

**"VICTOR BABEŞ" UNIVERSITY OF
MEDICINE AND PHARMACY TIMIŞOARA
DOCTORAL SCHOOL
MEDICINE**



HABILITATION THESIS

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**Timișoara
2024**

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**Multidisciplinary Perspectives on Pregnancy,
Reproductive Health, and Genetic Markers in
Obstetrics and Gynecology**

ABSTRACT

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ABSTRACT

My career trajectory within the field of Obstetrics and Gynecology, spanning from my initial steps as a medical resident to my current role as a leading figure at the University of Medicine and Pharmacy "Victor Babeș" in Timișoara, Romania, embodies a deep-seated dedication to advancing reproductive health and medicine.

Beginning in April 2000 as a medical resident at SCJUPBT in Timișoara, I immersed myself in the complexities of Obstetrics and Gynecology, gaining invaluable practical experience and laying the foundation for my subsequent clinical and academic pursuits. This early stage of my career was crucial for developing a profound understanding of patient care, surgical skills, and the intricacies of reproductive health.

Advancing to the role of a medical specialist in Obstetrics and Gynecology in 2005, I further honed my clinical skills and began to make significant contributions to the field, especially in areas such as in vitro fertilization (IVF) and other assisted reproductive technologies (ART). My dedication to patient care and medical innovation was evident through my active participation in clinical practice and research, contributing to advancements in fertility treatments and reproductive health.

In 2009, I was appointed as the head of Obstetrics and Gynecology at SCJUPBT, a role that significantly expanded my responsibilities, including overseeing the assisted human reproduction center. This position underscored my commitment to reproductive health, allowing me to lead and innovate in ART, and coordinate extensive research and educational activities. My role also involved teaching and mentoring the next generation of medical professionals, emphasizing evidence-based practice and cutting-edge research in reproductive health.

Since June 2019, my academic career took on a new dimension as I became a senior lecturer, furthering my involvement in education and research within the discipline of Obstetrics and Gynecology. This role has allowed me to significantly contribute to the academic community, mentoring students and junior doctors, leading research projects in areas like fertility in vitro and participating in examination committees. My dedication to continuous learning and teaching highlights my commitment to not only advancing the field through direct patient care and research but also through educating future leaders in medicine.

Throughout my career, my scientific achievements have significantly advanced the field of Obstetrics and Gynecology, particularly focusing on improving pregnancy outcomes and complications. My dedication to enhancing maternal and fetal health has led to notable contributions that have reshaped current practices and opened up new avenues for research and care in obstetrics.

One of my significant contributions lies in the investigation of NT-proBNP levels in pregnant patients with and without SARS-CoV-2 infection and its consequences for newborns. This research elucidates the potential impact of COVID-19 on pregnancy outcomes, highlighting the importance of monitoring NT-proBNP as a marker for assessing risks in infected pregnant patients. This work not only sheds light on the implications of the pandemic on maternal and neonatal health but also proposes critical pathways for managing pregnancies complicated by COVID-19, ensuring better outcomes for mothers and their infants.

Furthermore, my research into NT-proBNP as a possible prognostic marker in pregnant patients with cardiovascular risk factors and SARS-CoV-2 infection, published in *Diagnostics*, adds a significant dimension to our understanding of how pre-existing cardiovascular conditions might influence pregnancy outcomes in the context of COVID-19. By identifying NT-proBNP as a valuable prognostic tool, this study paves the way for early intervention strategies that could mitigate risks associated with cardiovascular complications and COVID-19 in pregnant patients.

Additionally, my systematic review on the influence of antiphospholipid antibody-associated thrombophilia on the risk of preterm birth, published in the *Journal of Clinical Medicine*, underscores the critical interplay between autoimmune conditions and pregnancy outcomes. This work provides a comprehensive analysis of existing literature, offering insights into how thrombophilia contributes to preterm birth risks and suggesting avenues for improved screening and management of affected pregnancies.

Moreover, my investigation into the effects of Vitamin D supplementation before 20 weeks of gestation on preeclampsia, as detailed in the *Journal of Personalized Medicine*, highlights the potential of early nutritional interventions in preventing one of the most significant complications of pregnancy. This systematic review not only supports the role of Vitamin D supplementation in reducing the risk of preeclampsia but also calls for further research to optimize prenatal care protocols for the benefit of pregnant women worldwide.

Therefore, my academic and scientific journey in Obstetrics and Gynecology is characterized by a relentless pursuit of knowledge and innovation aimed at improving

pregnancy outcomes and understanding the complex interactions between maternal conditions and fetal health. My work reflects a deep commitment to advancing patient care through research, with a continuous focus on addressing critical challenges in reproductive medicine. As I look forward to future contributions, my dedication to this field remains unwavering, with the ultimate goal of ensuring the health and well-being of women and their babies.

