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Anja K. Leist • Jenni Kulmala • Fredrica Nyqvist
Editors

Health and Cognition in Old Age

From Biomedical and Life Course Factors
to Policy and Practice

 Springer

Editors

Anja K. Leist
Faculty of Language and Literature
Humanities, Arts and Education
University of Luxembourg
Walferdange, Luxembourg

Jenni Kulmala
Gerontology Research Center
University of Jyväskylä
Jyväskylä, Finland

Fredrica Nyqvist
Mental Health Promotion Unit
National Institute for Health
and Welfare (THL)
Vaasa, Finland

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Foreword

I am delighted to welcome and commend this volume on health and cognition in old age. Before extolling its virtues, let me explain its background. It is a product, indirectly, of the European Research Area in Ageing (ERA-AGE) which began in 2005 and will run until 2015 as Europe's ERA-NET in the ageing field (www.era-age.group.shef.ac.uk). During 2012 ERA-AGE reached 20 partners and associate partners all of whom are either national or regional research councils or ministries in 18 different countries.

Knowing that it is critical for Europe to build research capacity in this field, the ERA-AGE consortium decided to launch a completely new venture in European research: a postdoctoral programme funded jointly by different countries. The Future Leaders of Ageing Research in Europe (FLARE) was launched in 2007 with support from eight ERA-AGE members. A second call followed in 2010. Altogether 33 three-year postdoctoral fellowships were funded by nine countries. (The commissioning processes for both open calls for proposals were managed superbly by staff at the University of Sheffield.)

The FLARE Programme is unique: not only does it stipulate that there must be geographical mobility as part of each fellowship but also disciplinary mobility. I know from my observations during the FLARE Summer Schools organised by ERA-AGE that these fellows are a very special cohort of early-career researchers. FLARE aptly describes their quality and potential and this volume is a clear demonstration of their future leader status.

As well as the high quality of the contributions and the enthusiastic commitment of the editors to ageing research, four features of the book mark it out as an important contemporary work of gerontology. First, there is its emphasis on health, cognition, and well-being. The editors and contributors recognise that, while previous generations of researchers were focused on extending life expectancy, the urgent current concern must be to ensure that longer life is associated with healthier lives—adding life to years as the WHO put it. Second, the commitment to multi-disciplinarity is essential for ageing research because ageing is a complex life-long developmental process which requires understanding from many disciplinary perspectives. Third, the structural inequalities in ageing, both within and between countries, are a hugely

neglected aspect of gerontological research. Not so here because this volume highlights both inequality and heterogeneity. Fourth, there is a clear case made in this volume for the importance of policy and practice as the mechanisms essential to implement the results of research. If we are to improve health, cognition, and well-being as people age, we have to understand the processes by which research can be translated effectively into policy and practice.

It is with considerable admiration for the editors and other contributors, and with pride in their achievements as FLARE Fellows, that I wholeheartedly recommend this volume.

Sheffield, UK

Alan Walker

Preface

This volume is proof of the success of long-lasting and major efforts to foster cross-national and cross-disciplinary ageing research in Europe. All first authors were funded or have been invited to take part in the framework of the European 3-year postdoctoral fellowship programme FLARE, Future Leaders of Ageing Research in Europe, coordinated by the European Research Area in Ageing (ERA-AGE), led by Prof. Alan Walker and his team at the University of Sheffield, UK. The main features of the FLARE programme are to promote both geographical and disciplinary mobility. Consequently, the contributions in this unique volume on health and cognition in old age are themselves the result of successful cross-national and cross-disciplinary collaboration and come from an international set of authors working at research institutions in Europe, Israel, and the USA at the postdoctoral level and above. This volume summarises the findings of their research programmes in various fields of ageing research, all relating to health, cognition, and well-being in old age, from various disciplines including biomedicine, general medicine, gerontology, geriatrics, immunology, psychology, epidemiology, public health, social policy, sociology, education, medical ethics, philosophy, and humanities. The volume comprises four parts: biomedical factors in ageing (Part I), life course factors constituting later-life health and cognition (Part II), care and interventions to maintain and improve impaired health, cognition, and well-being in old age (Part III), and policy and practice approaches for healthy and active ageing (Part IV). Taken together, the contributions provide a comprehensive overview of current developments in research on health and cognition in old age. Editing this volume on research findings originated under the FLARE scheme has been an amazing interdisciplinary journey for us and made us even more respectful of the multiplicity of perspectives in research on health and cognition in old age.

Walferdange, Luxembourg
Jyväskylä, Finland
Vaasa, Finland

Anja K. Leist
Jenni Kulmala
Fredrica Nyqvist

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First and foremost, we would like to acknowledge the work of Prof. Alan Walker and his European Research Area in Ageing (ERA-AGE) team at the University of Sheffield, UK, especially Juliet Craig. The ERA-AGE network has created a supporting structure at the European and national level in order to promote European ageing research. One of the main outcomes of ERA-AGE certainly is the development and realisation of the Future Leaders of Ageing Research in Europe (FLARE Joint Call) a postdoctoral fellowship programme promoting cross-national and multidisciplinary ageing research, to face the challenges of ageing societies. Two calls have been launched so far, in 2007 and 2010. Postdoctoral fellowships were funded by the member states themselves, and we are thankful to all countries that have participated in one or both calls. This volume hopefully is proof of timeliness, quality, and societal relevance of research funded under the FLARE scheme.

