Phatra

The Economics of Healthcare and Aging

Supavud Saicheua

30 January 2020

A member of the
Kiatnakin Phatra Financial Group

What Economists know about happiness 2

DO HUMANS SUFFER A PSYCHOLOGICAL LOW IN MIDLIFE? TWO APPROACHES (WITH AND WITHOUT CONTROLS) IN SEVEN DATA SETS.

David G. Blanchflower
Andrew Oswald

Working Paper 23724
http://www.nber.org/papers/w23724

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
August 2017

7 data sets covering 51 countries; 1.3mn randomly sampled people, assessing psychological well-being from 20 to age 90. Using 2 methods – descriptive vs regression analysis. Results:

Descriptive: Evidence of midlife low in 5 of 7 data sets

Regression: all 7 data sets produce evidence of a midlife low.

The scientific explanation for the U-shape currently remains unknown.

The mid-life crisis is real, study suggests, as economist pinpoints age of peak misery as 47.2

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Baldness is a common feature of middle age CREDIT: IA_64 /GETTY IMAGES CONTRIBUTOR

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By Gabriella Swerling, SOCIAL AFFAIRS EDITOR
13 JANUARY 2020 • 9:10PM

It is an age often marked by baldness, breakups and babies becoming grownups.

Yet experts believe that the dread and misery associated with middle age could all be down to genetics.

An academic study led by a former Bank of England economist has pinpointed the precise age of peak unhappiness in the developed world as 47.2 years old.

U-shaped curve for happiness

Figure 1. Life Satisfaction Polynomial in Understanding Society ONS Data (United Kingdom; 416,000 observations). Years 2011-2015.

Figure 2. Life Satisfaction Polynomial in BRFSS Data (USA; 427,000 observations). Year 2010.

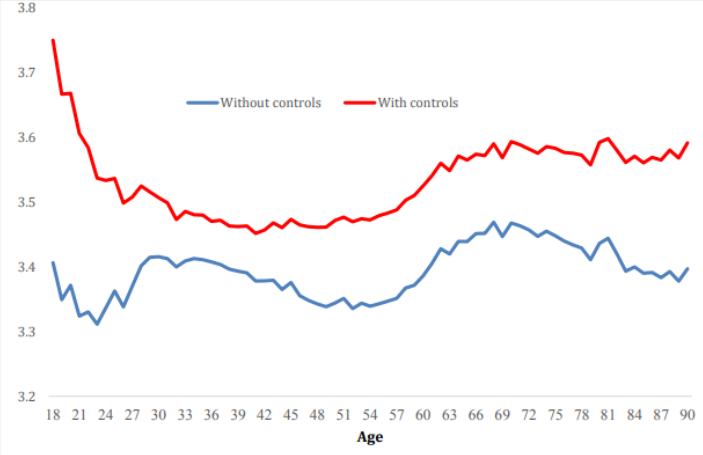


Figure 3. Life Satisfaction Polynomial in Eurobarometer Data (36 nations; 32,000 observations). Year 2016.

