Disclosures

Advisory Board - MSD (local, Asia-Pacific, Global);
Novartis; Menarini Phils.
Hi-Eisai

Lectures - Astra Zeneca,
MSD, Novartis, Menarini,
Isopharma, SciGen,
Abbott, Nestle,
Medichem, Hi-Eisai

Sponsorships - Medichem,
MSD, Cathay Drug

Fundings (Research) - MSD

Determinants of Successful Aging
Eduardo R.S. Poblete, M.D.
Geriatric Medicine Specialist
The Geriatric Center, SLMC - Q.C.

Oldest Well-documented Person

- Born: 1875
- Died: 1997

Madame Jeanne Calment
The oldest man alive is a 145-year-old Indonesian

Mbah Gothro, who was born in 1870, has one surprising wish.

Rappler.com
Published 10:32 AM, August 31, 2016
Updated 11:02 AM, September 02, 2016

JAKARTA, Indonesia – The world’s oldest human alive is from Indonesia.

This Sept. 2015 photo shows Nabi Tajima, the world’s oldest person, a 117-year-old Japanese woman. Tajima died of old age, at 117, in a hospital Saturday evening, April 21, 2018, in the town of Kikai in southern Japan, town official Susumu Yoshitake confirmed. She had been hospitalized since January.

Akô ning kalipayan.
This is my happiness.

Oldest woman in the world!!! 120-year-old Francisca Susano of Oringao, Kabankalan City, Philippines.
Living longer or Aging well? 'Squaring the curve'

Health, Quality of Life

Western Lifestyle and allopathic approach to health

Healthy traditional lifestyle and ancient wisdom

best of both worlds with lifestyle genomics

Birth

Lifespan

Death

Squaring the Life Curve

Instead of accepting health that steadily declines as we age, we can square the life curve by preventing illness and disease

Birth

Death

The Developmental Trends: Successful Aging, Normal Aging, and Cognitive Aging,

A Critical Point

Successful Aging

Normal Aging

Cognitive Aging

Percent Functioning

Age

Functions of Health

CHRONOLOGICAL AGE

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**Human Aging: Usual and Successful**

*Article: Literature Review in Science*

237(4811):143-9 • August 1987 with 1,001 Reads

DOI: 10.1126/science.3299702 • Source: PubMeC

Cite this publication

**Rowe and Kahn Model of Successful Aging**

In their widely known 1998 book about “Successful aging,” Rowe and Kahn describe the structure of successful aging as being the integration of three elements in one’s life: the maintenance of high physical and mental functioning, the avoidance of disease, and social engagement. This has been a commonly used definition and graphic among those interested in healthy aging, but it can be improved upon.

**The MacArthur Network on Successful Aging**

- Operationalised the criteria (SA)
- Followed 1000 older adults over 7 years
- 1/3 met the criteria for SA (Rowe & Kahn)

Consensus??

...started it all...

THE DETERMINANTS OF ACTIVE AGEING

GENDER
ECONOMIC DETERMINANTS
HEALTH AND SOCIAL SERVICES
BEHAVIOURAL DETERMINANTS
SOCIAL DETERMINANTS
PERSONAL DETERMINANTS

ACTIVE AGEING
PHYSICAL ENVIRONMENT

CULTURE

skills
values
aspirations
common goals

Individual
personal history
beliefs

Society
expectations
opportunities
public policies

Baltes Theory of Successful Aging
SOC Model (1990)

- Selection, Optimization, Compensation
- Main problem in implementation: deeply rooted in adult developmental psychology
- Beneficial impact in healthcare setting - Rehab
The Baltes’ model of successful aging and its considerations for Aging Life Care™ / geriatric care management

C Donnellan, PhD

Table 1. SOC-15 item examples for each of the SOC regulatory processes

<table>
<thead>
<tr>
<th>SOC Process</th>
<th>Brief Description</th>
<th>SOC-15 Item Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection</td>
<td>- Elective Specification of goals, goal system (hierarchy), contextualization of</td>
<td>“When I think about what I want in life, I commit myself to one or two important goals”</td>
</tr>
<tr>
<td></td>
<td>goals and goal commitment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Loss-based Focusing on most important goals, reconstruction of goal hierarchy,</td>
<td>“When things don’t go as well as before, I drop some goals to concentrate on the more important ones”</td>
</tr>
<tr>
<td></td>
<td>adaptation of standards, search for new goals</td>
<td></td>
</tr>
<tr>
<td>Optimization</td>
<td>- Attentional focus, seizing the right moment, persistence, acquiring new</td>
<td>“I keep trying until I succeed at a goal”</td>
</tr>
<tr>
<td></td>
<td>skills/resources, practice of skills, modelling successful others</td>
<td></td>
</tr>
<tr>
<td>Compensation</td>
<td>- Substitution of means; use of external aids/help of others; use of therapeutic</td>
<td>“When I can’t do something as well as before then I find out about other ways and means to achieve it”</td>
</tr>
<tr>
<td></td>
<td>intervention, increased effort, energy and time allocation; modelling successful others who compensate</td>
<td></td>
</tr>
</tbody>
</table>
Selection

