The Study of Adult Development

Robert J Waldinger, M.D.
Brigham and Women’s Hospital
Harvard Medical School
The Study of Adult Development

1941

Age 19

1969

Age 47

2004

Age 82
4 generations of researchers

1937-1953  Arlie Bock, M.D. and Clark Heath, M.D.

1953-1972  Charles MacArthur, Ph.D.

1972-  George Vaillant, M.D.

2002-  Robert Waldinger, M.D.
268 Harvard Sophomores
What can these lives tell us?

1. How important are our childhoods in predicting how we age?
2. Is the die cast by mid-life, or can we still affect how we get old?
3. Who retires, who enjoys it, and why?
4. Is life basically all downhill from here?

- Close Relationships
- Enjoyment of life
How We Collected Data

**In adolescence at UHS:**
- Medical and psychiatric exams
- Interviews with undergrads and parents

**Over the next 68 years:**
- Questionnaires every 2 years
- Medical records every 5 years
- Interviews every 10 years
What’s Been Studied

• Mental health
• Physical health
• World War II experiences
• Work
• Relationships
• Aging and retirement
What’s so important about longitudinal research?
How much do childhood factors determine how we age?

Early life factors we can’t control?

– Ancestral longevity
– Parental social class
– Childhood environment
– Childhood temperament
Childhood factors do not predict much about life at age 70-80

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Is the die cast by midlife, or can we still affect how we get old?

“What fits your busy schedule better, exercising one hour a day or being dead 24 hours a day?”
## Factors in midlife that predict how we age

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- **Physical Health**: ↓↓ (Age 50), ↓ (Age 70-80)
- **Length of Active Life**: ↓↓ (Age 50), ↓ (Age 70-80)
- **Life Satisfaction**: O (Age 50, 70-80)
- **Mental Health**: ↓↓ (Age 50), ↓↓ (Age 70-80)

The table indicates how various factors predict physical health, length of active life, life satisfaction, and mental health at different ages.
Alcohol and Smoking

- Clean living: 64%
- Alcoholism: 36%
- Heavy smoking: 24%
- Alcoholism + heavy smoking: 8%

% of men with no disability by age 75-80
Education and longevity

% of cohort dead or disabled

- College men (N=237)
- Core-city college grads (N=25)
- Core-city men (N = 332)

Age 50 | Age 55 | Age 60 | Age 65 | Age 70 | Age 75

0% | 5% | 10% | 15% | 20% | 25%

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Who retires, who enjoys it, and why?

- Retirement is over-rated as a problem
- 5% retired prior to age 60, most due to ill health
- 50% still worked full-time at age 65
- By age 75, only 1/12 men had not retired
- The men who liked working the most at age 60 liked retirement the most at age 75
4 ingredients of happy retirements

1. Replace work mates with other social networks
2. Rediscover how to play
3. Engage in creative endeavors
4. Learn new things
Is it all downhill from here?

"Remember the twenty extra years you added to your life through clean, healthy living? - Well, these are them."
What happens to intimate relationships?

“I love being married. It’s so great to find that one special person you want to annoy for the rest of your life.”

- Rita Rudner

“If variety is the spice of life, marriage is that big can of leftover Spam.”

- Johnny Carson
Marriage across the lifespan
The awareness that life is short makes us happier

When we sense that time is limited, emotional well-being becomes a priority

We get choosier about how and with whom we spend our time

We reconstruct our autobiographical memories more positively

We pay attention to the positive more than the negative
Remembering the positive
“Discover new vistas, explore the unknown”
“Capture those special moments in life”
Can brains that focus more on the positive get us into trouble?
At age 87, 110 Study members (41%) are still living
Cognitive health age 80-85

- Intact: 82%
- Alzheimer's: 11%
- Vascular Dementia: 6%
Physical health among those who live to age 87

- No disability: 50%
- Moderate disability living independently: 39%
- Wheelchair and/or nursing home: 11%
Very few dropouts

Lunch May 2005
Linking psychology and biology

- Genetics – DNA
- Neuropsychological testing
- Neuroimaging
  - Structural
  - Functional
- Brain donation
2\textsuperscript{nd} Generation

- Harvard Men
  - 837 Children

- Inner City Men
  - 1261 Children
What happens to sex?

“And do you, Rebecca, promise to make love only to Richard, month after month, year after year, and decade after decade, until one of you is dead?”
One of longest longitudinal studies of adult life ever done

Then colleagues can tell you about some of the newer developments in understanding the process of aging
In 1937, 2 physicians at UHS had Radical idea to study “the best and the brightest” Over 4 years (1939-1942), 268 Harvard College sophomores considered by deans to be mentally and physically most sound and promising, selected to participate in study.