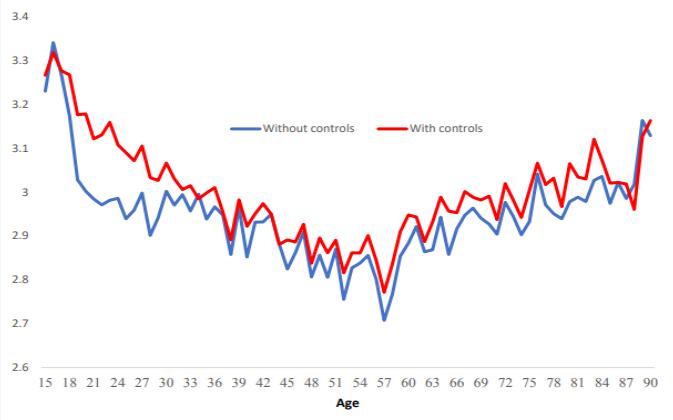
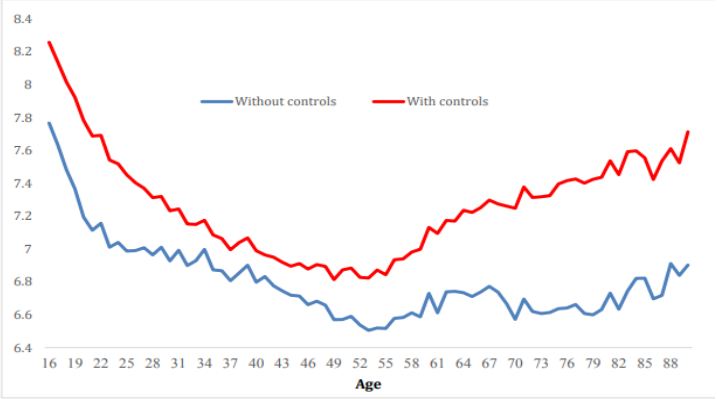
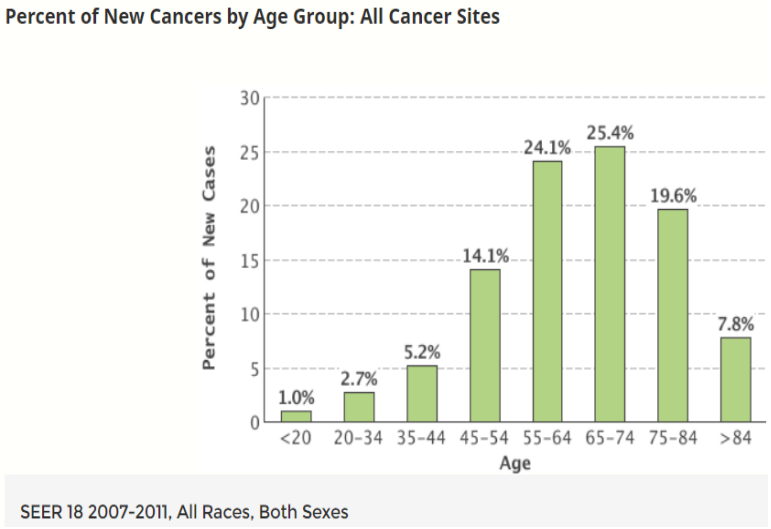


Figure 4. Life Satisfaction Polynomial in ESS Data (32 European nations; 316,000 observations). Years 2002-2014.

