

The Transforming Cognitive Frailty into Later-Life Self-Sufficiency (AGELESS) research programme is funded by the Malaysian Ministry of Higher Education Long-Term Research Grant Scheme. While the programme only commenced in December 2019, it combines two Malaysian longitudinal cohorts of ageing, namely the Towards Useful Ageing (TUA) and the Malaysian Elders Longitudinal Research (MELoR) studies, which were both initiated in 2013. Both TUA and MELoR had completed three waves prior to becoming AGELESS which had collected data during the COVID-19 pandemic from 2020 to 2022 from Kuala Lumpur, Selangor, Perak, Penang, Johor, Kelantan, Negeri Sembilan and Sarawak (8 of the 14 states) from pre-existing TUA and MELoR participants as well as new recruits. Harmonized and fresh COVID-19 wave data are now available from a total of 6000 participants. The AGELESS programme comprises five projects led by principal investigators from five public and private universities in Malaysia, with co-investigators from two private universities making up the research team of 50 academics.

The program's goals include addressing early detection through big data analysis, evaluating and addressing social frailty and the societal and caregiver burden associated with adverse outcomes, investigating the gut-brain axis, and assessing and managing mobility difficulties in relation to cognitive frailty. In addition, the AGELESS programme is also now part of the World-Wide FINGER network to address secondary prevention interventions for cognitive frailty. Cognitive fragility is characterised as the coexistence of cognitive impairment with frailty. The existing consensus definition does not address the continuums of cognitive impairment and different aspects of frailty on which transitions occur between the presence and absence of either condition. Further, individuals may fall within the reversible or non-reversible categories of the cognitive frailty spectrum.

Genetic, imaging, clinical, laboratory, physical performance, and sociodemographic data obtained from all four waves will be evaluated using big data analytics to classify individuals into different risk groups for the development of cognitive frailty. The societal and caregiver burden associated with cognitive frailty outcomes, particularly dementia, will be defined, and hybrid, multi-component interventions developed to address the caregiver burden. The examination of the gut-brain axis includes microbiome analysis in persons with and without cognitive frailty, as well as determining the effects of multimodal lifestyle intervention on gut microbiota in cognitive frailty in both animal and human studies. The mobility arm of the programme will evaluate the effects of cognitive frailty on mobility and the development of technological solutions to promote mobility. Through collaborations with the Karolinska Institute, a culturally appropriate programme has been developed to deliver a two-year lifestyle intervention to address behavioural change in physical exercise, cognitive stimulation, dietary intervention and social participation to reverse or prevent the progression of cognitive frailty. Additional international collaborations have been formed with the Framingham Heart Study Investigators at Boston University to develop digital phenotyping and the Davos Alzheimer's Collaborative to redress research output from low- and middle-income countries in developing global strategies to reduce dementia burden. Researchers and their respective research centres are actively involved in producing or reviewing relevant frameworks, blueprints, policies and action plans on ageing. We welcome future collaborations with existing cohorts as well as through data sharing to extend the value of our programme further.