Not exclusively from privileged backgrounds
Adolescents during the Depression
In 1940, one father in 7 made less than $2500 per year
Half were on scholarship at Harvard or had to work during school to pay tuition

Most served in WW II – 6 were killed

CLICK: Went on to become businessmen, writers, newspaper editors, doctors, lawyers, actors, alcoholics, schizophrenics

By age 65, mortality rate only ½ that of white males in their birth cohort
CLICK: 50% have lived into their 80s—higher than YALE
1937 - - Clark Heath and Arlie Bock –physicians at HUHS envisioned studying health

They would not have dreamed that the Study would continue for almost 70 years

Most longitudinal studies never continue beyond 10 years, and this is nearly always because of dropouts.

In this sample, only 16% dropped out over 68 years – less than ¼% per year
The Study has survived against all odds due to:
Vision, creativity, and doggedness of previous Study directors

Luck – funding from Grant Foundation, NIMH
****Dedication of the men who have stayed with this study their entire adult lives
Politically incorrect sample:
   Men
   WASPs
   One historical cohort
Not representative of the general pop
But for us, the paths they’ve taken may have more relevance
What can these lives tell us?

1. How important are our childhoods in predicting how we age?
2. Is the die cast by mid-life, or can we still affect how we get old?
3. Who retires, who enjoys it, and why?
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   - Close Relationships
   - Enjoyment of life
How We Collected Data

In adolescence at UHS:
• Medical and psychiatric exams
• Interviews with undergrads and parents

Over the next 68 years:
• Questionnaires every 2 years
• Medical records every 5 years
• Interviews every 10 years

Detailed descriptions of childhoods, parents, relationships with family and peers
What’s Been Studied

- Mental health
- Physical health
- World War II experiences
- Work
- Relationships
- Aging and retirement

Hundreds of publications

CONFIDENTIALITY
What’s so important about longitudinal research?

Most of what we know about the human life cycle is based on retrospective studies.
In hindsight, easy to see “causal” factors.
Memory is unreliable, and at times, highly creative.
Mark Twain: “Some of the worst things in my life never happened.”
AN example: common assumption that alcoholism results from an unhappy childhood.
Based on retrospective evidence. After the fact, clinicians and alcoholics blame the past.
But looking prospectively, men who became alcoholics had childhoods that did not differ from social drinkers
How much do childhood factors determine how we age?

Early life factors we can’t control?
  – Ancestral longevity
  – Parental social class
  – Childhood environment
  – Childhood temperament

Best thing about studying lives is that you can be surprised at how they turn out and what matters

Common assumptions about what fosters long and healthy life
# Childhood factors do not predict much about life at age 70-80

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It’s not all about your childhood

Ancestral longevity – not very important

**Basic trend is that early life factors become less influential as we age:**

**As an example, let’s talk about the warmth of one’s childhood:**

**Physical health**, When the men were middle aged, childhood environment was linked with men’s physical health.

--- bleak childhoods associated with middle-aged diabetes, hypertension, heart disease

By age 75, weak link between quality of childhood and objective physical health

**Social adjustment/life satisfaction**: Loved children had much better college adjustments than those from cold homes

By early midlife, warmth of childhood was still important to social adjustment, but by old age the warmth of childhood was statistically unimportant to social adjustment.

**Childhood environment does remain important to mental health**

Of the 56 men with warmest childhoods, only 4 ever got depressed

- The men with bleak childhoods were 3 times as likely to die of unnatural causes – suicides, accidents, smoking or alcohol related illnesses)

- Bleak childhoods were associated with fewer friends and social supports at age 70.
So if childhood factors wane in importance as we age, what does predict healthy aging?

Are there things we can do now to promote healthy aging?
Factors in midlife that predict how we age

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Alcohol and smoking take a huge toll on health.

Bottom line: Much more is under our control than we often imagine.

Choices we make now may be more important than childhood factors or how long our parents and grandparents lived.
Education is protective

Comparing here the inner city men with the Harvard men

Inner City men die 10 years earlier

This difference largely erased by education
Who retires, who enjoys it, and why?

• Retirement is over-rated as a problem
• 5% retired prior to age 60, most due to ill health
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• By age 75, only 1/12 men had not retired
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4 ingredients of happy retirements

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2. Rediscover how to play
3. Engage in creative endeavors
4. Learn new things

1. “Taking care of my grandchildren and editing the Gray Panthers newsletter take up much of my day.”
2. “The play-reading group and bridge are my great passions.”
3. “I’ve given up medicine and taken up painting.”
4. “The course on contemporary music made me realize why people like Bartok and Debussy wanted to push the envelope.”

