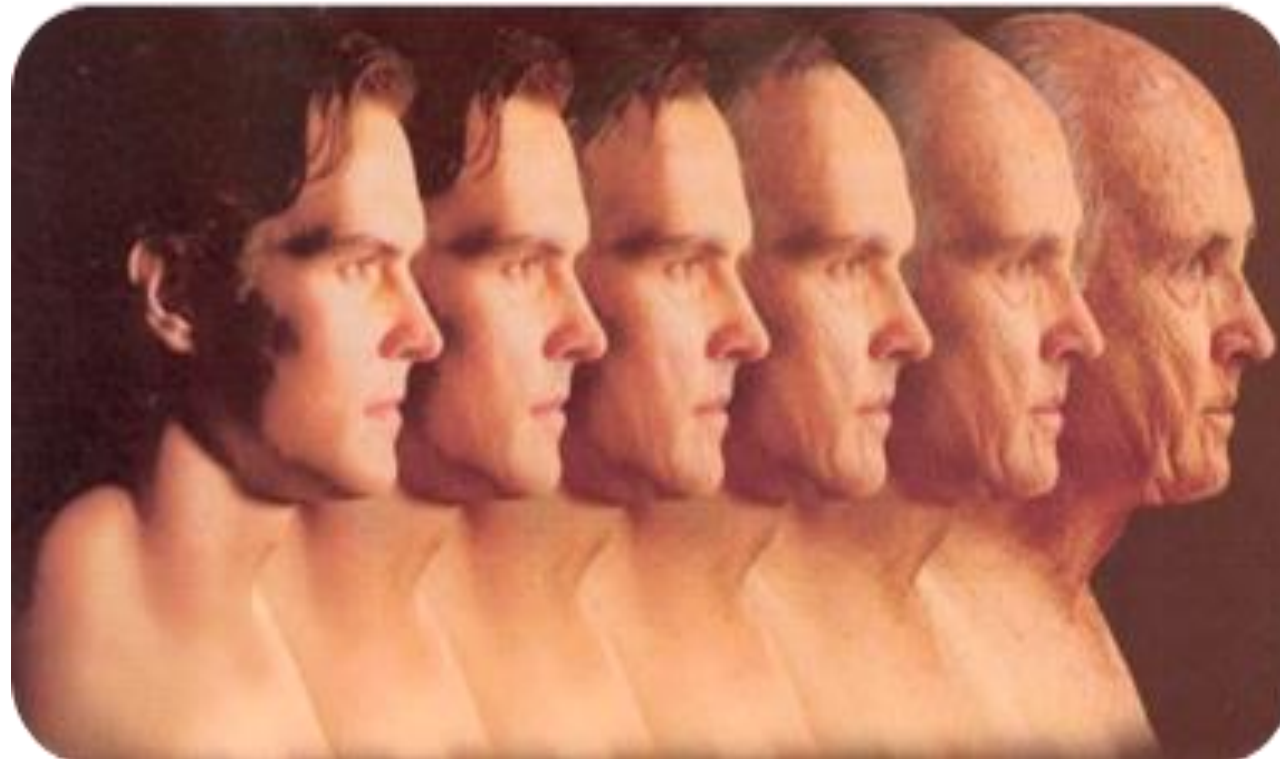


Living to 100: Centenarians as Models of Positive Ageing



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- **Introduction**
- **Methods**
- **Results and discussion**
- **Conclusions.**



**Ruth Richards,
aged 104 years**

Introduction



**Doreen McPherson,
aged 100**

Australia's Centenarians

- Centenarians (those ≥ 100 years old)
- Australia has the highest proportion of centenarians along with US, Norway, Sardinia
- 75% women and 25% men
- In Australia, cents growing at a rate of 8.5% in Australia (Richmond, MJA, 2008).