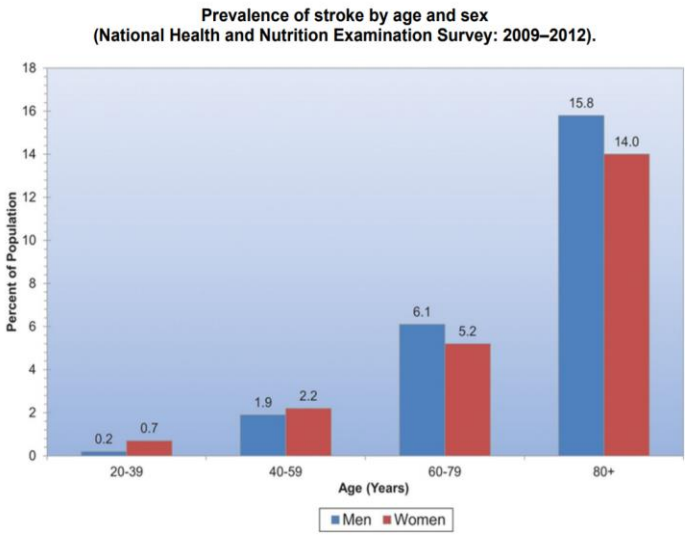


Source: NBER Working Paper 23724 August 2017

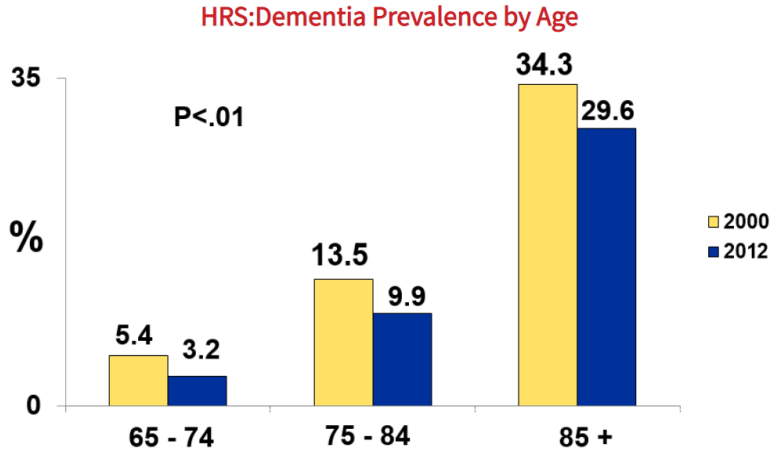
Older, happier, but disease-prone



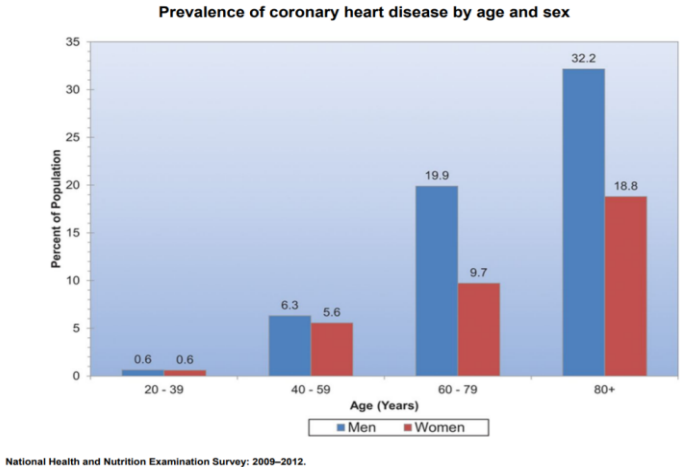
Source: National Cancer Institute 2015



Source: American Heart Association



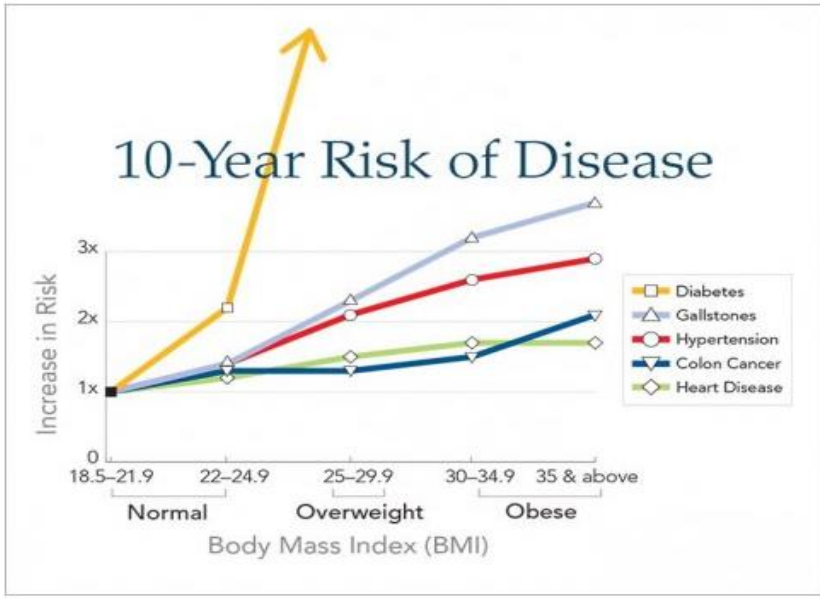
Source: National Institute on Aging 2017



