RAND HRS Around-the-World Harmonization Meeting

A Meeting of the Network on the Harmonization of International Aging Studies
Supported by the National Institute on Aging

April 1-3, 2015

Bethesda, Maryland

Meeting Summary

Covering April 1-2, 2015

Revised June 22, 2015

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Acronym Definitions

Acronym	Definition
ADAMS	Aging, Demographics, and Memory Study
BSR	Division of Behavioral and Social Research
CHARLS	China Health and Retirement Longitudinal Study
DBS	dried blood spots
DNA	deoxyribonucleic acid
DRM	Day Reconstruction Method
ELSA	English Longitudinal Study of Ageing
ELSI	Brazilian Longitudinal Study of Health, Ageing and Well Being
HAALSI	Health and Aging in Africa: Longitudinal Studies of INDEPTH communities
HbA1c	glycosylated hemoglobin
HCAP	Harmonized Cognitive Assessment Protocol
HRS	Health and Retirement Study
IFLS	Indonesian Family Life Survey
INDEPTH	International Network for the continuous Demographic Evaluation of Populations and Their Health
JSTAR	Japanese Study of Aging and Retirement
KLoSA	Korean Longitudinal Study of Ageing
LASI	Longitudinal Aging Study in India
MHAS	Mexican Health and Aging Study
MMSE	Mini Mental State Examination
MRI	magnetic resonance imaging
NHANES	National Health and Nutrition Examination Survey
NIA	National Institute on Aging
NICOLA	Northern Ireland Cohort for the Longitudinal Study of Ageing
PERFAR	Population Europe Resource Finder and Archive
RNA	ribonucleic acid
SAGE	Study on global AGEing and adult health
SHARE	Survey of Health, Ageing and Retirement in Europe
THSLS	The Scottish Longitudinal Study of Ageing
TILDA	The Irish Longitudinal Study on Ageing

Meeting Summary

Overview

On April 1-3, 2015, the RAND Corporation convened a meeting of the Network on the Harmonization of International Aging Studies with support from the National Institute on Aging (NIA). The purpose of the meeting was to discuss Network progress and to identify future opportunities and priorities for enhanced harmonization of longitudinal studies on aging to facilitate cross-national comparisons.

The meeting began with a summary of the ongoing NIA initiative to support cross-national research through internationally comparable longitudinal aging studies modeled after the U.S. Health and Retirement Study (HRS). Recent activities presented included programs to both update and expand the population study of dementia in both the United States and around the world. This was followed by study updates from the principal investigators and an overview of the Gateway to Global Aging Data harmonization initiative (www.g2aging.org). Presentations and discussions on topics of shared interest followed. These topics featured cognition and dementia assessments, physical and biological measures, and economic, social, and contextual factors, including life histories and community surveys. The meeting concluded with an open discussion to identify priorities for future work toward cross-country research on aging. The following emerged as shared priorities:

- Continue to identify measures ripe for harmonization in the future. Time use, cognitive assessment, and subjective wellbeing represent present needs.
- Address a common need in the research community for a resource that catalogs institutional characteristics and social insurance programs qualitatively, quantitatively, across countries, and over time.
- To benefit both individual studies and harmonization across studies, share ideas and experiences across international studies through future meetings and other means such as presentation of scientific findings and journal special issues.

This document summarizes the presentations and discussions that occurred throughout the meeting. This document does not cover the content from the continued meeting on April 3, which focused on planning for the baseline and future of the Longitudinal Aging Study in India (LASI). Appendix 1 contains the meeting agenda with a full list of presenters, and Appendix 2 contains the list of participants.

Rationale for Harmonization

The present suite of longitudinal studies on aging began in 1992 with the launch of the HRS, a nationally representative, population-based sample of adults ages 50 and older in the United States. This study became a successful platform for multidisciplinary research on aging, producing publicly available data in domains ranging from economics to genetics. Through its collaborations, the HRS has helped to advance the development of 17 comparable studies

globally, collectively representing more than 30 countries and 60 percent of the world's population.

Each longitudinal study on aging has unique characteristics reflecting the richness of cultural diversity around the world, and it would be impossible—perhaps even undesirable—to homogenize their designs. Yet harmonizing these studies to maximize the comparability of their results is critical for facilitating cross-national research. Cross-national research can exploit institutional variation (the "international laboratory"), providing rare insights into how country-specific features influence health and wellbeing at older ages. The Network plays a critical role in producing the data infrastructure to support cross-national aging research.

Gateway to Global Aging Data

The Gateway to Global Aging Data (www.g2aging.org) aims to promote harmonization and to serve as a repository of information about the HRS-family of studies. The Gateway provides myriad resources, including comparative descriptions of the HRS-family of studies, harmonized variables and datasets, analytical tools, a search engine and a concordance of survey items across studies and across waves, a library of publications based on data from the HRS family of studies, and more. Questions about the harmonization effort can be directed to Jinkook Lee (jinkook.lee@usc.edu), director and principal investigator of the program on Global Aging, Health, and Policy.