Lewis Le Compte, 100 years

Australia's Centenarians

Census Year	No. of centenarians	% of total population
1901	50	0.0013
1911	64	0.0014
1961	131	0.0012
1971	184	0.0016
1981	443	0.0029
1991	1268	0.0073
2001	2297	0.012
2006	3154	0.16

Longevity Factors

Contribution to longevity:

- **Environmental Factors (70-80%)**
 - **Biological Factors**
 - **Psychosocial Factors**
 - **Personality**
- **Genetics (20-30%).**

Source: Perls et al., 1999

**Len James,
aged 100**



Positive Ageing

- **Centenarians tend to escape or delay diseases**
- **“Compression of morbidity” hypothesis = burden of illness may be compressed into a short period just before death**
- **New England Centenarian Study - 88% of female and 100% of male centenarians had functioned independently until 92 years old (Perls et al., 1999).**

Personality and longevity

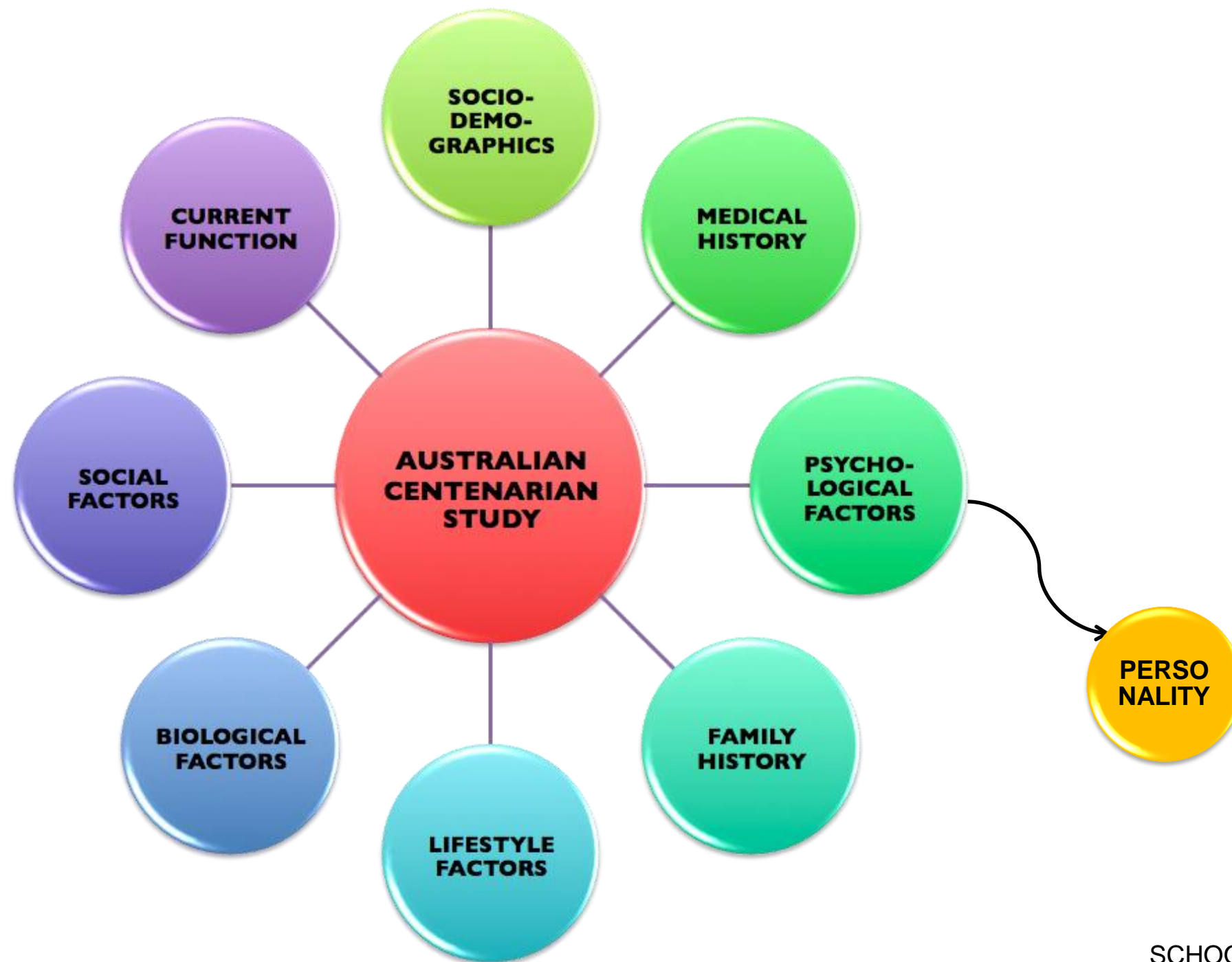
- **From Centenarian Studies**
- **Centenarians are able to cope with loss and deal with stress (Perls et al., 1999)**
- ***Hypothesis:* Centenarians have positive personality traits which, in part, explain their exceptional longevity.**

Methods



**Francis Ward aged 100 and
Ruth Richards aged 104 years**

Study Background of the Australian Centenarian Study



Study Design

- ***Ethics:*** Approved by UNSW Ethics Committee
- ***Study Design:***
 - Cross-sectional survey
 - Convenience Sampling
 - Questionnaire (by interview) + Biological Measurements
 - Usually two interviews.



