

Learning to Age Well from Longitudinal Studies of Ageing

Mary A. Luszcz (CI)

Professor of Psychology and Gerontology
Director, Flinders Centre for Ageing Studies

On behalf of Kaarin J. Anstey (CI)

Associate Professor

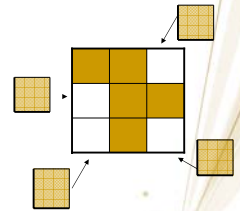
Director, Ageing Research Unit, ANU



inspiring achievement

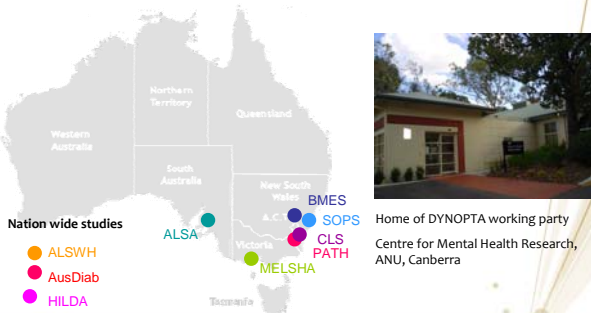
DYNOPTA – Dynamic analyses to optimize ageing well

- draws together 9 existing Longitudinal Studies of Ageing in Australia
- Key strengths: longitudinal design, breadth of data, multidisciplinary approach



inspiring achievement

DYNOPTA – Locations



inspiring achievement

Studies included (1/3)

Study	Baseline Sample size (age)	Duration (years)
The Australian Diabetes, Obesity and Lifestyle Study	7296 (45+)	5 -
Australian Longitudinal Study of Ageing (Flinders/Adelaide)	2087 (65+)	15 -
Australian Longitudinal Study of Women's Health	12762 (45-50) 14011 (70-75)	9 -



inspiring achievement

Studies included (2/3)

Study	Baseline Sample size (age)	Duration (years)
Blue Mountains Eye Study (SU)	4860 (49+)	5 -
Canberra Longitudinal Study of Ageing (ANU)	1000 (70+)	12
Household, Income & Labour Dynamics in Australia	4742 (45+)	4 -



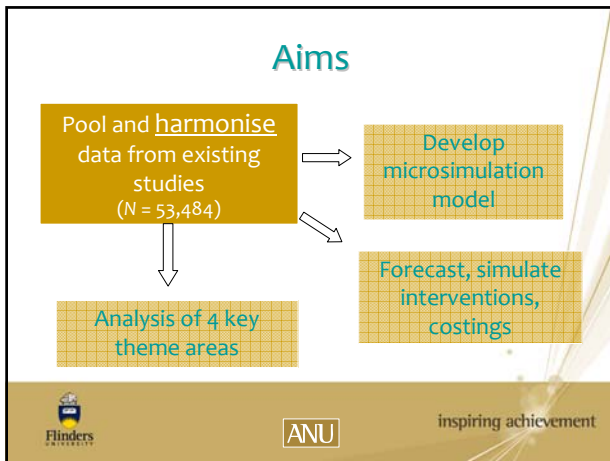
inspiring achievement

Studies included (3/3)

Study	Baseline Sample size (age)	Duration (years)
Melbourne Longitudinal Studies on Healthy Ageing	1000 (65+)	9 -
Personality and Total Health Through Life Project (ANU)	2551 (60-64)	4 -
Sydney Older Persons Study	647 (75+)	10



inspiring achievement



- | Key Research Themes | Cross-Theme Issues |
|--|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Cognition and Dementia <input type="checkbox"/> Sensory function <input type="checkbox"/> Mental Health <input type="checkbox"/> Mobility and activity | <ul style="list-style-type: none"> <input type="checkbox"/> Multiple morbidity <input type="checkbox"/> Healthy ageing <input type="checkbox"/> Longevity/Mortality <input type="checkbox"/> Gender <input type="checkbox"/> Social determinants <input type="checkbox"/> Risk factors |
- inspiring achievement