Study Updates

The studies represented at the meeting included the HRS, the Mexican Health and Aging Study (MHAS), the Brazilian Longitudinal Study of Health, Ageing and Well Being (ELSI), the English Longitudinal Study of Ageing (ELSA), the Survey of Health, Ageing and Retirement in Europe (SHARE), the Irish Longitudinal Study on Ageing (TILDA), the Northern Ireland Cohort for the Longitudinal Study of Ageing (NICOLA), the Scottish Longitudinal Study of Ageing (THSLS), the Korean Longitudinal Study of Ageing (KLoSA), the China Health and Retirement Longitudinal Study (CHARLS), the Longitudinal Aging Study in India (LASI), the Indonesian Family Life Survey (IFLS), the Japanese Study of Aging and Retirement (JSTAR), the World Health Organization's Study on global AGEing and adult health (SAGE), and the Health and Aging in Africa: Longitudinal Studies of INDEPTH communities (HAALSI). A table summarizing key features of each study, including the countries represented, may be found in Appendix 3. Further information on the HRS family of studies is available at www.g2aging.org.

Cognition and Dementia Assessments

Cognition plays an essential role in the aging process. Measuring cognition, including diagnosing and estimating the prevalence and incidence of dementia, is therefore an important component of studies on aging. There is a critical need to harmonize cognitive assessments among international studies.

Early waves of the HRS and ELSA had limited overlap of cognitive assessments. Researchers soon learned that, even when two studies share common measures, the details of how tests are administered can influence the results. For example, ELSA and the HRS both include

immediate and delayed word recall assessments, in which respondents are asked to recall as many words as they can from four lists of 10 words each. Although the tests are very similar, the filler—the tasks that the respondent completes after the immediate and before the delayed recall—is different between the two studies. Such differences may affect test results.

Other important issues for cross-national comparability include selective attrition of respondents with lower cognitive function, strategies for recruiting proxy respondents, and inclusion of nursing home residents in the sample. Within studies, there may be selective attrition of respondents with lower cognitive function across waves, biasing longitudinal results. Proxy interviews are a key strategy for maintaining representation of respondents with lower cognitive status in the sample, but the extent to which proxies are used and the strategies for recruiting proxy respondents differ across studies. Inclusion of nursing home residents in the sample is another important issue, because there are cross-national and longitudinal differences in the proportion of nursing home residents with cognitive impairment and the extent of their impairment.

There may also be population-based differences that complicate cross-national comparisons of cognitive assessments; however, the causes of such differences are unresolved. For example, comparable memory score data by age were collected between 2010 and 2012 in four studies (HRS, ELSA, CHARLS, and SHARE). The results from the HRS, ELSA, and SHARE were clustered fairly closely; results from CHARLS were substantially lower across all age groups. Although it is possible that the starkly lower results from CHARLS represent a much greater prevalence of cognitive impairment in the represented population, some argue that the discrepancy may be due primarily to low education levels there, especially among Chinese women. Methodological differences may have also contributed.

Special Considerations for Low- and Middle-Income Countries
Considerations of particular importance for low- and middle-income countries were discussed. Adaptive tests—that provide more difficult questions subsequent to correct responses and easier questions subsequent to incorrect responses—may be particularly helpful by avoiding burden on respondents who struggle. Investigators should also pay attention to the test setting: cognitive assessments are sensitive to noise disturbance and other distractions. Conducting tests in clinical settings may help mitigate these concerns.

Longitudinal studies wishing to add cognitive assessments or to revise existing protocols can replicate the measures developed by the HRS and other studies. Investigators should check the Gateway to Global Aging Data to access the desired instruments. One challenge for studies wishing to expand their cognitive assessment protocols is the tension between maximizing longitudinal comparability with prior waves and including the best tests in the ideal sequence, all while maintaining a reasonable total duration.

Diagnosing Dementia and the Harmonized Cognitive Assessment Protocol
Dementia is a medical condition typically diagnosed by a combination of cognitive assessments and a judgment of whether cognitive status impacts a person's daily activities. The Harmonized Cognitive Assessment Protocol (HCAP) seeks to administer a battery of cognitive tests that can

enter into an algorithm to predict dementia diagnoses. HCAP aims to achieve broad scientific credibility in accurately estimating population-level dementia prevalence at a reasonable cost. The design of HCAP builds on experience from the HRS's 2003 dementia study, the Aging, Demographics, and Memory Study (ADAMS), which provided a model for projecting diagnoses of a subsample to estimate dementia prevalence in the full study sample. Investigators expect HCAP to predict dementia diagnosis with greater reproducibility and for lower cost than ADAMS, which relied in part on clinicians to provide diagnoses.

Although each cognitive test considered for inclusion in HCAP is somewhat correlated with the others, including more tests improves algorithmic accuracy. HCAP therefore includes a broad range of cognitive tests. An informant report is also included to calibrate results of the assessments across countries. The HRS plans to administer HCAP in its next wave, including to respondents in nursing homes.