**Lola Woodcock,
100**

Study participants

- ***Inclusion*** criteria
 - Aged 100 years or more
 - All ethnicities (with interpreters)
- ***Exclusion*** criteria
 - Severe cognitive impairment
 - Severe hearing PLUS visual impairment.

Data Collection

- ***Sampling:*** Convenience sampling
- ***Recruitment:*** Participants identified through:
 - Aged care facilities (e.g. nursing homes)
 - Aged care support groups (e.g. Meals on Wheels, 100 Up Club in Bris)
 - Health Professionals (e.g. Division of GPs)
 - News items (national, state, local papers).
- ***Researchers:*** 5 medical students and 5 Master of Public Health students

Research Instruments

Stage 1

Socio-demographic data, Medical & Family History, Quality of Life, Social and Community Participation, Katz Index of Independence in ADLs

Stage 2

Psychological Assessments including **NEO-FFI, CD-RISC, LOT-R,** Hospital Anxiety & Depression Scale

Stage 3

Biological Assessments including Blood Pressure and Cholesterol measurements

Research Instruments: psychological measures

- Questionnaire (by interview)
- Well-established psychological assessment tools

Personality Inventory	NEO Five-Factor Inventory (NEO-FFI)	Connor-Davidson Resilience Scale (CD-RISC)	Life Orientation Test Revised (LOT-R)
Number of Items	60	25	10
Personality Traits Measured	Neuroticism Extraversion Openness Conscientiousness Agreeableness	Resilience	Optimism

Example of a NEO-FFI item

“I like to have a lot of people around me”



**Francis Ward
aged 100**

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

Example of a NEO-FFI item



“I like to have a lot of people around me”