Sincere thanks goes to all members of the ERA-AGE consortium since 2005 and FLARE funding organisations, all of whom supported the FLARE program and its aims and ambitions:

- Austrian Academy of Sciences, Austria
- AGE Platform Europe, Brussels
- Institute of Population and Human Research at the Bulgarian Academy of Sciences, Bulgaria
- Canadian Institutes of Health Research, Institute of Aging, Canada
- Fonds de recherche du Québec—Santé, Canada
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- Swedish Council for Working Life and Social Research (FAS), Sweden
- Medical Research Council (MRC), UK
- University of Sheffield, UK (ERA-AGE Coordinator)

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The FLARE scheme has both extended the existing ERA-AGE network and created a professional network of young researchers across Europe in the field of ageing. On behalf of all FLARE participants, we would like to express our gratitude for the possibility to meet new colleagues and build new friendships. We are convinced that we will profit from this large and vibrant network throughout our research careers.

Special thanks also go to our mentors at the home and visiting institutions. All first authors of the contributions in this edited volume were funded or took part in the FLARE programme. These accomplishments would in most, if not all, cases not have been possible without consistent, helpful mentoring by former and current supervisors, senior researchers, and colleagues at the home and outgoing institutions. On behalf of the authors, we would like to thank all of them for sharing their expertise and time with us. We are deeply grateful to Juliet Craig and Miriam Buff for valuable help in reviewing the chapters.

We would also like to acknowledge the work of the expert reviewers of the contributions to this volume, who devoted their time and expertise to review and comment on the chapters. Considering the fact that the chapters span a wide range of topic from a variety of disciplines, these expert reviews ensure high quality of all contributions to this volume.

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Contributors

Alex Ademokun Peter Gorer Department of Immunobiology, King's College London School of Medicine, London, UK

Sylvie Amu Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet, Stockholm, Sweden

Dana Averbuch The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan, Israel

Mima Cattan Faculty of Health and Social Sciences, Northumbria University, Newcastle upon Tyne, UK

Francesca Chiodi Department of Microbiology, Tumor and Cell Biology, Karolinska Institutet, Stockholm, Sweden

Anna Dahl Aslan Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden

Institute of Gerontology, School of Health Sciences, Jönköping University, Jönköping, Sweden

Inna Dumler Department of Nephrology, Hannover Medical School, Hannover, Germany

Deborah Dunn-Walters Peter Gorer Department of Immunobiology, King's College London School of Medicine, London, UK

Hans-Jörg Ehni Institut für Ethik und Geschichte der Medizin, University of Tübingen, Tübingen, Germany

Bianca Fuhrman The Lipid Research Laboratory, Technion Faculty of Medicine & Rambam Medical Center, Haifa, Israel

Petra Grönholm-Nyman Department of Psychology and Logopedics, Abo Akademi University, Turku, Finland

Hermann Haller Department of Nephrology, Hannover Medical School, Hannover, Germany

Henna Hasson Department of Learning, Informatics, Management and Ethics, Karolinska Institutet, Medical Management Centre (MMC), Stockholm, Sweden

Vårdal Institute, Swedish Institute for Health Sciences, Lund University, Lund, Sweden

The Age Institute, Helsinki, Finland

Helena Hazanov The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan, Israel

Anna Marie Herghelegiu National Institute of Gerontology and Geriatrics “Ana Aslan”, Bucharest, Romania

Dietmar Herndler-Brandstetter Department of Immunobiology, Yale University School of Medicine, New Haven, CT, USA

Ulpukka Isopahkala-Bouret Institute of Behavioural Sciences, University of Helsinki, Helsinki, Finland

Department of Sociology, University of Surrey, Surrey, UK

Yulia Kiyon Department of Nephrology, Hannover Medical School, Hannover, Germany

Kathrin Komp Department of Social Research/Social Policy, Helsinki University, Finland

Jenni Kulmala Gerontology Research Center and Department of Health Sciences, University of Jyväskylä, Jyväskylä, Finland

Eric Laurier School of GeoSciences, University of Edinburgh, Edinburgh, UK

Gitit Lavy Shahaf The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan, Israel

Anja K. Leist Faculty of Language and Literature, Humanities, Arts and Education, University of Luxembourg, Walferdange, Luxembourg

Johan P. Mackenbach Department of Public Health, Erasmus Medical Center, Rotterdam, The Netherlands

Ramit Mehr The Mina and Everard Goodman Faculty of Life Sciences, Bar-Ilan University, Ramat-Gan, Israel

Anastasia Meidani Department of Sociology & Anthropology, Laboratory LISST CERS_UMR 5193 CNRS, INSERM Unit UMR 1027, University of Toulouse Jean Jaurès, Toulouse, France