- ### Combining epidemiology with demography
- Ageing is a demographic process: age is central to demographic analysis
 - Demography links individual level and the population level
 - This micro-macro link is missing in most studies
- inspiring achievement

- ### Microsimulation
- Simulate individual life paths (age 45+)
 - Dynamic demography (following life path to death)
 - Dynamic health status
 - Aggregate to produce a population
 - Inform Policy and Practice
 - Forecasting, Scenario Building
- inspiring achievement

- ### Strengths of DYNOPTA approach
- Builds on Australia's investment in ageing research
 - Develops a virtual research infrastructure
 - Data from longitudinal studies allow for dynamics of ageing to be modeling (not static from cross-sectional data)
 - Will produce scientific outcomes, costings of ageing and disease, models of social and economic change
- inspiring achievement

Advantages of data pooling

Individual Studies	Pooled Data
Lack statistical power for comparisons among particular groups	Increased statistical power for analysing: <ul style="list-style-type: none"> ✓ Low-prevalence disorders ✓ Co-morbidities ✓ Sub-populations
Restricted to localised samples	More representative of Australian population

inspiring achievement

Activities to Date

- ❑ Scientific Meeting (12/06, 12/07)
- ❑ Sign-off of all agreements, ethical clearance
- ❑ Initiated collaboration with *Australian Partnership for Advanced Computing (APAC)* for access to the National Supercomputer Facility (ANU)



inspiring achievement

Major Achievements



inspiring achievement

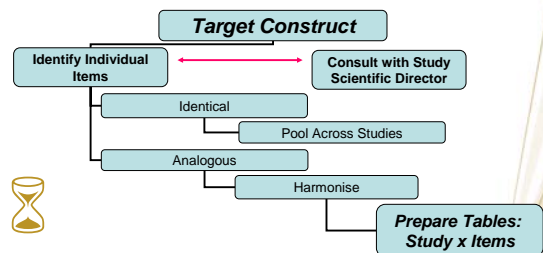
- ❑ Development of DYNOPTA website
 - Members & Open Access
- ❑ DYNOPTA data dictionary (online)
- ❑ **DYNOPTA harmonisation working document** (online)
- ❑ First Publication Accepted

The Value of Comparing Health Outcomes in Cohort Studies: An Example of Self-Rated Health in Seven Studies including 79,653 Participants. AJA



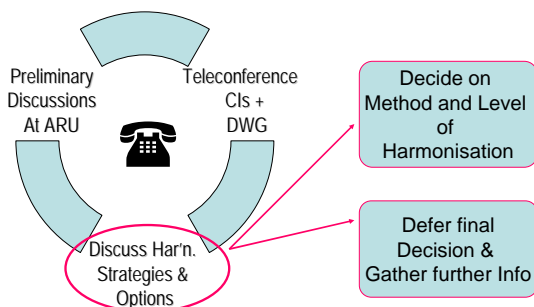
inspiring achievement

Harmonisation Phase 1: 9 x 📖's + Data Working Group




inspiring achievement

Harmonisation Phase 2: DWG + CI's Discuss Tables & Resolve Harmonisation Method



Harmonisation: Phase 3 & 4 Enabling Analysis

3) Recode 9x Study variable sets into DYNOPTA variables 

4) **POOL THE DATA** 



inspiring achievement

A (simple) Worked Example

Marital Status



inspiring achievement

Harmonisation issues to consider

- Different wording in similar items
 - what is your current marital status
 - what is your formal registered marital status
- Different reference points for similar items
 - In the last two weeks how often did you do vigorous exercise
 - In a normal week how often do you engage in vigorous exercise
- Different response sets across studies (and within studies across waves)
- Different coding of variables within/across studies



inspiring achievement

Harmonisation: Current partner status

Response set in each study

Study	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSA AusDiab MELSHA HILDA PATH (w1) CLS ALSWH old	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSWH mid	Married	Defacto opp sex Defacto same sex	Separated	Divorced	Widowed	
BMES	Now married		Separated but not divorced	Divorced	Widowed	
PATH (w2)	Married, first and only Remarried, second or later marriage		Separated from someone you have been married to	Divorced	Widowed	Never married
SOPS	Married (including defacto)			Divorced or permanently separated	Widowed	Never married