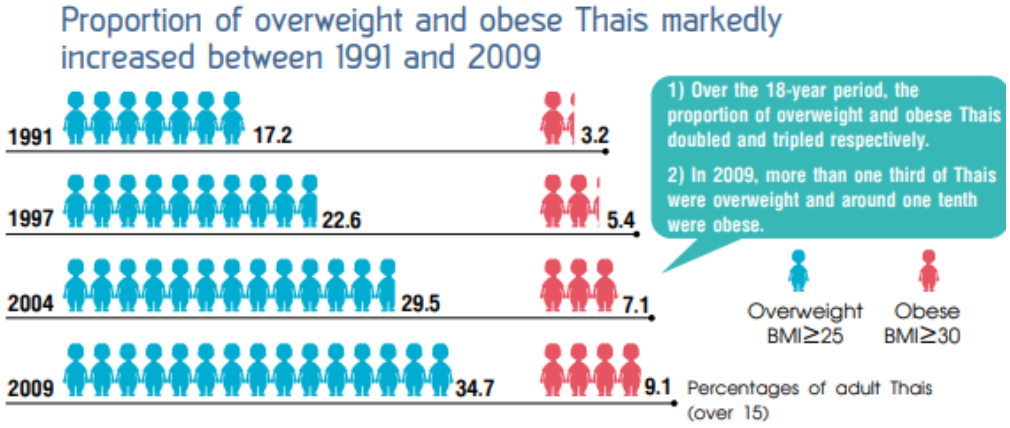
Source: American Heart Association

Obesity adds to the risks…

- WHO 1997: “Obesity a Global Epidemic” affecting 650mn
- In Thailand **6mn** are obese
- Obesity in Thailand rose 3X during 1991-2009



- Obesity+high blood pressure raise risk of heart disease 2.5X
- Obesity triggers vascular dementia.
- Obesity increases the risk of 10 cancers



Source: National Health Survey Office. Health Signs Newsletter, January 2011, quoting data from the report of the 4th National Health Examination Survey (2008-2009)

US spends 17.5% of GDP on healthcare…

US health care spending: goods and services, public health activities, govt administration, net cost of health insurance, and investment related to health care based on 2014 data (most recent available):

- $3trn 17.5% of GDP. Projected to rise to 19.6% of GDP in 2024.
- US federal, state and local govts projected to finance 47% of national health spending by 2024 (from 43% in 2013).
- Private health insurance: $991bn; 33% of total national health spending (NHS).
- Out of pocket spending $329.8bn, 11% of total NHE.

- In 2014, per person healthcare spending was $9,523.
- In 2010; per 65+ was $18,424, 5X per child ($3,628); 3X per worker ($6,125).
- Health spending projected to rise 1.1% faster than GDP.

Longevity extended by curing Communicable Diseases

US White Women: Life expectancy for various age groups

Source: Infoplease.com

	At birth	30yrs old	60yrs old	80yrs old
1850	40.5	35.4	17.0	6.4
1900-02	51.08	36.42	15.23	5.5
1949-51	72.03	45.0	18.64	6.59
2000	80.0	50.9	23.2	9.1
2011	81.1	52.0	24.5	9.7

UK: life Expectancy, years in good and poor health

Source: UK Office for National Statistics, FT 12 Dec 2019

But years spent in poor health on the rise

	2000-02	2009-11	2016-18
Males			
• Life expectancy at birth	76.0	78.5	79.1
• Years in good health	60.6	62.7	63.1
• Years in poor health	15.4	15.8	16.2
Females			
• Life expectancy at birth	80.6	82.4	83.0
• Years in good health	62.5	63.8	63.6
• Years in poor health	18.1	18.6	19.4

The Economics of Healthcare

- Externalities, uncertainties, asymmetric information
- Free market cannot deliver efficient and equitable solutions – need intervention
- Not just consumers and producers – government, health insurance companies – plus political sensitivities

But are the underlying assumptions of 20th century healthcare and economics of healthcare valid?

Healthcare: externalities, uncertainty, asymmetric information

- Externalities: good health is a social "good" that will be underproduced under free market conditions.
- Communicable diseases – SARS, MERS, Corona Virus. Need states to develop vaccines.
- Contracting disease is an uncertainty → health insurance.
- Risk averse individuals can "sell bads" by paying insurance companies that pool risk.
- But asymmetric information – adverse selection and moral hazard – can cause market failure

Implications of Asymmetric Information

- Moral hazard: people with health insurance will overuse services and be less careful with their health
- Adverse selection: young healthy people will not want to pool their risks; sick people will demand health insurance and cause cost to rise
- Consumers (patients) don't know what they need. Doctors (suppliers) could overprescribe treatment
- Need government to regulate quality. But this could lead to reduced supply (monopoly) and raise costs.

