prevalence among older men. Despite advances in diagnostic and therapeutic strategies, the accurate prognostication of prostate cancer outcomes remains a critical challenge in clinical practice. Prognostic evaluations often hinge on a complex interplay of biological, clinical, and pathological parameters, necessitating robust tools to guide clinical decision-making.

In our previous work, we undertook a comprehensive study of 300 patients who underwent retropubic radical prostatectomy, drawing data from the “Prof. Dr. Th. Burghel” Clinical Hospital and “St. Ioan” Hospital between January 2008 and December 2009. Our primary analytical tool was logistic regression, through which we aimed to identify key prognostic factors. Notably, we found that an accurate Gleason score was paramount in the pathology report, serving as a critical determinant of patient prognosis. However, despite these findings, the questionnaire we applied during this study did not yield conclusive results, indicating a need for refinement and further development.

Building upon this foundational work, our current study aims to enhance the prognostic evaluation process by developing and testing a new, more effective questionnaire. This effort is driven by the recognition that existing tools, while valuable, have significant limitations. These limitations include insufficient sensitivity to certain prognostic factors and a lack of comprehensive integration of clinical and biological parameters.

The development of our new questionnaire involved several critical steps. Initially, we conducted an extensive literature review to identify gaps in current prognostic tools and to gather insights into potential areas for improvement. This review highlighted the need for a more nuanced approach that could better capture the complex interactions between various prognostic factors.

Our revised questionnaire was designed to address these gaps. It incorporates a broader range of variables, including detailed clinical histories, advanced imaging findings, and molecular markers. The inclusion of these parameters was based on their established relevance in prostate cancer prognosis, as evidenced by recent research. Additionally, we aimed to create a tool that was both comprehensive and user-friendly, ensuring that it could be seamlessly integrated into clinical practice without imposing undue burdens on healthcare providers or patients.

To validate our new questionnaire, we again drew upon the cohort from the “Prof. Dr. Th. Burghel” Clinical Hospital and “St. Ioan” Hospital. This allowed us to maintain consistency with our previous study while also benefiting from a well-documented patient population. We employed logistic regression as our primary analytical method, given its robustness in handling binary outcomes and its widespread use in medical research.

The preliminary results from our new questionnaire were promising. We found that it significantly improved the predictive accuracy of our logistic regression models. Specifically, the inclusion of additional clinical and molecular markers enhanced our ability to stratify patients based on their risk of adverse outcomes. This, in turn, has important implications for patient management, as it allows for more personalized treatment plans that are tailored to individual risk profiles.

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\*Corresponding Author's E-mail: [ion.mierlusmazilu@utcb.ro](mailto:ion.mierlusmazilu@utcb.ro)

One of the key findings of our study was the reaffirmation of the Gleason score's importance. Despite the addition of new variables, the Gleason score remained a critical predictor of prognosis. This underscores the enduring relevance of traditional pathological assessments while highlighting the value of integrating these assessments with newer, complementary tools.

In addition to the Gleason score, several other variables emerged as significant predictors in our models. These included prostate-specific antigen (PSA) levels, lymph node involvement, and certain genetic markers. The identification of these variables aligns with the broader literature on prostate cancer prognosis and reinforces the importance of a multifaceted approach to prognostic evaluation. The implications of our findings are far-reaching. By enhancing the accuracy of prognostic assessments, our new questionnaire can contribute to better clinical outcomes. For instance, patients identified as high-risk can be more aggressively monitored and treated, potentially improving survival rates. Conversely, those classified as low-risk may be spared from unnecessary interventions, thereby reducing the incidence of treatment-related complications and improving quality of life.

Moreover, our study highlights the potential for further advancements in this field. As new biomarkers and diagnostic technologies emerge, there is scope for continuous refinement of prognostic tools. Our work sets the stage for future research that can build on our findings, incorporating new insights and innovations to further enhance the accuracy and utility of prostate cancer prognostic assessments.

In conclusion, our study represents a significant step forward in the quest for better prognostic tools in prostate cancer. By addressing the limitations of existing questionnaires and incorporating a broader range of prognostic factors, we have developed a tool that offers improved predictive accuracy. This, in turn, has the potential to enhance patient outcomes through more personalized and effective treatment strategies. Our findings reaffirm the importance of traditional prognostic markers like the Gleason score while also highlighting the value of integrating these markers with newer clinical and molecular data. As we look to the future, we are optimistic that continued research and innovation will yield even greater advancements in the prognostic evaluation of prostate cancer, ultimately contributing to better patient care and outcomes.

**Keywords** Prostate Cancer · Prognostic Factors · Gleason Score · Logistic Regression · Biostatistics · Predictive Models

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