

the definition used by the World Health Organization as the ongoing process of developing and maintaining functional ability to enable well-being in older age. The first step of the project was to harmonise 17 community based cohort studies of ageing, covering 38 countries over the world and over 411,000 individuals. In this talk we will discuss the work of the different work packages of the project, including a description of the existing evidence on risk factors of healthy ageing.

#### CREATION OF A COMMON METRIC OF HEALTH STATUS IN THE HARMONIZED DATASET OF THE ATHLOS PROJECT

Albert Sanchez-Niubo,<sup>1</sup> Francisco Felix Caballero,<sup>2</sup> Christina Daskalopoulou,<sup>3</sup> Javier de la Fuente,<sup>4</sup> Alejandro de la Torre,<sup>4</sup> Iago Giné Vazquez,<sup>5</sup> Yu-Tzu Wu,<sup>3</sup> and Matthew Prina<sup>3</sup>, 1. *Parc Sanitari Sant Joan de Déu, Universitat de Barcelona, Barcelona, Spain*, 2. *Centro de Investigación Biomédica en Red de Salud Mental, CIBERSAM, Madrid, Madrid, Spain*, 3. *Social Epidemiology Research Group, Health Service and Population Research Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, England, United Kingdom*, 4. *Department Preventive Medicine and Public Health, Universidad Autónoma de Madrid, Madrid, Madrid, Spain*, 5. *Parc Sanitari Sant Joan de Déu, Baecelona, Catalonia, Spain*

Although life longevity has increased across the world, evidence suggests some heterogeneity of the ageing process across individuals. To investigate different ageing patterns, the ATHLOS project harmonised data from 411,000 individuals across 17 existing cohort studies. The harmonised dataset provides comparable information on functioning measures, cognition, mental health, sociodemographic and lifestyle behaviours. To measure the process of healthy ageing across time and cohorts, we employed a Bayesian Multilevel Item Response Theory (IRT) and created a common metric of health status by using items of functioning. The IRT measurement model includes parameters describing the difficulty and discriminatory power of each item. We adopted the Bayesian Multilevel framework as it allows item parameters to vary among studies and the simultaneous estimation of all parameters under a Markov Chain Monte Carlo (MCMC) method. Finally, we assessed the predictive validity of the metric against mortality by performing a Receiver Operating Characteristic (ROC) curve analysis.

#### INEQUALITIES IN HEALTHY AGING: THE DIFFERENTIAL IMPACT OF EDUCATION AND WEALTH ACROSS COHORT STUDIES

Yu-Tzu Wu,<sup>1</sup> Christina Daskalopoulou,<sup>1</sup> Graciela Muniz Terrera,<sup>2</sup> Martin Prince,<sup>3</sup> and Matthew Prina<sup>3</sup>, 1. *Social Epidemiology Research Group, Health Service and Population Research Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, England, United Kingdom*, 2. *Centre For Clinical Brain Sciences, University Of Edinburgh, Edinburgh, Scotland, United Kingdom*, 3. *Global Health Institute, King's College London, London, England, United Kingdom*

Several studies have investigated longitudinal changes in health status and functional ability but few have examined whether inequalities in healthy ageing varied across different countries. The aim of this study is to investigate trajectories of health metric scores (generated in previous symposium abstract) over the ageing process and examine the impact of education and wealth on the trajectories across eight cohorts in the ATHLOS consortium (N=135,828) using multilevel regression modelling. After adjusting for age, gender and study, higher levels of education (9.52; 95% CI: 9.30, 9.74) and wealth (8.06; 95% CI: 7.84, 8.28) were associated with higher baseline scores but had minimal impacts on decline rates. These effect sizes varied across different cohort studies and the inequality gradient was found to be strongest in the Health Retirement Study from US. Future research may investigate potential mechanisms which might explain the differential impact of education and wealth in different societies.

#### THE IMPACT OF LIFESTYLE BEHAVIORS ON HEALTHY AGING TRAJECTORIES: THE ATHLOS PROJECT

Christina Daskalopoulou,<sup>1</sup> Yu-Tzu Wu,<sup>1</sup> Artemis Koukounari,<sup>2</sup> Graciela Muniz Terrera,<sup>3</sup> Stefanos Tyrovolas,<sup>4</sup> Demosthenes Panagiotakos,<sup>5</sup> Martin Prince,<sup>6</sup> and Matthew Prina<sup>1</sup>, 1. *Social Epidemiology Research Group, Health Service and Population Research Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London, London, England, United Kingdom*, 2. *Faculty of Epidemiology and Population Health, London School of Hygiene & Tropical Medicine, London, England, United Kingdom*, 3. *Centre for Dementia Prevention, Centre for Clinical Brain Sciences, University of Edinburgh, Edinburgh, England, United Kingdom*, 4. *Parc Sanitari Sant Joan de Déu, Universitat de Barcelona, Barcelona, Catalonia, Spain*, 5. *Department of Nutrition and Dietetics, School of Health Science and Education, Harokopio University, Athens, Attiki, Greece*, 6. *Global Health Institute, King's College London, London, England, United Kingdom*

The number of people above 60 years old will double by 2050. There is a considerable variability in the health status of older people. The identification of the different trajectories that people follow as they grow older constitutes one of the aims of the ATHLOS project. In the current study, we created a metric of health in the four available waves (2001, 2003, 2012, 2015) of the Mexican Health and Aging Study (MHAS) by employing Bayesian multilevel Item Response Theory. Growth mixture modelling indicated that older Mexicans (n=14,143) age by following four distinct pathways (i.e. high-stable, moderate-stable, low-stable, decliners). Adherence to healthy lifestyle behaviours (i.e. physical activity, non-smoking, limited alcohol consumption) was associated with better health trajectories. Preliminary analyses in the ATHLOS harmonised dataset also suggest that older people age by following four distinct pathways. The impact of lifestyle behaviours within the harmonised dataset will be investigated and also presented.