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

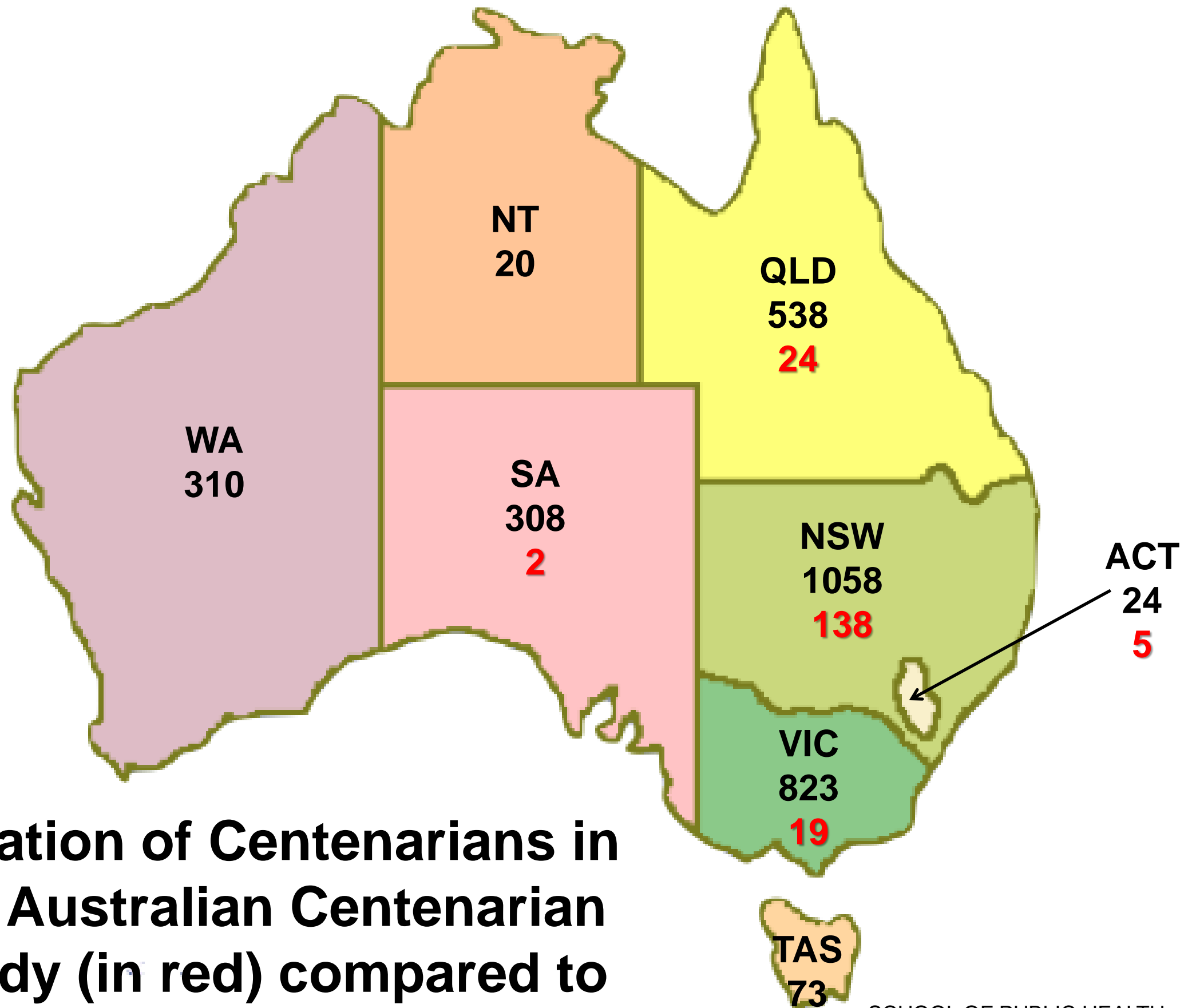


Cents asked to reflect back to when 30-50 years

Results and Discussion



**Raymond
Smith, 100**



**Location of Centenarians in
the Australian Centenarian
Study (in red) compared to
2006 census (in black)**

Demographics

	Australian Bureau of Statistics	Australian Centenarian Study
Number of centenarians	3154	188
Mean age (years)	N/A	101
Females (%)	75	81
Males (%)	25	19
Born in Australia (%)	66	70

ACCOMMODATION OF CENTENARIANS

Living arrangement	%
Nursing home	54
Hostel	21
Retirement village	9
Private dwelling	15

MARITAL STATUS OF CENTENARIANS

Marital status	%
Widowed	85
Married	5
Separated/divorced	1
Single (never married)	8.5

HIGHEST QUALIFICATION OF CENTENARIANS

Highest qualification obtained	%
No qualification	43
Secondary school	15
Vocational education and training	33
University degree	5
Other	4