10/66 and Other Approaches

Other approaches to estimating dementia prevalence exist such as the 10/66 protocol, which was specifically designed for low- and middle-income countries.[1] The 10/66 protocol shares several measures with HCAP, including the Mini Mental State Examination (MMSE) and a word recall test. The 10/66 algorithm reportedly identified 94 percent of dementia cases diagnosed by local physicians. LASI investigators have considered the relative merits of different cognitive assessment protocols, including respondent burden and potential overlap with the LASI core survey. LASI also assessed the feasibility and acceptability of its own proposed 2-hour neuropsychological assessment in a clinical setting at the All India Institute of Medical Sciences. All respondents and informants were cooperative.

Physical and Biological Measures

Accelerometers for Measurement of Physical Activity

Some studies have incorporated accelerometers to measure physical activity to compare to self-reported time use data. Three studies conducted in England (subsample of ELSA), the Netherlands, and the United States (subsample of the Understanding America Study) each use wrist-worn accelerometers developed by Geneactiv. These devices are now outdated and have limitations, such as poor algorithms for predicting time spent sleeping. Although newer devices may be better, the studies continue to use the same, older technology in order to maximize comparability of results. These studies also employ vignettes to calibrate self-reported time use data to facilitate cross-national comparisons. Participants are asked to rate the intensity of physical activity described in a series of six vignettes that portray people of different ages and genders engaged in various activities.

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[1] Prince, Martin, Cleusa P. Ferri, Daisy Acosta, Emiliano Albanese, Raul Arizaga, Michael Dewey, Svetlana I. Gavrilova, et al. "The Protocols for the 10/66 Dementia Research Group Population-Based Research Programme." BMC Public Health 7, no. 1 (July 20, 2007): 165. doi:10.1186/1471-2458-7-165.

Preliminary data are now available from the English and Dutch studies. The Dutch results reveal some differences between how active respondents claim to be and their activity levels as determined by accelerometers. On average, females report being more active than males, but accelerometer data show no difference by gender. In contrast, objective data show differences in physical activity by employment status, which is not evident in the self-reported data. Older age is objectively associated with much lower activity levels, while self-reported activity levels are not significantly different across age groups. Results from England are similar to those from the Netherlands. More data and analyses will be available within the next few months.

The investigators have not yet investigated whether wearing an accelerometer alters the activity levels of subjects, although it is clear that it takes time to become comfortable with wearing these devices 24 hours a day. Some newer devices, which might use better algorithms and produce more accurate results, provide feedback to the wearer to remind them to be more active. Other research groups are testing a range of new technologies. It might be useful to hold a meeting on the topic of accelerometer research to learn from the experiences of others.

Lessons from the Biomarker Network

The Biomarker Network (http://gero.usc.edu/CBPH/network/) is an NIA-funded initiative that promotes the study of biological processes in population surveys. Its website provides resources, including collection protocols, lists of supplies and laboratories, and publications. The American Association for Clinical Chemistry has organized a global effort to standardize laboratory protocols and may be another helpful resource (www.harmonization.net).

Biomarkers are objective measures of physiological states that can be indicative of the process of health changes before the final outcome is reached. Biomarkers can be derived from many different sources. Blood and saliva are most relevant for longitudinal studies on aging. Although biomarkers can be incorporated into these studies and are valuable additions, experience has shown that proper implementation is challenging. The following are suggestions for collecting, storing, and measuring blood-based biomarkers based on the experience of the Biomarker Network.

Most blood-based biomarker assays are designed for controlled clinical settings. Investigators must take precautions to minimize the effects of field conditions on their samples and to appropriately identify and correct for systematic errors. Temperature, humidity, time, packaging, processing, and laboratory instrumentation and procedures can all affect results. Point of contact meters, which produce results in the field, avoid some problems, but are still affected by temperature and humidity and produce no extra sample for storage for future analyses. Some biomarker assays are more sensitive to environmental conditions than others. Cholesterol and lipids have proved particularly sensitive, whereas glycosylated hemoglobin (HbA1c) is less sensitive.

Dried blood spots (DBS) can be collected in the field by a trained interviewer. The HRS has collected DBS in five different waves. Experience has shown that results for the same biomarker assay always differ between DBS and whole blood samples. For example, measurements of C-reactive protein in DBS and whole blood were nearly perfectly correlated, with a coefficient of

0.99, but the levels were substantially lower in DBS than venous blood. Results must be standardized in order to compare across studies. The HRS uses the National Health and Nutrition Examination Survey (NHANES) as its standard.

Methods for shipping, processing, and storing samples are also key issues for harmonization of biomarkers across studies. The HRS decided to centrifuge whole blood samples in the field and freeze them before shipping for analyses. It is unclear how results from the HRS might differ from other studies using different shipping and processing protocols. Although some assays must be conducted immediately, many can be performed on stored samples. Blood samples should be frozen at very low temperatures (minus 80 degrees Celsius or colder) for long-term storage, and contingency plans should be in place for electrical failures. Studies planning to store samples should also define systems for retrieving samples when needed.

