Leadership for a Longevity Population

Peter Martin
pxmartin@iastate.edu
Human Development and Family Studies
Iowa State University
Overview

• Introduction
  • Focus on the Longevity Population
  • Demographic Changes

• Longevity Hot Spots

• Lessons Learned
  • Health Behaviors and Longevity
  • Physical and Functional Health
  • Emotional Health
  • Cognitive Health
  • Environmental Support
  • Personality and Resilience

• Longevity Education and Prescription
Defining the Longevity Population

- Increased life expectancy (living longer)
- Living longer + living well
- Living longer without disability
- Compression of morbidity
The Longevity Dividend

• The economic and health benefits that would accrue to individuals and societies if we extend healthy life.

Jay Olshansky
Demographic Changes and Longevity
Demographic Changes

• Age group of the 90+ fastest growing segment of our population

He & Muenchrath (2011)
There will be a rapid increase in the population that is 90 years and older.

In 2050, we expect more than 68 million people 90 years and older worldwide.

## Life Expectancy By Country

<table>
<thead>
<tr>
<th>Rank</th>
<th>Country</th>
<th>LE</th>
<th>Men</th>
<th>Rank</th>
<th>Women</th>
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<td>80.4</td>
<td>10</td>
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<td>42</td>
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<td>32</td>
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Source: World Health Organization
Longevity Hotspots
(“Blue Zones”)
Longevity Hot Spots – “Longevity is a Way of Life”
The Oldest Person Ever:
122 Years and 164 days (1875-1997)

Madame Calment claimed that an occasional glass of Port wine along with a diet rich in olive oil--were the keys to her longevity.

Here are sample photos of the World's Oldest Documented Person, **Madame Jeanne Calment** of France, when she was 40 years old (in 1915) and then when she was 120 years old (in 1995).
Currently Oldest Person

"I didn't want to be dominated by anyone."

Emma Morano-Martinuzzi

<table>
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<tr>
<th>Name</th>
<th>Country</th>
<th>Age</th>
<th>Gender</th>
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<td>Italy</td>
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<td>F</td>
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<td>Violet Brown</td>
<td>Jamaica</td>
<td>116</td>
<td>F</td>
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<tr>
<td>Nabi Tajima</td>
<td>Japan</td>
<td>116</td>
<td>F</td>
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Life Expectancy Differences
Centenarians per 10,000 state population

Source: U.S. Census Bureau, 2010 Census Summary File 1.
Centenarian Studies

Georgia
- Phase 1: 137 centenarians
- Phase 2: 55 centenarians
- Phase 3: 287 centenarians

Iowa
- Rural Aging: 104 centenarians and nonagenarians
- Exceptional Longevity: 178 centenarians

Heidelberg
- 91 centenarians

Japan
- 22 centenarians

Total Number: 874 nonagenarians and centenarians
The Secret of Longevity
The “Fountain of Youth,” painted by Lucas Cranach the Elder in 1546, illustrates our long fascination with immortality.

The “Fountain of Youth” in Japan: Onsen
Core Dimensions of Exceptional Longevity

- Genetics and Family Longevity
- Personality
- Environmental support
- Physical and Mental Health
- Health Behaviors
- Activity
Activity and Health Behaviors

Lesson 1
Poor Health Behaviors

- Smoking, poor diet and physical inactivity were the causes of 35% of U.S. deaths in 2000.
The Good News: Smoking Rates Have Declined

Change in smoking rates
Percentage change over the period 1990-2010 or latest available period

U.S.A.
Current smoking percentages by group

Gender
- Men: 24%
- Women: 18%

Education
- Less than High School: 26%
- High School graduate: 25%
- College graduate: 11%
- Post-graduate: 6%

Poverty level
- At/Above: 20%
- Below: 31%
Nutrition: Typical Meals in Three Countries
Nutrition: Typical Meals in Three Countries

American Meal

Japanese Meal

German Meal
Community Connectedness in Japan
Community Connectedness in Sardinia
The Okinawa and Mediterranean Diet

- Eating a plant-based diet (green and yellow vegetables)
- Limiting sugar and grains
- Eating more soy and other legumes
- Using herbs and spices instead of salt to flavor foods
- Enjoying meals with family and friends.
- Caloric restriction: Only eat until you are 80% full: “Hara hachi bume.”
Inactivity
Activity - Exercise

Stairs

Bicycles

More Stairs

Gardening

More Stairs
Activity – Arts and Crafts

Centenarian playing the sanshin

Eisā – originally performed by young people to honor the spirits of their ancestors.