Happy retiree:

“Perhaps it is not so important to add up what we are doing as what we are being. I am doing nothing that people can admire, that is, I have no consuming project or single charity that people can point out to illustrate how focused or wonderful I am. I am not accumulating wealth or possessions. What I am doing is probably pretty insignificant. I help cook meals for a city soup kitchen and have volunteered in a local elementary school. I care for my house and yard, walk a good deal, and do some swimming.”

The happiest retirees among our group are active in constructing lives that include people, play, creativity, and learning.
Is it all downhill from here?

Common assumption that aging = nothing but decline

2 topics here –relationships, and satisfaction with life

Over past 5 years, we’ve been studying couples –
What happens to intimate relationships?

“I love being married. It’s so great to find that one special person you want to annoy for the rest of your life.”
- Rita Rudner

“If variety is the spice of life, marriage is that big can of leftover Spam.”
- Johnny Carson

Stereotypes of long marriages
Satisfaction was, on the whole, very high. In part due to survival of happy marriages. But this is corroborated in other research. Sexual relationships still important.
Graph shows good news
Marriage keeps us healthier as we grow older
  Objectively
Gender differences?
Happy marriage buffers us from the worst effects of
pain and disability on mood

DO YOU HAVE TO BE MARRIED?
Social supports are powerful health promoters
Friends, social groups, volunteering – engagement
with others is the key. Study published just this week
from HSPH showing social engagement delays decline
in memory.
Conversely, loneliness puts us at risk for heart
disease, diabetes, dementia, and depression
The awareness that life is short makes us happier

When we sense that time is limited, emotional well-being becomes a priority

- We get choosier about how and with whom we spend our time
- We reconstruct our autobiographical memories more positively
- We pay attention to the positive more than the negative

1. Humans are the only animals that have a sense of the passing of time
2. Awareness of limited time would seem to make us unhappy, but it’s just the opposite.
3. SLIDE points
4. Positive emotional experience prioritized over acquiring new skills or resolving conflicts
5. Occurs not just in old age, but among those with terminal illnesses
Remembering the positive

Memory bias toward emotionally positive information

Our brains function differently in response to emotionally valenced information as we get older
“Discover new vistas, explore the unknown”
“Capture those special moments in life”

Emotional tone with which info is presented is important as we get older

2 identical ads for a camera with different tag lines

Different preferences

Difference eliminated if tell older people to imagine they’ll live 20 healthy years longer than expect
Can brains that focus more on the positive get us into trouble?

New field of neuro-economics of aging

Show, for example, that in reviewing information on health plans with varied features, older people remember the strengths and youngers remember the drawbacks of each plan.

Means that regardless of our intelligence, we may be more inclined to ignore the negative and could be more susceptible to scams.
At age 87, 110 Study members (41%) are still living

If you live long, do you lose your mind and your health?
Cognitive health age 80-85

- Intact: 82%
- Alzheimers: 11%
- Vascular Dementia: 6%
Physical health among those who live to age 87

No disability 50%

Moderate disability living independently 39%

Wheelchair and/or nursing home 11%
So where does that leave us? Isn’t this too rosy a picture? Bette Davis was right: “Old age isn’t for sissies.” The physical disabilities, mental decline, loss of loved ones—all are real, and to some extent, depend on luck. Yet for many of the men in our Study, who are just 3 decades farther down this path than we are, aging has not conformed to their stereotypes of what it means to get old.

One Study member expressed his surprise like this: “Contrary to all expectations, I seem to grow happier as I grow older. I think that America has been sold on the theory that youth is marvelous, but old age is a terror. On the contrary, it’s taken me sixty years to learn how to live reasonably well, to do my work, and cope with my inadequacies... Old age is knowing what I’m doing, the respect of others, ... and the realization that what I can’t beat I can endure”

Gerontologists will tell you that we baby boomers don’t believe we are going to get old, so we’re not planning for our own aging. Much of this head-in-the-sand posture has to do with fear.

What these fellow alums have shown us is that, yes, there are things to worry about, but that there’s more to look forward to in growing older than many of us imagine.
Very few dropouts

Lunch May 2005
Linking psychology and biology

- Genetics – DNA
- Neuropsychological testing
- Neuroimaging
  - Structural
  - Functional
- Brain donation

NOW – opportunity for new assessments
Visit homes for 1-2 hour protocol
Ask them to consider coming in for imaging brain donation

HOPE TO DO 80 IN-HOME VISITS IN EACH COHORT
SMALLER NUMBERS FOR IMAGING, BRAIN DONATION
2nd Generation

- Harvard Men – 837 Children
- Inner City Men – 1261 Children

Can’t visit everyone, but possibilities include:
- Internet
- DNA by mail
- Telephone interviews
- More intensive studies of subsamples
Sexual activity continues among octogenarians, even after 65 years

(horror of interviewers)