But the fundamental assumption that healthcare is about coping with uncertainty of contracting disease could be false…

Sickness and Death from SARS, MERS, Wuhan Virus

- SARS infected >8,000 and killed 774 around the world in Nov 2002 to July 2003
- MERS killed >700 people since 2012.
- Wuhan Corona Virus: 1,300 infected; 41 died. So far

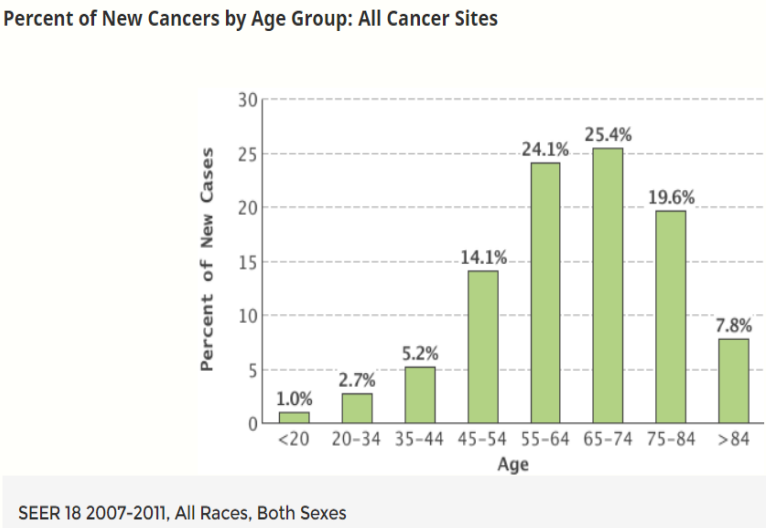
Even if Wuhan kills 700, total of all 3 virus: 2,200

Incidence and death toll from "hyperglycemia"

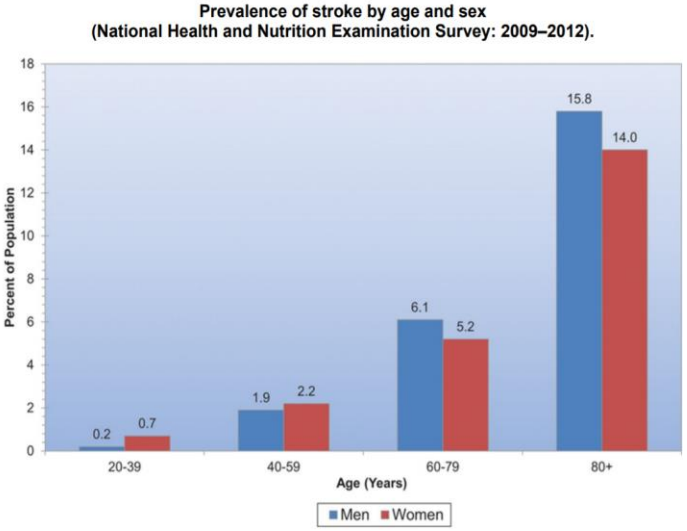
- WHO: "number of people (infected) has risen from 108mn in 1980 to 422mn in 2014. Global prevalence among adults has risen from 4.7% in 1980 to 8.5% in 2014.
- In 2016, this disease directly caused 1.6mn deaths and indirectly, 2.2mn deaths. It is 7th leading cause of death.
- Nearly 10% fatality similar to SARS… but 1,700X more deaths.
- >4.2mn "infected" in Thailand in 2017. 8.3% prevalence among Thai adults