Centenarian poetry book
Benefits of Physical Activity

• Physical health benefits
  • Increases “good” cholesterol
  • Prevents diabetes, high blood pressure, and colon cancer, maintains healthy bones and muscles, joint mobility

• Mental health benefits
  • Reduce distress, anxiety and depression, increases social support, cognitive functioning

• Financial benefits
  • In the United States, increasing physical activity could reduce direct medical costs by $77 billion annually.
  • In the United States, inactive women 45 years and older had at least double the health care costs of their active counterparts
Lesson for Leaders

• Healthy living needs to be encouraged
  • Individual responsibility

• Communities need to support healthy living
  • Healthy communities, age friendly communities, bike-friendly communities

• Focus on three primary health behaviors
  • Smoking
  • Eating
  • Exercise

• Educational programs should focus on life-span behaviors
  • Teach early, teach late...
Physical and Functional Health

Lesson 2
Physical Health

- “Healthy centenarians do not exist...” (Andersen-Ranberg et al., 2001)
- Most common causes of death:
  - Cardiovascular disease
  - Cancer
    - Breast cancer (10.8% GCS – 3.0% TCS)
    - Lung cancer (1.2% GCS – 0.0% TCS)
  - Respiratory diseases (3.3 GCS – 7.7 TCS)
  - Diabetes (8.6% GCS – 4.3% TCS)

- The prevalence of major diseases (except for cardiovascular disease) among centenarians is very low.
Subjective Health Questions

How would you rate your overall health at the present time?

- 21% Excellent
- 49% Good
- 21% Fair
- 9% Poor
Activity and Functional Capacity

![Graph showing activity and functional capacity for different age groups.]

Changes in Activities of Daily Living

Care and Health Behaviors

Skin Protection on a Sunny Day

Universal Health Care

Mouth Protection
Lessons for Leaders

• Maintain Physical and Functional Health (cardiovascular disease, cancer, diabetes, ADL)
  • Individual responsibility

• Communities need to support physical and functional health
  • Healthy communities, age friendly communities, bike-friendly communities, health care

• Focus on three primary areas
  • Activities of daily living
  • Maximize health insurance coverage
  • Maintain high strength levels

• Educational programs should focus on life-span behaviors
Emotional Health

Lesson 3
## Depression or Fatigue?

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sexagenarians</th>
<th>Octogenarians</th>
<th>Centenarians</th>
<th>Variable</th>
<th>n</th>
<th>M (SD)</th>
<th>n</th>
<th>M (SD)</th>
<th>n</th>
<th>M (SD)</th>
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<td></td>
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<td></td>
<td></td>
<td>Dysphoria</td>
<td>88</td>
<td>0.85 (1.64)</td>
<td>86</td>
<td>0.73 (1.43)</td>
<td>131</td>
<td>0.98 (1.37)</td>
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<td>Fatigue (WAV)</td>
<td>84</td>
<td>1.57a (1.70)</td>
<td>84</td>
<td>2.30b (1.17)</td>
<td>128</td>
<td>3.34c (1.47)</td>
<td>32.21***</td>
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<td>Anxiety</td>
<td>88</td>
<td>0.49 (0.86)</td>
<td>90</td>
<td>0.52 (1.00)</td>
<td>134</td>
<td>0.51 (0.92)</td>
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<td>Mental Impairment</td>
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<td>1.46b (1.23)</td>
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<td>1.34a,b (1.15)</td>
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<td>Hopelessness</td>
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<td>0.39a (0.87)</td>
<td>88</td>
<td>0.55a (0.90)</td>
<td>139</td>
<td>1.04b (1.14)</td>
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<td>Summary Score</td>
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<td>11.10a (2.91)</td>
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<td>11.52a (2.59)</td>
<td>117</td>
<td>13.40b (3.58)</td>
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</table>

Note. WAV – Withdrawal-Apathy-Vigor. Means with different superscripts are significantly different from each other. 
*p < .05. **p < .01. ***p < .001.