Extensive pilot testing of procedures and quality control checks are recommended. Laboratories assess their abilities under ideal conditions, and investigators sending samples collected in the field should conduct their own quality control tests instead of relying on a contracted laboratory. Measuring biomarkers involves many variables and potential sources of error.

Genetics

There are several options for collecting DNA, each with different advantages and disadvantages. Whichever option is used, it is wise to use separate consents for different measures, because some participants will agree to certain tests and not to others, and to ask non-consenting respondents again in future waves. The HRS has obtained consent from respondents who previously refused in about 50 percent of cases. Dividing each sample into smaller aliquots for storage is also recommended to minimize thawing and refreezing of biological material. DNA collection options include the following:

- **Saliva.** Inexpensive, and can be collected by a trained interviewer. May be self-administered, but this leads to lower response rates. Stable for years at room temperature for analyzing DNA. Can be used to measure telomeres and methylation if processed quickly.
- **Whole blood.** The most expensive option. Must be collected by a phlebotomist. Yields a large amount of DNA. Requires immediate processing and must be stored below 80 degrees Celsius.
- **DBS.** The cheapest option. Yields small amounts of DNA, possibly requiring whole genome amplification, which is expensive. Stable at room temperature for DNA only. Can be used for other measures if frozen.

There are also several analytical options for DNA samples. Most measures remain constant over time, including candidate genes and single nucleotide polymorphisms, genome-wide association study, exome, and sequencing. Full sequencing remains very expensive (about $1,500 per case). Two types of measures, methylation and telomeres, change over time, making them especially exciting for longitudinal studies, but also requiring multiple collections over time. In all cases, analyzing genetic data produces large files, and processes are needed to store and analyze the data.

Health Assessment in Clinical Settings

Three studies, TILDA, LASI, and NICOLA, conduct health assessments in clinical settings.

TILDA conducts health assessments at a central location during every second wave, or every 4 years. By paying for respondents and their caregivers to travel to the clinic, TILDA has achieved a health assessment completion rate of 72 percent, including 14 to 17 percent conducted as abbreviated in-home assessments. The full health assessment is conducted by a team of nurses and takes about 3.5 hours to complete. The assessment includes six categories of measurements: anthropometrics, cognition, cardiovascular, gait, vision, and biomarkers. TILDA also offers optional dental exams, magnetic resonance imaging (MRI), and extra blood collection for RNA and peripheral blood mononuclear cells. About half of participants also wear accelerometers for 7 days. Participants receive limited feedback from the health assessments, although their physicians are informed of any irregular findings.

LASI plans to conduct health assessments in clinical settings in conjunction with its dementia assessment protocol; measures from TILDA that were deemed feasible are included. These include cardiovascular markers, venous blood samples, vision tests, dental exams, and structural MRIs on 10 percent of the sample. LASI has developed a sophisticated sample management system using barcodes to ensure that all samples are correctly matched to respondents.

NICOLA conducts health assessments in a clinic and modeled its protocol after TILDA's. The duration of the assessment is about 2.5 hours and includes a visualization of the entire retina to inform vascular-related cognitive decline and cardiovascular disease. This produces about 1 terabyte of data per patient, posing challenges for data storage and security. Any abnormal findings trigger an expedited referral to an ophthalmologist.

Economic, Social, and Contextual Factors

Retirement and Labor

Much cross-national retirement and labor research has used macroeconomic data. Although there is strong interest in using microeconomic data for such studies, there are several downsides to using data from the HRS family of studies in the present environment. These downsides include the limited number of years for which longitudinal data exist (which will naturally improve over time), relatively small sample sizes compared to census data (especially when examining specific age groups), and an outstanding need for greater harmonization.

Some of the most important topics in the field are the determinants of productivity and wages by age, the effect of retirement on health, the determinants of retirement, and macroeconomics and retirement policy. The HRS and its sister studies are particularly well suited for studying the links between health, income, and retirement. More data and analysis are needed to better understand the impacts of health on productivity and wages, trends in health and the compression of morbidity, subjective life expectancy, and measures of bounded rationality. One particularly important need is a resource compiling institutional incentives—social welfare and insurance programs—by country and by year.

Disability, Insurance Markets, and Long-Term Care

Disabilities that limit a person's ability to work or complete other activities can be measured in a variety of ways. A more complicated issue is measuring—or even defining—disability insurance across countries. This is a problem for international harmonization: each country, and sometimes regions within countries, has different insurance schemes with different coverage requirements and benefits. Robust institutional data are necessary for sound policy analysis; yet no comprehensive resource exists that qualitatively and quantitatively compares social insurance programs across countries. The U.S. Social Security Administration publishes only qualitative descriptions,[2] and the Population Europe Resource Finder and Archive (PERFAR) publishes quantitative information and legal descriptions of various European programs, but lacks quantitative economic information.[3] A more comprehensive effort is needed.