Hyperglycemia is raised blood sugar, a common effect of diabetes

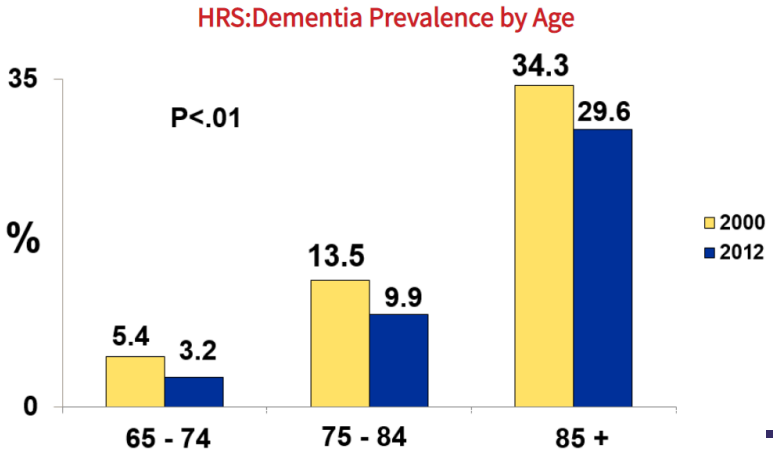
NCDs is not an uncertainty (for the elderly and the obese)



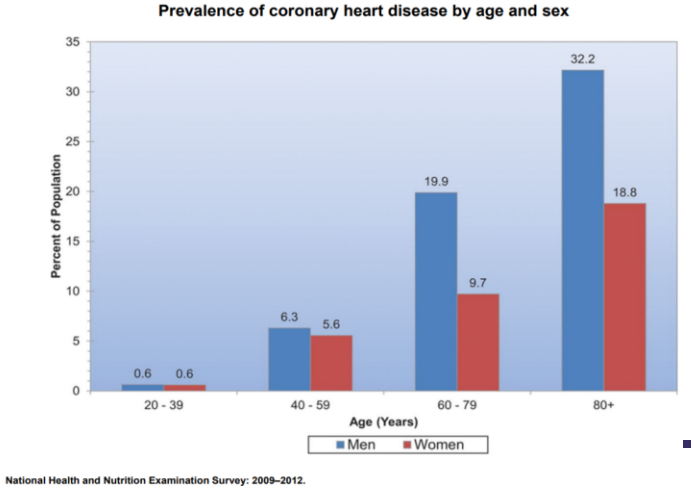
Source: National Cancer Institute 2015



Source: American Heart Association



Source: National Institute on Aging 2017



Source: American Heart Association

Aging rapidly in Thailand

- 60+ about 12.6mn in 2020 → 20.5mn in 2040
- 70+ about 5.37mn in 2020 → 11.56mn in 2040
- Rising healthcare needs along with political clout

Table 1.1 Number and percentage of the elderly, by age group (aged 60-69, 70-79, and over 80), gender, and area of residence during 2010 – 2040

Year	2010		2020		2030		2040	
	Number (thousand)	%	Number (thousand)	%	Number (thousand)	%	Number (thousand)	%
Total	8,408.0	100.0	12,621.7	100.0	17,578.9	100.0	20,519.4	100.0
Early-elderly (aged 60-69)	4,629.7	55.1	7,255.6	57.5	9,260.4	52.7	8,958.5	43.7
Mid-elderly (aged 70-79)	2,708.1	32.2	3,676.6	29.1	5,897.9	33.6	7,639.4	37.2
Late-elderly (aged 80 and over)	1,070.2	12.7	1,689.5	13.4	2,420.6	13.8	3,921.4	19.1
Male	3,776.2	44.9	5,624.3	44.6	7,739.6	44.0	8,874.3	43.2
Female	4,631.7	55.1	6,997.4	55.4	9,839.4	56.0	11,645.1	56.8
Urban	3,333.9	39.7	6,283.9	49.8	10,422.2	59.3	11,586.0	59.8
Rural	5,074.1	60.3	6,337.8	50.2	7,156.8	40.7	7,774.6	40.2

Source: Population Projections for Thailand, 2010-2040, Office of the National Economic and Social Development Board

ผู้สูงอายุสุรินทร์ ร้อง 'ประยุทธ์' ขึ้นเบี้ยผู้สูงอายุ 3 พัน/เดือน ระบุ 600 ไม่พอต่อดำรงชีวิตอย่างมีศักดิ์ศรี