Emotional Health


**FIGURE 7–4.** Age differences and changes in positive affect in the Georgia Centenarian Study.
Emotional Health

FIGURE 7-2. Profile of neuroticism items among centenarians in Phase III of the Georgia Centenarian Study.

Lessons for Leaders

• Seek positive experiences
  • Individual responsibility

• Communities need to support emotional health
  • Provide meaningful activities for older adults, oldest-old

• Focus on three primary areas
  • Fatigue
  • Positive experiences
  • Usefulness

• Educational programs should focus on oldest-old
Cognitive Health
Cognitive Health, Iowa Centenarian Study

Frequencies of SPMSQ scores at baseline (N = 152)

Individual change in SPMSQ scores across baseline and 4 follow-up assessments occurring during an 8-month period (n = 28)

Lessons for Leaders

• Maintain cognitive health (challenging activities)
  • Individual responsibility

• Communities need to support cognitive health
  • Involve oldest old adults in community activities

• Focus on three primary areas
  • Activity
  • Memory training
  • Challenges

• Educational programs should focus cognitive training
Environmental Support

Question 5
Social Support: “There are people I can depend on to help me, if I really need it”
Community Connectedness

- Family support is important – More social support is related to better health, memory functioning, and longer life.

Spending Time Together
Helping Each Other
Sharing Emotions and Feelings
Town Square Festivals
Social Support

Picnic during cherry-blossom season

Meeting at the Market
Lessons for Leaders

• Maintain social engagement
  • Individual responsibility

• Communities need to provide social engagement opportunities for old and very old adults

• Focus on three primary areas
  • Association (time spent)
  • Affect (quality time)
  • Assistance (help)

• Educational programs should be social engagement opportunities
Personality and Resilience

Question 6
Robust, Resilient Personality

Adapted centenarians are
• not likely to worry
• extraverted
• open to new experiences
• quite agreeable
• conscientious individuals

Big-5
Personality

Lessons for Leaders

• Maintain resilience
  • Individual responsibility

• Communities need to support resilience

• Focus on three primary areas
  • Relax
  • Be conscientious
  • Accept

• Educational programs can teach resilience
Implications for Gerontology Education

• Degree Programs at Iowa State University
  • Undergraduate Minor
  • Graduate Minor
  • Gerontology Certificate Program (online)
  • Master’s Degree in Gerontology (online)
  • Master’s Degree in Gerontology (on campus)
  • Doctoral Degree in Gerontology (on campus)
Curriculum

Core Courses

• **Geron 530**: Perspectives in Gerontology
• **Geron 534**: Adult Development
• **Geron 540**: Nutrition and Physical Activity in Aging
• **Geron 545**: Economics, Public Policy and Aging
• **Geron 563**: Environments and Aging
• **Geron 577**: Aging in the Family
• **Geron 584**: Program Evaluation and Research Methods
• **Geron 594**: Professional Seminar in Gerontology

• **12 credits of electives**: Elective courses are offered in areas such as biological aspects of aging, gender and aging, spirituality, creativity, cognitive aging, sexuality, mental health and aging, long-term care, gerontechnology, and contemporary concepts in design.
Summary

• Longevity is the Social Revolution of the 21st Century

• Core Dimensions of Healthy Longevity
  • Health behaviors
  • Physical and functional health
  • Mental health and emotions
  • Cognitive health
  • Social engagement
  • Resilience

• Individual Responsibility

• Community Responsibility

• Educational Responsibility
Age is a quality of mind
If you have left your dreams behind,
If hope is lost
If you no longer look ahead
If ambitions fires are dead –
Then you are old