- Refers to an individual focusing attention on fewer, more important goals, e.g., rescaling/reconstructing goals

Optimization

- Engaging in goal-directed actions and means
- E.g., invest time/money in acquisition, refinement and application of goal-relevant means
- E.g., seizing the moment
- E.g., practice of skills

Compensation

- Maintaining a given level of functioning in the face of loss and decline in goal-relevant means
- E.g., activate available resources (friends)

Physical activity as a determinant of successful aging over ten years

Bamini Gopinath; Annette Kepley; Victoria M. Flood; Paul Mitchell
12 July 2018
Gopinath study

- **AIM:** To examine the temporal association between physical activity and successful aging

- **Population**
  - 1,584 adults
  - >48 y/o
  - West of Sydney (Australia)

- **Exclusion criteria**
  - CA
  - CAD
  - Stroke

- **Duration:** 10 years

- **Methodology:**
  - interviewer-administered questionnaire
  - Performance of moderate or vigorous exercise + walking exercise >> METs, minutes of activity per week

---

**Blue Mountains Eye Study**

**Table 1** Study characteristics of participants at baseline stratified by aging status (n = 1584).

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Normal aging (n=737)</th>
<th>Successful aging (n=240)</th>
<th>Died (n=596)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, yrs</td>
<td>62.0 (7.4)</td>
<td>59.9 (6.3)</td>
<td>71.3 (9.5)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Male sex</td>
<td>775 (37.3)</td>
<td>253 (42.2)</td>
<td>308 (51.9)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Married</td>
<td>494 (17.8)</td>
<td>156 (8.0)</td>
<td>332 (10.3)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Lives alone</td>
<td>106 (21.5)</td>
<td>19 (3.0)</td>
<td>109 (22.0)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Current smoking</td>
<td>103 (16.3)</td>
<td>13 (2.0)</td>
<td>100 (19.3)</td>
<td>0.002</td>
</tr>
<tr>
<td>Overweight/obese</td>
<td>117 (19.4)</td>
<td>31 (1.5)</td>
<td>106 (21.3)</td>
<td>0.64</td>
</tr>
<tr>
<td>Physical activity, METs</td>
<td>1395.8 (2555)</td>
<td>1792.2 (3046)</td>
<td>1127.4 (1871)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

METs – Metabolic Equivalents minutes of activity per week. Data are presented as means ± SD or n (%).

- **Successful Aging, absence of**
  - Depressive symptoms
  - Disability
  - Cognitive impairment
  - Respiratory symptoms
  - Systemic conditions (CA, CAD)
. Blue Mountains Eye Study

Figure 1
From: Physical Activity as a Determinant of Successful Aging over Ten Years

3654 participants examined at baseline or BMES-1 (1992-94)

1116 excluded as they had cancer, coronary artery disease and/or stroke at BMES-1
1584 included in 10-year analyses from BMES-1 to BMES-3
954 excluded due to missing data on physical activity and/or lacked information on aging parameters 10 years later (at BMES-3)

598 died
737 aged successfully
249 aged normally

Flowchart showing study participation in the Blue Mountains Eye Study.

Table 2 Association between baseline physical activity and aging status 10 years later in the Blue Mountains Eye Study.
From: Physical Activity as a Determinant of Successful Aging over Ten Years

<table>
<thead>
<tr>
<th>Physical activity (METs)</th>
<th>Normal aging (n=727)</th>
<th>Successful aging (n=249)</th>
<th>Died (n=398)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>OR (95% CI)*</td>
<td>n (%)</td>
</tr>
<tr>
<td>&lt;1000 (n=194)</td>
<td>419 (64.5)</td>
<td>1.0 (reference)</td>
<td>138 (14.8)</td>
</tr>
<tr>
<td>1000-1999 (n=395)</td>
<td>161 (46.1)</td>
<td>0.86 (0.47-1.5)</td>
<td>60 (15.2)</td>
</tr>
<tr>
<td>2000-3495 (n=129)</td>
<td>62 (50.5)</td>
<td>1.0 (reference)</td>
<td>23 (19.3)</td>
</tr>
<tr>
<td>3500-4995 (n=67)</td>
<td>29 (45.5)</td>
<td>1.0 (reference)</td>
<td>8 (12.1)</td>
</tr>
<tr>
<td>5000-6495 (n=34)</td>
<td>14 (41.2)</td>
<td>1.0 (reference)</td>
<td>6 (17.6)</td>
</tr>
<tr>
<td>&gt;6500 (n=71)</td>
<td>31 (43.7)</td>
<td>1.0 (reference)</td>
<td>20 (28.6)</td>
</tr>
</tbody>
</table>

*Adjusted for age, sex, marital status, living status, smoking, and body mass index.

Blue Mountains Eye Study

Assessment of Physical Activity
Yes/No/Don’t Know

1. In the past 2 weeks did you walk for recreation or exercise for at least 10 min. continuously?
2. In the past 2 weeks did you do any vigorous activity or exercise which made you breath harder or puff and pant?
3. In the past 2 weeks did you do any other leisure time physical activities that you haven’t already mentioned?