ประชาไท / ข่าว

Submitted on Wed, 2019-11-06 18:19

สุทธิพงษ์ พูนกล้า รายงาน

กลุ่มผู้สูงวัยเพื่อรัฐสวัสดิการจังหวัดสุรินทร์ ร้อง 'ประยุทธ์' เพิ่มเบี้ยผู้สูงอายุ เดือนละ 3,000 บาท ผ่านผู้ว่าฯ ระบุเดือนละ 600 บาท ซึ่งก็เท่ากับวันละ 20 บาท ไม่เพียงพอต่อดำรงชีวิตอย่างมีศักดิ์ศรี

กลุ่มผู้สูงอายุวัยเพื่อรัฐสวัสดิการ-สุรินทร์ ณ ศาลากลางจังหวัดสุรินทร์ 06/11/62

Elderly healthcare: Central Govt. pays for >90%

ตารางที่ 4.2 จำนวนผู้สูงอายุ จำแนกตามสวัสดิการรักษาพยาบาลหลัก ปี พ.ศ. 2548 - 2560

	2548	2549	2550	2556	2558	2560
ประชากรสูงอายุ	6,391,822	6,801,975	7,004,457	9,417,616	10,330,314	11,312,447
ไม่มีสวัสดิการ			172,065	89,673	64,674	85,805
สวัสดิการข้าราชการ/ข้าราชการบำนาญ/รัฐวิสาหกิจ/หน่วยงานอิสระของรัฐ/องค์กรปกครองส่วนท้องถิ่น	1,388,215	1,298,905	1,323,693	1,508,141	1,745,207	1,659,189
บัตรประกันสุขภาพ	4,784,035	5,297,033	5,390,293	7,665,862	8,383,725	9,325,752
สวัสดิการจัดโดยนายจ้าง	3,900	14,365	823	10,409	8,159	3,574
ประกันสังคม/กองทุนเงินทดแทน	68,582	61,986	66,928	167,032	201,608	178,783
ประกันสุขภาพกับบริษัทประกัน	85,803	87,799	19,277	249,891	515,069	31,663
อื่น ๆ	61,287	41,887	31,380	51,041	106,650	22,655
ไม่ทราบ				15,797	6,413	5,026

ที่มา : การสำรวจอนามัยและสวัสดิการ พ.ศ. 2548 2549 2550 2556 และ 2558 สำนักงานสถิติแห่งชาติ
การสำรวจประชากรสูงอายุในประเทศไทย พ.ศ.2560 สำนักงานสถิติแห่งชาติ

The current system cure diseases – not really healthcare

- The “health care” system specializes in curing diseases using specialists with ever rising cost of treatment.
- In Thailand the budget for the “Universal Healthcare Scheme” is Bt191bn
- The “Health Promotion Foundation” receives Bt4bn
- Inevitable and predictable – not an uncertainty -- that NCDs will accelerate.

The "healthcare" burden is likely to be unsustainable...

- In Thailand, the number of elderly will rise from 12mn to 20mn in 20 years
- Obesity in developed countries is about 30% → In Thailand from 6mn to 12mn (20% of total population) in 20 years?
- Possibly, 16mn (1/2 of elderly and obese) in Thailand needing expensive, specialized, continuing medical care in 2040?
- If cost per person is 1/3 that of US, it would be Bt180,000 per person per year → Bt2.9trn
- Suppose Thai GDP doubles to Bt32trn in 2040. If Govt. revenue is 20% of GDP. Total revenue = Bt6.4trn.
- Govt. can probably "afford" a maximum of 20% of budget or about Bt1.3trn; **less than ½ of what could be needed** for nation-wide healthcare.

"Scarce" resources and services can be allocated in 3 main ways:

money, connection and waiting time.

