

ABSTRACT of the HABILITATION THESIS

Title: PERSPECTIVES ON AGE-ASSOCIATED RISKS

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The purpose of the habilitation thesis entitled "Perspectives on Age-Associated Risks: Implications of Osteoporosis, Sarcopenia and the Smoking Phenomenon on Quality of Life" is to provide an overview of scientific, professional, and academic activities and to present the main directions for career development, both in the scientific field and in the academic/educational domain. This work is organized and written in accordance with the recommendations of CNATDCU for the completion of habilitation theses. Structured into two parts, the thesis first synthesizes the main scientific and professional achievements, highlighting the most relevant results. The second part presents future research directions and career development priorities based on an analysis of the situation, trends, and needs. The thesis concludes with the bibliographic references used in its preparation.

The research presented in the first part covers a span of 11 years, following the defense of the doctoral thesis entitled "Particularities of Doctor-Patient Communication in Romanian Outpatient Clinics". During this period, my activities resulted in the publication of 41 full-length articles (21 ISI), 23 articles as the main author (14 ISI), 7 books with ISBN, including 2 as the sole author, and 59 abstracts published in Web of Science indexed journals. With 320 Web of Science citations the impact of these, measured with Hirsch index is: 9.

My membership in international scientific boards such as WHO's "Clinical Consortium on Healthy Ageing", IOF "Committee of National Societies", "European Society for Clinical and Economic Aspects of Osteoporosis" (ESCEO) provided an opportunity to bring our institution onto the international scientific scene in these pathological domains related to the global phenomenon of demographic aging.

My work has been recognized by the International Osteoporosis Foundation, conferring me the Linda Edwards Memorial Award and the IOF President Award. I have supervised numerous scientific works presented by students at national and international congresses, dissertation and master's thesis.

Obtaining the status of doctoral supervisor would allow me to continue the active involvement in the scientific coordination of the students and in scientifically consolidating our discipline.

The research directions, although interconnected, are grouped into four chapters. The first two chapters focus on degenerative conditions, osteoporosis, and sarcopenia, which share common pathophysiological mechanisms.

Chapter 1, entitled "Fracture Risk and Osteoporosis" provides an introduction to the field of fragility fractures, the consequence of the most frequent metabolic condition affecting bone tissue. Research in this domain field is supported by publications totalling 92 web of science (WoS) citations. Given the global aging of the population, osteoporosis is becoming a major public health problem both in its clinical burden and economic projections. The subchapters present the results of research in the field of hip fractures, analyzing the correlations between the duration of hospitalization, mortality, the type of hospital and the patient's living environment (1), respectively the influence of family history on the risk of fracture (2). This second subchapter discusses the extent of genetic

determination but also the mechanism of hereditary transmission of fractures. The third subchapter presents the results of research on the effect of adipokines on bone mineral density and the use of bone turnover markers in assessment, fracture risk prediction and treatment monitoring.

Fragility fractures are attributed not only to the loss of bone mass but also of muscle mass. The second chapter presents the research in this last field: sarcopenia (publications totaling 133 web of science /WoS citations). Characterized by the generalized and progressive loss of skeletal muscle mass and strength associated with age, sarcopenia affects both, quality and expectancy of life. A relatively recent notion, was introduced in Romania following the research carried out by our working group and the validation of some tools for screening the disease and measuring the quality of life associated with.

Subchapters: Quality of life assessment tools in sarcopenia. Evaluation of the psychometric performance of the two culturally adapted SarQoL variants and Detection of the risk of sarcopenia by Sarc-F, presents the results of the four psychometric evaluations of the two adapted instruments.

The third chapter reflects the consequences of poor doctor-patient communication, the local particularities of the dynamics of these interactions and the determinants and consequences of an insufficient adherence to treatment (65 WoS citations).

The final chapter (4.) presents our explorations related to a risk in a different age group: regarding the social context of smoking, the risks or protective factors associated to the social capital, as well as changes in attitudes towards smoking influenced by policy and legislation. The chapter: Interactions in the adolescent smoking phenomenon: from social capital to the legal framework (9 WoS citations) is structured in the three sub-chapters: Social capital of local communities and their role in adolescent smoking, Changes in attitude and behavior after the implementation of the anti-smoking law and Comparative study of the prevalence of smoking in the two ethnic groups: Romanian and Hungarian.

In the second part of the thesis, the career development plan in teaching and research is presented. Based on the analysis of the current situation, weaknesses, opportunities, student demands, and labor market needs, academic objectives are formulated. Beyond continuing research activities with current teams and students, and publishing all relevant results associated with them, I have set goals such as consolidating current skills and acquiring new ones in teaching and curriculum development, integrating present or future colleagues in research activities, especially the students and resident physicians.

The research plan proposed in the second section of this part focuses on three main domains:

I. Sarcopenia: Investigating the pathogenesis of sarcopenia and the impact of physical exercise and nutrition in its prevention and treatment in older adults. Exploring the interconnections between sarcopenia, aging, and other chronic degenerative diseases to develop more efficient intervention strategies. Evaluating the effectiveness of physiotherapy and nutritional interventions in reducing or reversing sarcopenia, including the study of osteosarcopenia and sarcopenic obesity.

II. Assessing intrinsic capacity and functional ability: Defining healthy aging by introducing intrinsic capacity and functional ability as predictive markers and using for early interventions; reviewing the definitions and methods for evaluating intrinsic capacity and functional abilities in older adults; contributing to the identification and validation of a general index of intrinsic capacity for predicting physical and mental health.

III. Trends in hip fracture incidence and socio-demographic risk factors: Evaluating the incidence of hip fractures and their characteristics at a national level; identifying patient and hospital-associated variables affecting length of hospital stay and mortality; continuing the evaluation of fracture cases and reasons for refusal of admission for surgical treatment.

Through a comprehensive approach, the aim is to contribute to a better understanding of the aging process from a different perspective and to more effectively manage the quality of life of older adults.