



**Application number/Title: 44889** - The association of non-cancer chronic pain to cognitive decline, cognitive impairment, and conversion to Alzheimer's Disease and related dementias (ADRD)

**Applicant PI:** Dr Usha Sambamoorthi

**Applicant institution:** West Virginia University, West Virginia, USA

**Keywords provided by the Applicant PI to describe the research project:**

chronic pain, alzheimer's-disease and related dementias, cognition, depression, non-cancer pain conditions, sleep problems

**Application Lay Summary:**

According to the World Health Organization report, one new case of dementia is diagnosed every 4 seconds. In the next 40 years, an estimated 600 million individuals will be living with dementia in the world. Dementia exacts a huge toll on patients, providers, and society as a whole. The causes of dementia are not completely understood; to date, effective treatments for preventing, delaying, or reversing dementia remain elusive. While some studies suggest chronic pain may be linked to dementia risk, rigorous research regarding the contribution of chronic pain to cognitive decline and the development of cognitive impairment and dementia is sparse, and longitudinal studies are very limited. Therefore, our proposed three-year project will explore the role of chronic pain in the development of cognitive impairment and dementia. Key research questions are: 1) What are the relationships of chronic pain and specific chronic pain conditions (for example: arthritis and fibromyalgia) to cognitive decline, cognitive impairment and dementia? 2) What are the longitudinal relationships of chronic pain to later subsequent cognitive decline and development of cognitive impairment and dementia? and 3) How are these relationships affected by depression, anxiety, sleep characteristics, medications, biomarkers, and other factors?

The results of this research will provide critical new insights into the origins of cognitive impairment and dementia. Our study findings will: help clarify the potentially complex role of chronic pain in the development of cognitive impairment and dementia; may have important implications for the management of chronic pain; and may inform new approaches to the prevention and treatment of dementia. Our research will also provide the foundation for future

epidemiological, interventional, and mechanistic studies to further investigate the role of chronic pain in cognitive decline and the development of cognitive impairment and dementia.