Doctoral Dissertation Summary

PhD Candidate	Vasileia Kounelaki
Dissertation Title	"Investigating the Relationship Between Dietary Habits and Health Biomarkers, Symptomatology, and Quality of Life in Patients with Multiple Sclerosis"
Advisory Committee (3 members)	1. **Emmanouil Psylinakis** (supervisor), Assistant Professor of Nutritional Bioorganic Chemistry, Department of Nutrition and Dietetics Sciences, School of Health Sciences, Hellenic Mediterranean University 2. **Anastasia Markaki**, Associate Professor of Clinical Nutrition, Department of Nutrition and Dietetics Sciences, School of Health Sciences, Hellenic Mediterranean University 3. **Aspasia Spyridaki**, Lecturer in Food Chemistry, Department of Nutrition and Dietetics Sciences, School of Health Sciences, Hellenic Mediterranean University
Abstract	**Introduction:** Multiple Sclerosis (MS) is a chronic autoimmune disease of the central nervous system characterised by inflammatory demyelination of neuronal axons. Its prevalence in Europe is approximately 100 per 100,000 inhabitants, while in Greece more than 21,000 individuals are affected. The disease is 2–3 times more common in women, with diagnosis typically occurring between the ages of 20 and 40, and presents in three main clinical forms: relapsing-remitting, primary progressive, and secondary progressive. It is the leading cause of non-traumatic disability in young adults, affecting physical, cognitive, and psychological functioning, with substantial impact on quality of life. Despite significant advances in pharmacological treatment, MS remains incurable. Emerging research highlights diet as an important factor with potential relevance to disease management; however, evidence-based dietary guidelines for MS patients have yet to be established. **Aim:** The aim of this study is to investigate the relationship between dietary habits — including adherence to the Mediterranean Diet, consumption of specific food groups, and intake of polyphenolic compounds — and selected health biomarkers, symptomatology (fatigue, depressive symptoms), and health-related quality of life in patients with MS. The study further aims to explore potential associations between blood biochemical markers and handgrip strength with symptomatology and quality of life. **Methodology and Sample:** This is an observational, longitudinal follow-up study with a three-year duration and annual reassessments. The sample comprises 100–200 adult patients with a confirmed MS diagnosis, recruited through the local office of the Hellenic MS Society in Heraklion, Crete. Dietary habits are assessed using a semi-quantitative food frequency questionnaire (FFQ), the MedDietScore, and the MEDAS, while polyphenol intake is estimated using the Phenol-Explorer database. Health biomarkers include Body Mass Index, handgrip strength, and blood biochemical markers (CRP, ferritin, vitamin D, vitamin B12, albumin, lipid profile). Symptomatology is assessed with the Fatigue Severity Scale (FSS), the Eating Assessment Tool (EAT-10), and the CES-D scale, while quality of life is measured with the SF-36 questionnaire. Statistical analysis includes descriptive, correlational (Pearson/Spearman), and multivariate regression analyses (SPSS). **Contribution:** This study is expected to contribute to the understanding of the role of dietary habits — and specifically of Mediterranean Diet adherence and polyphenol intake — in the manifestation of MS, an area that remains insufficiently investigated. It is further expected to highlight the significance of simple, non-invasive indicators, such as handgrip strength, in relation to patients' functional status and quality of life. The findings could inform the future development of appropriate dietary recommendations for individuals with MS.
Keywords	Multiple Sclerosis, diet, Mediterranean diet, dietary habits, polyphenols, symptomatology, fatigue, psychology, quality of life