Another question is whether the HRS family of studies adequately captures information about providers of long-term care. Longitudinal studies on aging typically focus on household residents, potentially overlooking the circumstances of non-resident caregivers, the effects of caregiving on wellbeing, and the substitution of paid and unpaid care, which may depend on the intensity of care needs. Because of the lack of widespread use of long-term care insurance, these issues will become increasingly relevant for the development of effective public policies.

Community Surveys

Community surveys are used in several studies (CHARLS, IFLS, and LASI) to obtain detailed information on available programs, facilities, market prices, infrastructure, and other community characteristics. These data complement household surveys by adding potential variables for analysis. For example, researchers can evaluate whether the local availability of programs affects outcomes of aging. Some challenges for incorporating community surveys include the added field management effort, deciding on an appropriate scope to generate sufficiently rich data while remaining manageable, and maintaining privacy of local-level data.

Life Histories

Life history interviews seek to produce retrospective autobiographical data that researchers can use to study the corollaries of life circumstances on economic, social, and health outcomes. Several studies now have experience conducting life histories, including CHARLS, ELSA, IFLS, and SHARE. Investigators interested in adding a life history component to their studies can benefit from past efforts; for example, flexible computer-assisted personal interview programming now exists that allows respondents to choose between answering questions chronologically or by domain (family, employment, etc.). The typical duration of a life history interview is more than 1 hour; however, they do not need to be repeated longitudinally. Participants usually find the interviews enjoyable.

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[2] Social Security Programs Throughout the World can be found at
http://www.ssa.gov/policy/docs/progdesc/ssptw/
[3] More information can be found on the PERFAR website http://www.perfar.eu/

Life history data from SHARE and other studies suggest that early life circumstances are a strong predictor of outcomes later in life. Most validation attempts have compared information from life history interviews to administrative data, such as social security records of employment and earnings.[4] Although studies have demonstrated moderately good or better matches, more validity research is needed.

Personality and Risk Aversion

Psychology research has demonstrated that personalities are relatively stable dispositions, although they can change in response to experiences and can be learned in childhood to some extent. There are many ways to measure personality; most approaches consider five main variables: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Research based on HRS data has found that conscientiousness and spousal conscientiousness are related to health and long-term economic outcomes.

Risk aversion is an important economic concept that the HRS and other studies have attempted to measure in various ways. Early on, the HRS posed vignettes and then asked respondents to choose between hypothetical risk/return options. These proved challenging for older individuals and individuals with lower cognition and resulted in large measurement error. The HRS ultimately replaced the story problems with a single question that asks respondents to rate their own general risk tolerance. The leave-behind questionnaire asks the same question for a set of different domains.

There is some debate about whether the current HRS approach to assessing risk aversion is the best approach. By only using a single self-reported measure, it is difficult to compare responses across respondents and it is not possible to verify monotonicity. In contrast, JSTAR measures risk attitudes by asking a series of risk trade-off questions. This approach enables researchers to detect non-monotonic responses, which may indicate a lack of comprehension. Some experimental literature suggests that it might be necessary to offer real payouts in order to accurately measure risk aversion; however, a clear scientific consensus is lacking. Finally, there may be opportunities to explore creative alternative tests, such as asking respondents to gamble on filling a balloon with as much air as possible without causing it to burst.

Subjective Wellbeing

There are two main concepts of wellbeing: evaluative (life satisfaction) and experienced (emotions in the present or recent past). Experienced wellbeing comprises two factors, positive affect and negative affect, and can be combined with time use data to produce a rich picture of wellbeing by activity and time of day by using the Day Reconstruction Method (DRM) or its variants.

Evaluative wellbeing is negatively associated with unemployment. The relationship between evaluative wellbeing and age is U-shaped in developed countries, with higher life satisfaction in both younger and older populations and the lowest satisfaction in middle-aged groups (45 to 54

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[4] Smith, James P. "Reconstructing Childhood Health Histories." Demography 46, no. 2 (May 2009): 387–403.

years). The relationships with experienced wellbeing are less clear. For example, there are no significant relationships between experienced wellbeing and income or employment status.

Incorporating measures of experienced wellbeing adds richness to longitudinal studies, particularly when paired with time use data. The DRM, however, is time consuming, and the utility of experienced wellbeing measures for policy analysis remains unclear. Short versions of the DRM have been developed, though additional validation is needed.

Capturing the Roles of Women

Whether longitudinal studies on aging adequately capture the roles and health needs of women is a concern, particularly in low- and middle-income countries where gender disparities are especially pronounced. Cohorts of older women tend to show relatively lower education, participation in formal labor markets, personal income, asset ownership, and pensions compared to men. Women also tend to have poorer health, higher rates of disability, lower cognition, and longer lifespans than men. Women generally fill the roles of mothers, spouses, caregivers, and workers in informal markets. Consequently, older women often lack retirement benefits and entitlements, relying instead on non-enforceable social contracts for support.