Indicates 'missing categories' from response sets

Harmonisation: Current partner status

DYNOPTA Binary Variable

Study	Partnered		Not partnered			
	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSA AusDiab MELSHA HILDA PATH (w1) CLS ALSWH old	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSWH mid	Married	Defacto opp sex Defacto same sex	Separated	Divorced	Widowed	
BMES	Now married		Separated but not divorced	Divorced	Widowed	
PATH (w2)	Married, first and only Remarried, second or later marriage		Separated from someone you have been married to	Divorced	Widowed	Never married
SOPS	Married (including defacto)			Divorced or permanently separated	Widowed	Never married

Harmonisation: Current partner status

DYNOPTA Categorical Variable

Study	Married or defacto		Separated or divorced		Widowed	Never married
	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSA AusDiab MELSHA HILDA PATH (w1) CLS ALSWH old	Married	Defacto	Separated	Divorced	Widowed	Never married
ALSWH mid	Married	Defacto opp sex Defacto same sex	Separated	Divorced	Widowed	
BMES	Now married		Separated but not divorced	Divorced	Widowed	
PATH (w2)	Married, first and only Remarried, second or later marriage		Separated from someone you have been married to	Divorced	Widowed	Never married
SOPS	Married (including defacto)			Divorced or permanently separated	Widowed	Never married

First Publication

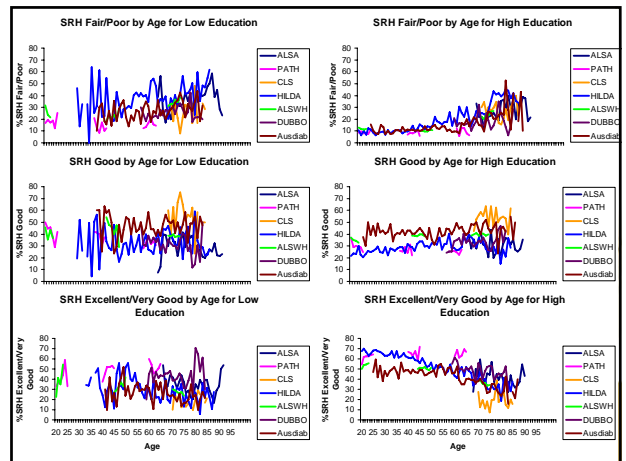
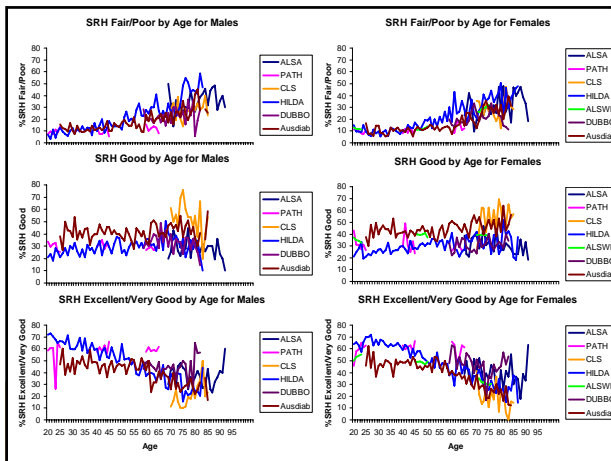
The Value of Comparing Health Outcomes in Population Based Studies of Australian Adults: An Example of Self-Rated Health in Seven Studies including 79653 Participants. (in press), *Australasian Journal on Ageing*.

Audience a key consideration

Demonstration of feasibility & patterns





inspiring achievement





More information is available at:

<http://dynopta.anu.edu.au>



 inspiring achievement

Domains of Measurement

- Demographics – partner, children, education
- Anxiety, Depression, Suicidality
- Social Support
- Life Events
- Physical Health
- Physical activity
- Biomarkers
- Cognitive performance, MCI, Dementia



 inspiring achievement