Fredrica Nyqvist Mental Health Promotion Unit, National Institute for Health and Welfare (THL), Vaasa, Finland

Gabriel Ioan Prada National Institute of Gerontology and Geriatrics “Ana Aslan”, Bucharest, Romania

Chengxuan Qiu Department of Neurobiology, Care Sciences and Society, Aging Research Center, Karolinska Institutet, Stockholm, Sweden

Mirka Rauniomaa Faculty of Humanities, University of Oulu, Oulu, Finland

Blossom Christa Maree Stephan Institute of Health and Society, Newcastle University, Newcastle upon Tyne, UK

Heikki Summala Traffic Research Unit, Institute of Behavioural Sciences, University of Helsinki, Helsinki, Finland

Päivi Topo The Age Institute, Helsinki, Finland

Birgit Trukeschitz WU-Vienna University of Economics and Business, Research Institute for Economics of Aging, Vienna, Austria

Mikaela B. von Bonsdorff Gerontology Research Centre and Department of Health Sciences, University of Jyväskylä, Jyväskylä, Finland

Monika E. von Bonsdorff Gerontology Research Centre and Department of Health Sciences, University of Jyväskylä, Jyväskylä, Finland

Aalto University, School of Business, Aalto, Finland

Yu-Chang Wu Peter Gorer Department of Immunobiology, King’s College London School of Medicine, London, UK

Abbreviations

Abeta	Beta-amyloid
AD	Alzheimer's disease
AMPA	Alpha-amino-3-hydroxy-5-methylisoxazole-propionate
ApoE	Apolipoprotein E gene
ASC	Antibody-secreting cells
ASCOT	Adult social care outcome toolkit
BCR	B-cell receptors
BMI	Body mass index
CAIDE	Cardiovascular risk factors, aging and dementia
CDT	Clock drawing test
CHD	Coronary heart disease
CHIP	C terminus of Hsc70-interacting protein
CM	Case manager
CMV	Cytomegalovirus
CNSA	Caisse Nationale de Solidarité pour l'Autonomie
COR	Conservation of resources theory
CRP	C-reactive protein
CVD	Cardiovascular disease
DALY	Disability-adjusted life years
DM	Diabetes mellitus
DR	Diabetic retinopathy
ECG	Electrocardiogram
ECM	Extracellular matrix
ED	Emergency department
EF	Executive function
ELSA	English Longitudinal Study of Ageing
EMCA	Ethnomethodological conversation analysis
ERA-AGE	European Research Area in Ageing
ESS	European Social Survey
FGF	Fibroblast growth factor
FIOH	Finnish Institute of Occupational Health

FLAME	Finnish Longitudinal Study on Municipal Employees
FLARE	Future Leaders of Ageing Research in Europe
FSG	Fasting serum glucose
FSR	Framingham stroke risk score
GEREC	Gerontology Research Center
HbA1c	Glycated haemoglobin
HIWP	High involvement work practices
HRQoL	Health-related quality of life
IGF-1	Insulin-like growth factor 1
IgH	Immunoglobulin heavy chains
IgL	Immunoglobulin light chains
IL-6R α	Interleukin 6 receptor alpha
IRS-1	Insulin receptor substrate
LTC	Long-term care
MCI	Mild cognitive impairment
MetS	Metabolic syndrome
MMSE	Mini mental state examination
MTL	Medial temporal lobe
NMDA	<i>N</i> -methyl-d-aspartate
NOC	Nursing outcome classification
NPV	Negative predictive value
NRI	Net reclassification improvement
OECD	Organisation for Economic Cooperation and Development
PAMP	Pathogen-associated molecular patterns
PDGF	Platelets-derived growth factor
PET	Positron emission tomography
PI3K	Phosphatidyl-inositol-3 kinase
PI3-kinase	Phosphatidylinositide PI3-kinase
PON1	Paraoxonase 1
PPAR γ	Peroxisome proliferators-activated receptor
PPV	Positive predictive value
QoL	Quality of life
RAND	RAND Corporation (Research ANd Development)
ROC AUC	Receiver operating characteristic curve
SCRQoL	Social care-related quality of life
SEP	Parental socioeconomic position
SHARE	Survey of Health, Ageing and Retirement in Europe
SHM	Somatic hypermutation
SOC	Theory of selection and optimization with compensation
SRF	Serum response factor
suPAR	Soluble urokinase plasminogen activator receptor
TGF β	Transforming growth factor β
uPA	Urokinase type-plasminogen activator
uPAR	Urokinase plasminogen activator receptor
UPS	Ubiquitin proteasomal system

VaD	Vascular dementia
VISAT	Longitudinal Study VISAT (Vieillessement, Santé, Travail)
VSMC	Vascular smooth muscles
W/H	Waist/hip ratio
WAI	Work ability index
WHO	World Health Organization
WM	Working memory
α NTF	Alpha neurotrophic factor
$\epsilon 4$	Isoform $\epsilon 4$