Results
N=188

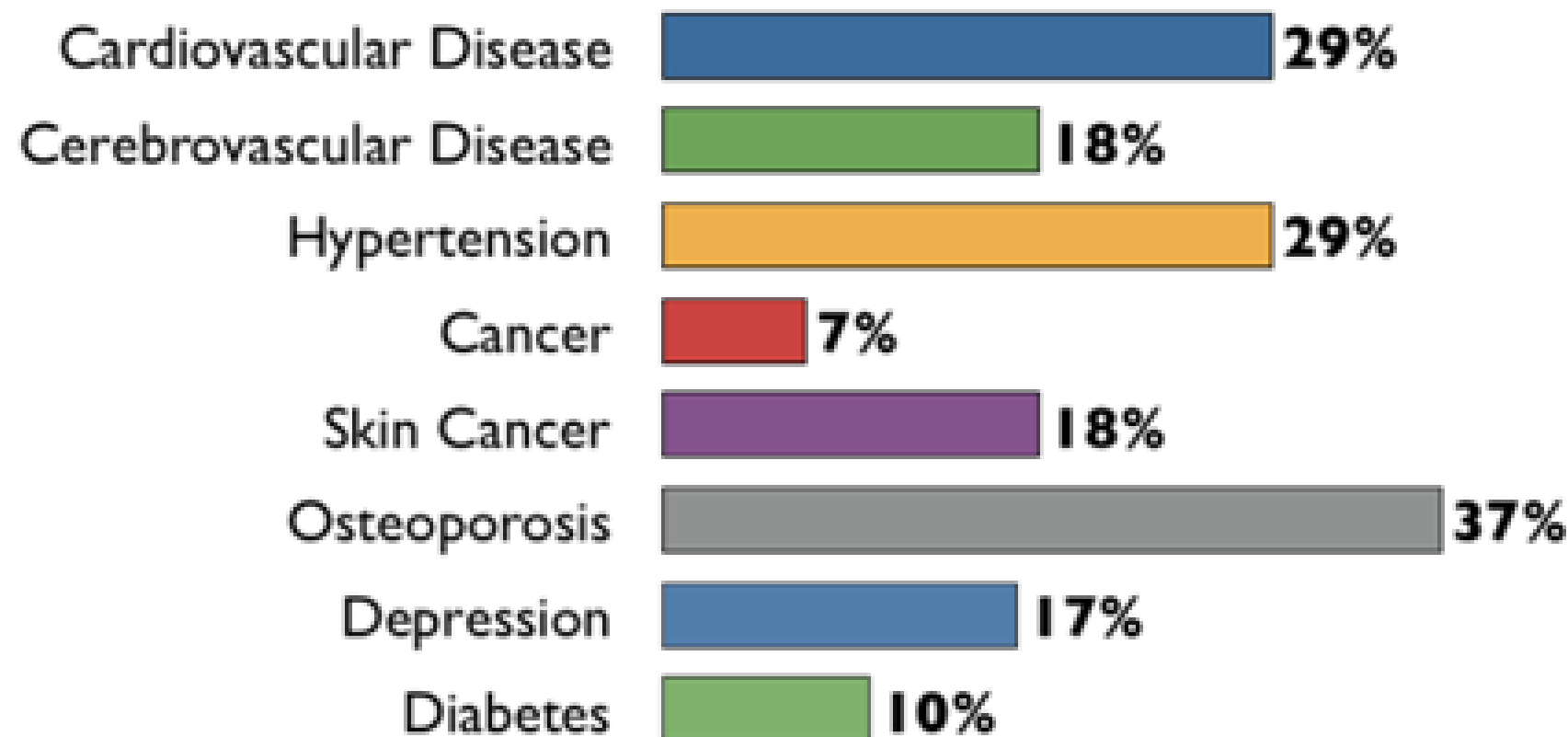
Lifestyle

- **Alcohol**
 - **49% were current drinkers**
 - **38% had never consumed alcohol**
 - **Nil had risky alcohol use**
- **Only 2 current smokers**
- **28% were former smokers**
- **60% currently physically active (mostly walking)**
- **Nil obesity**
 - **Consistent weight throughout life (as in Okinawan cent study).**