Most longitudinal aging studies collect information on work history, time use, and social networks and engagement. More effort is needed to capture the full extent of women's participation in informal labor markets and perceptions of social recognition and safety nets. Abuse and domestic violence are also important issues that may be overlooked. Any effort to collect such sensitive information must consider whether questions are reasonable to ask in the presence of a spouse or children, alternative strategies, and procedures for reporting improprieties while avoiding unintended repercussions that might harm respondents or others.

Next Steps for Cross-Country Research on Aging

This meeting provided a unique opportunity for international investigators of longitudinal studies on aging to share their experiences and discuss priorities for future harmonization efforts. Participants noted several outstanding needs for harmonization, including time use protocols, measures of subjective wellbeing, cognitive and dementia assessments, and the optimal periodicity for repeating specific questions and modules longitudinally. There is a common need in the research community for a resource that catalogs institutional characteristics and social insurance programs (e.g., health and disability insurance, pensions, and entitlements) qualitatively and quantitatively and across countries and over time.

Long-term financial support is a shared concern of longitudinal studies on aging. Although each study exists in its own funding environment, common strategies exist that might help control long-term costs. These include reducing the frequency of data collection, implementing alternative data collection methods (e.g., internet mode surveys), and increasing linkages to administrative and other routinely collected data.

Although the studies represented at the meeting are observational, they may, in the future, be used as platforms to enroll pre-screened participants with baseline data to intervention trials.

Finally, participants agreed that future meetings would help promote greater cross-national harmonization. Ideally, meetings would maintain a global scope and occur about every 2 years. The principal investigators agreed that they would pay for their own costs to attend future meetings. Adding special sessions to existing conferences would facilitate more frequent meetings while promoting broader use of study data.

Appendix 1:
Meeting Agenda

Wednesday, April 1   **Ballroom C**

SESSION 1   *Jim Smith*

9:00 a.m.   **Welcome and Introductions**   *Jim Smith, Jinkook Lee & John Phillips*

9:20 a.m.   **Study updates (5 minutes each):**   *Jim Smith*

Health and Retirement Study (HRS): *David Weir*
Mexican Health and Aging Study (MHAS): *Rebeca Wong*
Brazilian Longitudinal Study of Health, Ageing and Well Being (ELSI Brasil):
       Fernanda Lima-Costa
English Longitudinal Study of Ageing (ELSA): *David Batty*
Survey of Health, Ageing and Retirement in Europe (SHARE):
       Axel Boersch-Supan
Irish Longitudinal Study on Ageing (TILDA): *Anne Nolan*
Northern Ireland Cohort for the Longitudinal Study of Ageing (NICOLA):
       Ian Young
Scottish Longitudinal Study of Ageing (THSLS): *David Bell*
Korean Longitudinal Study of Ageing (KLoSA): *Chonggak Shin*
China Health and Retirement Longitudinal Study (CHARLS): *Yaohui Zhao*
Longitudinal Aging Study in India (LASI): *David Bloom*
Indonesian Family Life Survey (IFLS): *John Strauss*
Study on global AGEing and adult health (SAGE): *Somnath Chatterji*
Japanese Study of Aging and Retirement (JSTAR): *Hidehiko Ichimura*
Health and Aging in Africa: Longitudinal Studies of INDEPTH communities
       (HAALSI): *David Canning*

10:30 a.m.   **BREAK**

SESSION 2   *Jim Smith*

10:45 a.m.   **Data Harmonization Project**
          Gateway to Global Aging Data (g2aging.org)
          Jinkook Lee

Wednesday, April 1 (Cont'd)

11:15 a.m.	**Cognition Assessment: Measurement Development & Key Finding**
	In developed countries—HRS/ELSA
	    Ken Langa, David Batty & David Llewellyn (by phone)
	In developing countries—IFLS/CHARLS/MHAS/LASI
	    John Strauss, Yaohui Zhao, Rebeca Wong & Jinkook Lee

12:00 p.m.	**LUNCH**

SESSION 3   *Jinkook Lee*

1:10 p.m.	**Dementia Assessment in the HRS and Around the World** HCAP: *David Weir & Ken Langa* 10/66 and Other Approaches: *Jinkook Lee*
1:50 p.m.	**Physical Activity and Time Use: Use of Accelerometers & Key Findings** *Arie Kapteyn & David Batty*
2:30 p.m.	**BREAK**

SESSION 4   *Jon King*

2:45 p.m.	**Lessons Learned from Biomarker Network**	*Eileen Crimmins*
3:05 p.m.	**Genetics: Current Approaches and Potential for Research Collaboration** HRS/ELSA: *Jessica Faul*	
3:45 p.m.	**BREAK**	

SESSION 5   *John Phillips*

4:00 p.m.	**Retirement & Labor**	*David Canning & David Bloom*
4:30 p.m.	**Disability**	*Axel Boersch-Supan & David Bell*
5:00 p.m.	**ADJOURN**	
7:00 p.m.	**GROUP DINNER**	