. Results

. 249 (15.7%) aged normally after 10 yrs
. 737 (46.5%) aged successfully after 10 yrs
. Mean age: 59 +/- 6.1 yrs
. Odds ratio: 2.08
Brain Health → Quality Longevity

Cognition as a determinant

ACTIVE

- Advanced Cognition Training for Independent and Vital Elderly (RCT)
- Older adults w/o dementia
- Multi-modality brief cognitive training improved performance on cognitive tests

Public health
Research
Lay perspectives of successful ageing: a systematic review and meta-ethnography

Author affiliations +
Objectives

- To conduct a systematic review of lay perspectives of successful aging (SA)
- Synthesize these data using a meta ethnographic framework
- Provide a snapshot of extant lay perspectives of SA

Peer-reviewed studies
- Search included 7285 studies, 26 met inclusion criteria
- Identified psychosocial components, as integral components of SA, more than
  - Social engagements
  - Personal resources (i.e., attitude)
  - Psychological components
    - Longevity
    - Physical functioning

Conclusion

“...reveals the laypersons’ place on incorporating psychosocial components into multidimensional models of SA. ..highlighted the need for research into underrepresented populations.”

Key Messages

- **No current consensus** on definition of SA
- Psychosocial (i.e., attitude) factors were the most frequently mentioned components of SA
- Layperson perspectives advocate the inclusion of factors in SA that go beyond the physical health
Bowling and Dieppe (2005)

- Main theoretical approaches that define SA:
  - Psychosocial
  - Biomedical

Biomedical Model

- Focus on “absence of disease”
- Maintainance of physical and mental functioning

Psychosocial Model

- Focus on life satisfaction, social participation, functioning and psychological resources (including personal growth)

Psychosocial Theories of Aging

- Activity Theory
- Disengagement Theory
- Continuity Theory
- Erikson’s Psychodynamic Theory
- Theory of Gero-Transcendence
Depp & Jeste Meta-analysis of SA definition

- 28 studies
- Sample size >100
- English language
- Adult >60 y/o

- 14 components of SA noted
  - Included the ff. In nearly all definitions
    - Physical functioning
    - Freedom from disability

Qualitative Studies

- Smaller subsets of studies
  - Focus group
  - Surveys
  - Personal interview

- Emphasize
  - Adaptation to illness
  - Psychological trait
  - Optimism
  - Sense of purpose
  - Engagement
Women's Health Initiative (San Diego setting)

- N= 1,979
- Depression - potent negatives correlation with self-rated SA
- Positive Correlates
  - Optimism
  - Resilience
  - Cognitive ability
  - Physical & mental health related
  - QOL

Table 2: Correlates of self-rated successful aging in older women (n=1,979)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson correlation coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronological age</td>
<td>0.044**</td>
</tr>
<tr>
<td>Level of education</td>
<td>0.883**</td>
</tr>
<tr>
<td>Income</td>
<td>0.668**</td>
</tr>
<tr>
<td>Attitude toward aging (Philadelphia Geriatric Morale Scale)</td>
<td>0.363**</td>
</tr>
<tr>
<td>Physical activity participation (Godin Leisure Activity Scale)</td>
<td>0.184**</td>
</tr>
<tr>
<td>SF-36 Mental Health Composite</td>
<td>0.167**</td>
</tr>
<tr>
<td>SF-36 Physical Health Composite</td>
<td>0.266**</td>
</tr>
<tr>
<td>Cognitive Ability Screening Test</td>
<td>0.038</td>
</tr>
<tr>
<td>Cognitive Failures Questionnaire</td>
<td>0.149**</td>
</tr>
<tr>
<td>Cameron Decisional Resilience Scale</td>
<td>0.375**</td>
</tr>
<tr>
<td>Optimism (Life Orientation Test)</td>
<td>0.229**</td>
</tr>
<tr>
<td>Depressive Symptoms (CES-D)</td>
<td>0.259**</td>
</tr>
<tr>
<td>Prenatal Stress Scale</td>
<td>0.222**</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.005

SF-36 = Short Form 36, CES-D = Center for Epidemiological Studies Depression Scale

Longitudinal Epidemiological Studies

- Best predictors of SA:
  - Younger age
  - Freedom from arthritis or diabetes
  - Non-smoking

Genes

- Studies reviewed by Glatt et.al.
- Case-control studies; allelic variations
- Influence on Multi-dimensioginal definition of SA
- APOE, GSTT1, IL6, IL10, PON1, SIRT3
Components of Successful Aging

Absence of disease/disability

Successful Aging

High cognitive and physical function

Engagement with life

(Howe and Kann, 1996)

Quality of Life in Older Ages

Food

Exercise

Health

Saving

University of California, San Diego

Sam and Rose Stein Institute for Research on Aging

Health Sciences

http://aging.ucsd.edu

“What matters more than our years in life is the life we put in our years.”

E.d. Pobleto, M.D.

Thank You

For your kind