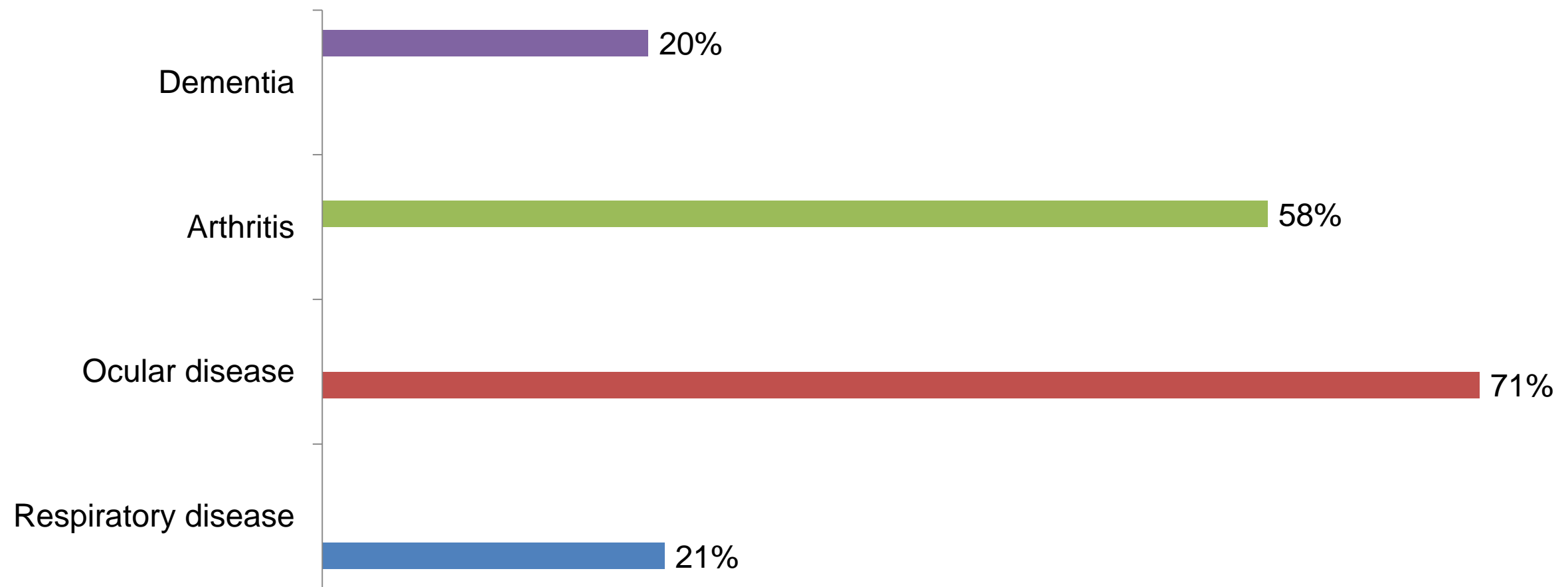
Results
N=188

Medical History

- **Medical history was generally good**
- **Age of onset typically between 85-95 years old**



Medical History cont



Results
N=188

Mental Health of centenarians

- **17% had depression ($M=4.16$)**
- **11% had anxiety ($M=3.21$) on the Hospital Anxiety and Depression Scale (HADS) (0-7 is normal)**
- **Similar to Italian centenarian study.**

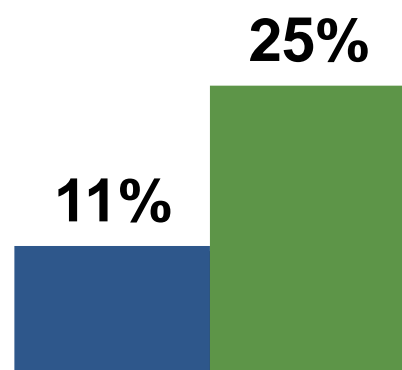
**Lorna
Brownbill,
aged 100**



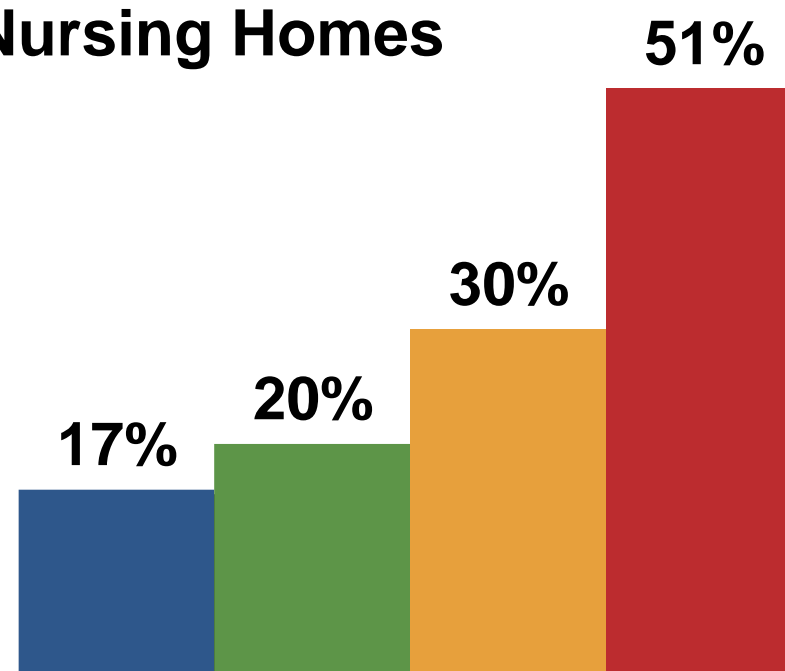
Results
N=188

Anxiety and depression among centenarians compared to the wider community

- Centenarians
- General Population
- Older People in Hostels
- Older People in Nursing Homes



Anxiety



Depression

Results
N=188

Cognitive Function

- **MMSE score was 21.14 on average**
 - **Close to normal for 85 year olds**
- **Cognitively intact into their mid-90s**