    Grapeseed American Bistro
    4865 Cordell Avenue
    Bethesda, MD 20814
    (301) 986-9592
    www.grapeseedbistro.com

Thursday, April 2   **Ballroom C**

	SESSION 6	*Jim Smith*

9:00 a.m.   **New Zealand**
                            Michael Cameron

9:10 a.m.   **Community Survey: Role It Can Play and Important Dimensions to Capture**
                            John Strauss, Yaohui Zhao & Perianayagam Arokiasamy

9:50 a.m.   **Life History: Approaches Taken and Lessons Learned**
                            Yaohui Zhao & Axel Boersch-Supan

10:30 a.m.   **BREAK**

	SESSION 7	*Lis Nielsen*

10:45 a.m.   **Personality, Risk & Time Preference: Key Constructs & Findings**
                            What to Consider?
                            David Weir & Hidehiko Ichimura

11:30 a.m.   **Subjective Wellbeing: Alternative Approaches and Lessons Learned**
                            Arie Kapteyn

12:00 p.m.   **LUNCH**

	SESSION 8	*John Haaga*

1:10 p.m.   **Health Assessment at Clinical Settings**
                            Anne Nolan & Jinkook Lee

1:50 p.m.   **Role of Women: Key Findings**
                            Are We Adequately Capturing the Roles Played?
                            Rebeca Wong & Yaohui Zhao

2:30 p.m.   **BREAK**

Thursday, April 2 (Cont'd)

	SESSION 9: OPEN DISCUSSION	*John Phillips*
2:45 p.m.	**Moving Forward: What's Next for Cross-country Research on Aging?**	
3:45 p.m.	**BREAK**	
4:00 p.m.	**SESSION 10**: CONCLUDING SESSION	*Jim Smith*

Plan for Future Meetings
Regional: Americas, Europe, Asia
Thematic: Dementia, Role of Women, Disability?

5:00 p.m.	**ADJOURN**
7:00 p.m.	**GROUP DINNER**

Redwood Restaurant and Bar
7121 Bethesda Lane
Bethesda, MD 20814
(301) 656-5515
redwoodbethesda.com

Friday, April 3   **Ballroom C**

LASI—Plans for the Baseline and Future

       SESSION 11   *Jim Smith*

9:00 a.m.   **Welcome**
          Jim Smith & David Bloom

9:15 a.m.   **Introductory remarks**
          Faujdar Ram

9:30 a.m.   **Study updates**
          David Bloom

10:15 a.m.   **BREAK**

       SESSION 12   *David Bloom*

10:30 a.m.   **Instrument, Pre-test & Quality Control**
          Jinkook Lee & Perianayagam Arokiasamy

11:10 a.m.   **Sampling & Implementation Plan**
          Perianayagam Arokiasamy

11:50 p.m.   **LUNCH**

       SESSION 13   *Jim Smith*

1:10 p.m.   **New Initiatives**
          Dried Blood Specimen (DBS) Study: *David Bloom, Jinkook Lee &*
            Perianayagam Arokiasamy
          Genetics: *David Bloom & Harsha Rajasimha*
          Dementia: *Jinkook Lee*
          Eyesight Intervention Study: *David Bloom*

2:10 p.m.   **SESSION 14: CONCLUDING DISCUSSION**   *David Bloom*

3:00 p.m.   **ADJOURN**

Appendix 2:
List of Participants

Organizers

    James Smith (Chair), RAND

    Jinkook Lee (Co-chair), University of Southern California, RAND & LASI

Presenters

    Perianayagam Arokiasamy, International Institute for Population Sciences & LASI

    David Batty, University College London & ELSA

    David Bell, University of Stirling & THSLS

    David Bloom, Harvard University & LASI

    Axel Boersch-Supan, Max Planck Institute for Social Law and Social Policy & SHARE

    Michael Cameron, Waikato Management School (New Zealand)

    David Canning, Harvard University, HAALSI

    Somnath Chatterji, World Health Organization & SAGE (by phone, April 1 and 2)

    Eileen Crimmins, University of Southern California & HRS

    Jessica Faul, University of Michigan & HRS (April 1)

    Hidehiko Ichimura, University of Tokyo & JSTAR

    Arie Kapteyn, University of Southern California

    Kenneth Langa, University of Michigan & HRS

    Maria Fernanda Lima-Costa, Oswaldo Cruz Foundation (Fiocruz) & ELSI Brasil (April 1 and 2)

    David Llewelyn, University of Exeter, UK & ELSA (by phone, April 1 morning)

    Anne Nolan, Trinity College Dublin & TILDA

    Faujdar Ram, International Institute for Population Sciences & LASI

    Harsha Rajasimha, Strand Life Sciences & LASI (April 1 and 3)

    Chonggak Shin, Korea Employment Information Service & KLoSA

    John Strauss, University of Southern California & IFLS & CHARLS

    David Weir, University of Michigan & HRS

    Rebeca Wong, University of Texas Medical Branch & MHAS

    Ian Young, Queen's University Belfast & NICOLA (April 1 and 2)