In my focus on reproductive health and contraception awareness, my work has significantly contributed to broadening understanding and improving practices in these critical areas of women's health. This commitment to advancing reproductive health has led to notable contributions that have reshaped current practices, opened up new avenues for innovation, and increased awareness among vulnerable populations.

One of my key contributions, investigates the impact of the COVID-19 pandemic on contraception awareness and mental well-being in teenagers and young adult women. This three-year cross-sectional analysis offers invaluable insights into how the pandemic has affected young individuals' knowledge and attitudes towards contraception, underscoring the importance of maintaining accessible reproductive health services and education during crises. By addressing the unique challenges posed by the pandemic, this study emphasizes the need for adaptive public health strategies to ensure continuous support and education for young women on reproductive health matters.

Additionally, my research examines mental health and contraceptive knowledge among high school students, comparing remote and in-person learning during the COVID-19 pandemic. This study highlights the significant impact of educational settings on mental health and contraceptive awareness, calling for targeted interventions to address the gaps in knowledge and support mental well-being among adolescents. By focusing on the intersection of education, mental health, and reproductive health, this work advocates for comprehensive strategies that integrate health education into various learning environments.

Further, my involvement in a study analyzing intimacy problems, stress levels, and couple satisfaction among women with thrombophilia affected by recurrent pregnancy loss, sheds light on the complex interplay between reproductive health issues and relationship dynamics. This cross-sectional analysis underscores the need for holistic care approaches that address both the physical and emotional aspects of reproductive health challenges, emphasizing the importance of supportive therapies and education for couples facing such difficulties.

Moreover, my research into the marital attitudes of pregnant women at risk for cystic fibrosis and the psychological impact of prenatal screening provides critical insights into the emotional and relational aspects of navigating pregnancy with genetic risk factors. This study highlights the importance of comprehensive prenatal counselling and support for couples, facilitating informed decision-making and emotional resilience during challenging times.

In the realm of genetic and biochemical markers in medicine, my work has been instrumental in advancing our understanding of their critical roles in diagnosing, predicting, and managing various medical conditions. This focus area is a testament to my commitment to integrating innovative scientific discoveries into clinical practice to improve patient care and outcomes.

One significant contribution is the cytogenetic study of spontaneous abortions in the western part of Romania, which highlights the importance of genetic factors in pregnancy loss. This research underscores the potential for cytogenetic analysis to identify chromosomal abnormalities that contribute to spontaneous abortions, offering valuable insights for managing and preventing recurrent pregnancy loss. By illuminating these genetic underpinnings, this work supports the development of targeted interventions to enhance pregnancy outcomes and reproductive health.

Furthermore, my involvement in research assessing the association between the resistivity index and the sFlt-1 and PIGF values in pregnant women with a risk of preeclampsia provides crucial data for early detection and management of this complex condition. This study not only advances our understanding of the pathophysiology of preeclampsia but also highlights the potential for non-invasive screening methods to identify women at risk, facilitating timely and effective preventive measures.

Additionally, my co-authorship in research exploring postmortem microRNA signatures as predictive markers in SARS-CoV-2 infection contributes to the burgeoning field of molecular diagnostics in infectious diseases. Published in Clinical Laboratory, this study underscores the potential of microRNAs as biomarkers in understanding the effects of COVID-19, offering novel avenues for diagnosis and monitoring of viral infections, thereby enhancing our ability to respond to pandemics.

Lastly, my work on colorectal cancer risk prediction using the rs4939827 polymorphism of the SMAD7 gene in the Romanian population, as published in Diagnostics, exemplifies the integration of genetic markers into cancer risk assessment and prevention strategies. This research not only contributes to personalized medicine approaches in oncology but also emphasizes the role of genetic screening in early

detection and prevention strategies, ultimately aiming to reduce the incidence and mortality of colorectal cancer.

Therefore, my contributions to the field of genetic and biochemical markers in medicine reflect a deep commitment to harnessing the power of molecular biology and genetics to improve patient care across a spectrum of conditions. My ongoing research and clinical work continue to explore the potential of these markers in enhancing diagnostic accuracy, predicting disease risk, and tailoring treatment strategies to individual patient profiles, underscoring my dedication to advancing the frontiers of medicine.

Reflecting on my journey, it's clear that each phase of my career has been marked by a steadfast commitment to improving outcomes in reproductive health and medicine. Through a blend of clinical excellence, innovative research, and dedicated education, I have aimed to contribute significantly to the field of Obstetrics and Gynecology. As I look forward, my dedication to advancing reproductive health care, enhancing patient outcomes, and mentoring the next generation of medical professionals remains unwavering, driven by a passion for making a meaningful impact in the lives of women and families.

