Project Summary/Abstract

Award number: 1K23HD104855-01A1
Title: Longitudinal Impact of Health and Lifestyle Behaviors on Cognition in Individuals with Multiple Sclerosis

This CDA proposal seeks to investigate the long-term impact of modifiable health-related behaviors (e.g., smoking, exercise) on cognitive decline over time among persons with multiple sclerosis (MS; **Specific Aim 1**). This is important given the detrimental impact of cognitive impairment in MS, affecting symptom management, instrumental activities of daily living, and independence. Since there are no proven treatments for cognitive impairment, it is imperative to identify modifiable risk factors – specifically health-related behaviors – that can serve as potential treatment targets. Moreover, in order to modify these behaviors, this proposal will explore disease (MS)-related, person-specific, and environmental facilitators and barriers to engaging in health-related behaviors (**Specific Aim 2**). Such aims are consistent with the mission of the **National Center for Medical Rehabilitation Research (NCMRR) to "determine the impact of modifiable lifestyle and health-related behaviors on prevention of secondary conditions, psychosocial functioning, and community participation," as outlined in the 2016 NIH Research Plan on Rehabilitation.**

The Specific Aims will be accomplished via two longitudinal, observational studies among persons with MS. Cognitive trajectories will be established by standardized neuropsychological assessments. Health- related behaviors will be evaluated using self-report inventories. Facilitators/barriers to engaging in health-related behaviors will be determined by quantitative inventories and qualitative semi-structured interviews. Data from this investigation will serve as pilot data for a R01 grant in which a multicomponent lifestyle intervention to improve cognition among persons with MS will be proposed. Such intervention has been recently conducted in older adults at-risk of developing dementia, with ongoing replications around the world. Information from this project will help adapt this type of intervention to individuals with MS by accounting for MS-specific facilitators and barriers to engaging in health behaviors.

I have assembled a multidisciplinary mentoring team, with expertise in clinical neuropsychology, cognitive rehabilitation, epidemiology, advanced biostatistics, and clinical trial design. By completing the proposed training and research plans, I will be able to achieve my training goals, including: (1) applying population-based survey research design to the role of the social determinants of health on lifestyle behaviors; (2) learning qualitative research design and advanced statistical techniques; (3) learning how to conduct clinical trials; and (4) honing my professional development skills, such as manuscript writing, grantsmanship, laboratory management, and mentorship. Achieving these goals will help me transition into an independent clinical investigator, with a long career of grant-funded research.