    Yaohui Zhao, Beijing University & CHARLS

Other Participants

    Cesar de Oliveira, University College London & ELSI Brasil (April 1 and 2)

    Thomas J. Plewes, Committee on Population, National Academies (April 1)

Federal Participants

National Institute on Aging

    Dallas Anderson, Director, Epidemiology of Dementia Program, Division of
        Neuroscience (April 1 and 2)

Partha Bhattacharyya, Director, Health Systems Section, Division of Behavioral and
    Social Research (BSR) (April 3)
Barbara Cire, Public Affairs Specialist, Office of Communications and Public Liaison (April 1
    and 2)
Prisca Fall-Keita, Research Program Analyst, BSR
Kimberly Firth, Scientific Review Officer, Division of Extramural Activities (April 1 and
    2)
Melissa Gerald, Program Director, BSR (April 1 and 2)
John Haaga, Deputy Director, BSR
Jennifer Harris, Consultant to BSR and Professor, Division of Epidemiology, The
    Norwegian Institute of Public Health (April 1)
Tamara Harris, Chief, Interdisciplinary Studies of Aging Section and Genetic
    Epidemiology Section, Laboratory of Epidemiology and Population Science (April 1)
Jonathan King, Director, Cognitive Aging Program and Behavioral Genetics of Aging
    Section, BSR
Lisbeth Nielsen, Chief, Individual Behavioral Processes Branch, BSR (April 1 and 2)
Georgeanne Patmios, Program Director, BSR and HRS Program Official (April 3)
John Phillips, Chief, Population and Social Processes Branch; HRS Project
    Scientist, BSR
Richard Suzman, Director, BSR (by phone)

Other National Institutes of Health
    Roger Glass, Director, Fogarty International Center (April 1 dinner)
    Suzanne Ryan, Scientific Review Officer, Center for Scientific Review (April 1)

Social Security Administration
    Irena Dushi, Economist, Division of Policy Evaluation, Office of Research, Evaluation, and
        Statistics, Office of Retirement and Disability Policy (April 1 and 2)
    Dalmer Hoskins, Director, Office of Economic Analysis and Comparative Studies, Evaluation,
        and Statistics (April 1 and 2)
    Howard Iams, Senior Research Advisor, Evaluation, and Statistics, Office of Retirement and
        Disability Policy (April 1 and 2)

Rose Li and Associates, Inc.
    Rose Maria Li, Project Manager
    Elisabeth Krebs, Meeting Planner (April 1 and 2)
    Samuel Thomas, Writer/Editor (April 1 and 2)
    Chris Arnold, AV Specialist (Absolute Video Productions)

Appendix 3:
Summary Table of Key Study Features

Study Name	Acronym	Year of Inception	Countries Included	Study Highlight or Milestone
Brazilian Longitudinal Study of Health, Ageing and Well Being	ELSI	2014	Brazil	Harmonized with ELSA by design; currently in first wave
China Health and Retirement Longitudinal Study	CHARLS	2010	China	The first nationally representative dataset open to the public in China
English Longitudinal Study of Ageing	ELSA	2002	England	Perhaps the only study to sample from existing studies
Health and Aging in Africa: Longitudinal Studies of INDEPTH communities	HAALSI	2014	South Africa	Sampling one rural area with existing longitudinal data on HIV and cardiovascular diseases
Health and Retirement Study	HRS	1992	United States	Completed 12th wave; venous blood planned for 2016
Indonesian Family Life Survey	IFLS	1993	Indonesia	Comprehensive tracking of respondents yielded a 90 percent response rate after 21 years
The Irish Longitudinal Study on Ageing	TILDA	2010	Republic of Ireland	Extensive health assessments conducted in a central clinic
Japanese Study of Aging and Retirement	JSTAR	2007	Japan	City-based sampling frame weighted using census data
Korean Longitudinal Study of Ageing	KLoSA	2007	Korea	Recruitment of new baby boomer cohort complete
Longitudinal Aging Study in India	LASI	2015	India	Ambitious plan for comprehensive study with 50,000 respondents
Mexican Health and Aging Study	MHAS	2000	Mexico	Successfully followed respondents after 9-year interwave hiatus

Study Name	Acronym	Year of Inception	Countries Included	Study Highlight or Milestone
Northern Ireland Cohort for the Longitudinal Study of Ageing	NICOLA	2014	Northern Ireland	Focus on food, nutrition, and visual function with rich biological measures
Scottish Longitudinal Study of Ageing	THSLS	2015	Scotland	Sampling from national health register with linkages to health and social care data
Study on global AGEing and adult health	SAGE	2003	China, Ghana, India, Mexico, Russia, South Africa	Now collecting saliva for DNA in wave 2
Survey of Health, Ageing and Retirement in Europe	SHARE	2004	Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, Switzerland	10-year funding plan by design; unique cross-country challenges within study

More information about the HRS family of studies is available at www.g2aging.org.