**Adam
Liston,
aged 100**

Results
N=188

Physically active and socially connected

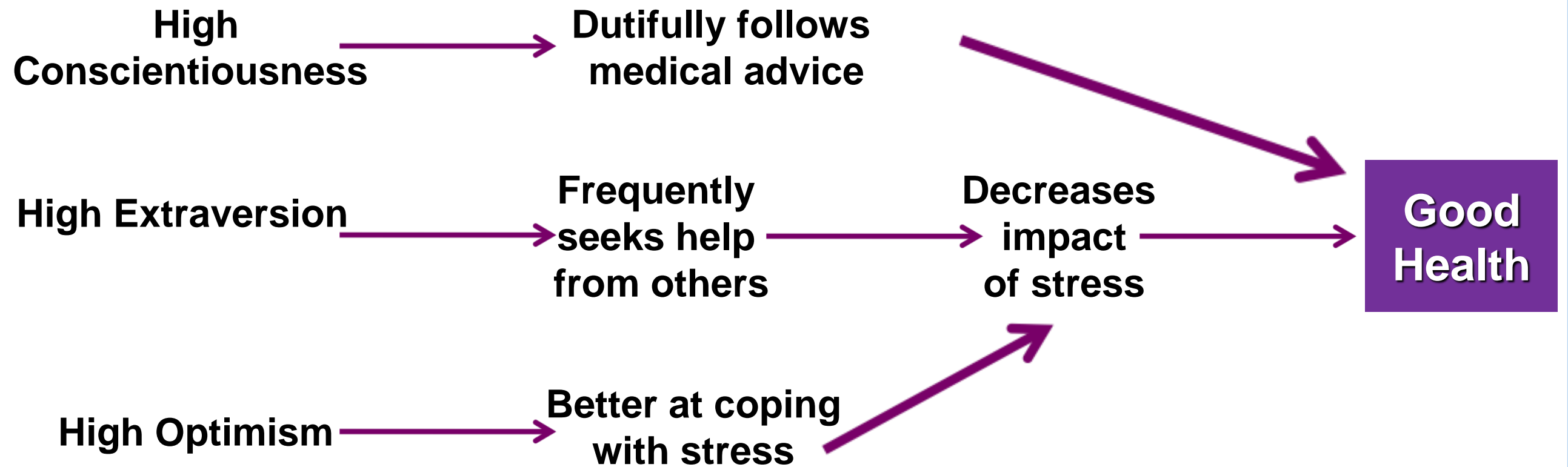
Centenarians were physically active

- **3.7 on Activities of Daily Living Score indicates moderate to poor functional impairment (0 = high dependence, 6= independence)**
- **88% had family contact at least 1-2 times weekly**
- **26% had daily contact with their family**
- **76% participated in organised group activities on a regular basis**
- **71% believe that social connectedness contributes to their health and longevity.**

Centenarian Personality

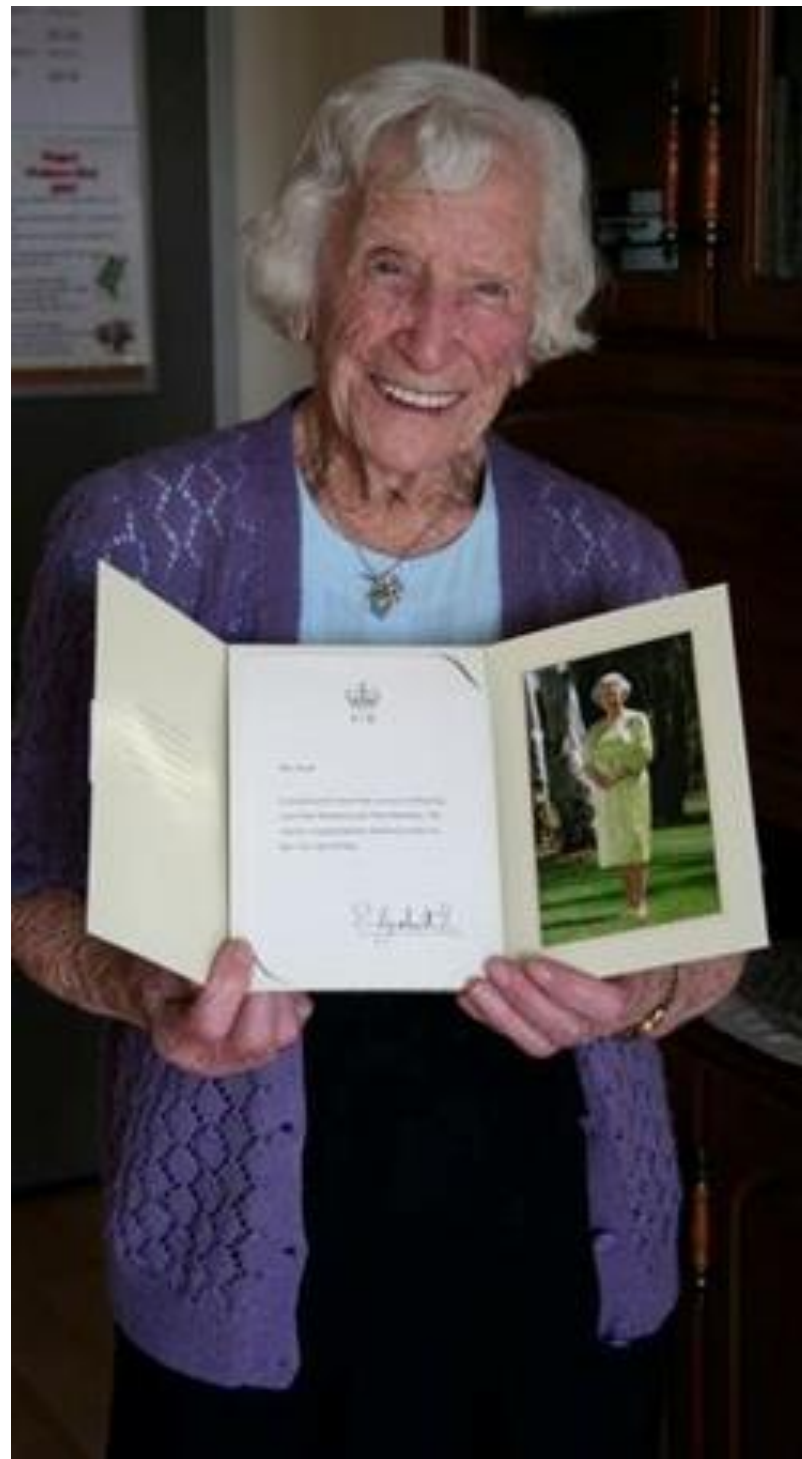
- **Centenarians in ACS**
 - **Low extraversion, low openness, low resilience and low optimism**
- **However, when reflecting on past behaviour, compared to the general adult population:**
 - **Low neuroticism (males only)**
 - **High extraversion**
 - **High conscientiousness**
 - **High openness to change**
 - **Similar to US Georgia Study, NECs, Japanese & Italian centenarian studies.**

Personality related to good health



Sources: Tokyo Centenarian Study, 2006 and 2008; NECS, 1999.

Conclusion



**Queenie Kent,
aged 103**

Why have they lived so long?

Many variables explain the complexity of achieving longevity but the key findings are:

- **Avoid smoking and (heavy) consumption of alcohol**
- **Maintain healthy weight all their lives**
- **Keep physically and mentally active**
- **Maintain social networks and invest in solid relationships**
- **Develop stress reduction strategies (exercise)**
- **Personality – low neuroticism, adapt to change**
- **Good genes.**

Australian Chris Muller marks 100th birthday from towering heights



The peak, the climb, victory!

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Centenarian study	Country	Personality inventory	Sample size (number)	Characteristic traits of centenarians
Martin et al. (1992)	United States (Georgia)	16-PF	165	Dominance (high) Suspiciousness (high) Imagination (high) Intelligence (low) Emotional stability (low) Conformity (low)
Martin, Long, & Poon (2002)	United States (Georgia)	16-PF	55	Suspiciousness (high) Intelligence (low) Stress (low)
Martin et al. (2006)	United States (Georgia)	NEO-PI	285	Neuroticism (low) Extraversion (high) Competence (high) Trust (high)
Shimonaka, Nakazato, & Homma (1996)	Japan	Bortner Pattern A Behaviour Scale and the Bem Sex-Role Inventory	82	Type B personality (high) Femininity (high)
Perls, Silver, & Lauerman (1999)	United States (New England)	NEO-PI	60	Neuroticism (low)
Masui et al. (2006)	Japan (Tokyo)	NEO-PI Japanese version	70	Openness (high) Conscientiousness (only high in women) Extraversion (only high in women)
Tafaro et al. (2009)	Italy (Rome)	State-Trait Anxiety Inventory	40 (personal communication with researcher)	Anxiety (low) Optimism (high)