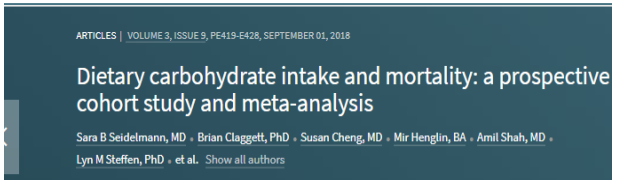
Eat Less: Diet options

- Caloric Restriction
- Keto Diet – see below
- Time Restricted Feeding
- Intermittent Fasting
- Fasting-mimicking diet

"After 25 years of researching aging and having read thousands of scientific papers, if there is one piece of advice I can offer, one surefire way to stay healthy longer, one thing you can do to maximize your lifespan right now, it's this: ***eat less****"*

Dr. David Sinclair "Lifespan: Why We Age – and Why We Don't Have To" (page 89)

THE LANCET
Public Health



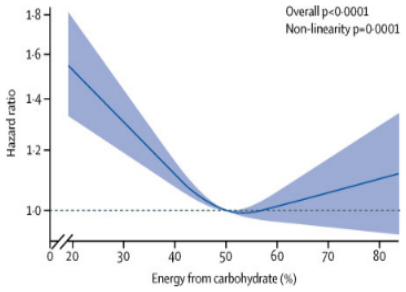


Figure 1 U-shaped association between percentage of energy from carbohydrate and all-cause mortality in the ARIC cohort

ESC
European Society of Cardiology

Low carbohydrate diets are unsafe and should be avoided

28 Aug 2018

Munich, Germany – 28 Aug 2018: Low carbohydrate diets are unsafe and should be avoided, according to a large study presented at ESC Congress 2018. Study author Prof Maciej Banach, of the Medical University of Lodz, Poland, said: "We found that people who consumed a low carbohydrate diet were at **greater risk of premature death**. Risks were also increased for individual causes of death including coronary heart disease, stroke, and cancer. **These diets should be avoided."**

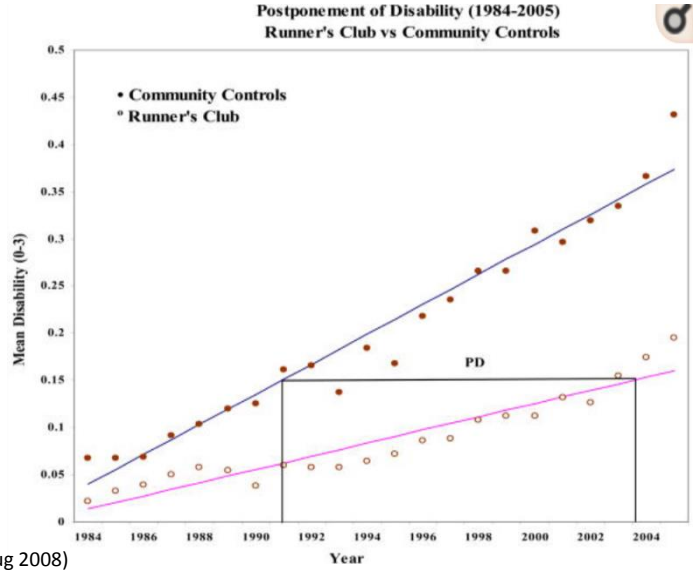
Compressed Morbidity: Runners vs Sedentary

Prof James Fries Study: 538 Runners vs Non-runners tracked 1984-2005

- 34% of non-runners died; 15% of runners died
- 'Runners' initial disability was **16 years later** than nonrunners.
- Running not linked to higher rates of osteoarthritis -- runners did not require more total knee replacements.

"the effect of running on delaying death (was) more dramatic than expected…running slowed cardiovascular deaths … (also) fewer early deaths from cancer, neurological disease, infections and other causes.

	Runners 1984	Control 1984	Runners 2005	Control 2005
Age	58	62	78	80
BMI	22.9	24.4	23.7	24.2
Disability Index	0.029	0.095	0.20	0.43
Running (min/week)	237	15	76.5	1.1
% with zero disability	86.6	61	62.3	46.2



ที่มา: Reduced Disability and Mortality among Aging Runners: a 21-year Longitudinal Study (Arch Intern Med, Aug 2008)

What to do? Lifestyle that gains 12-14 more years

- No Smoking
- Drink no more than 1-2 glass of alcohol per day
- Exercise 30 mins every day
- Eat a healthy diet
- Maintain BMI at 18.5-24.9 (Waist = 0.45 – 0.50 Height)

The proportion of Americans who could adhere to the 5 Rules fell from 15% in 1988-92 to 8% in 2001-6 primarily because of *"rising incidence of obesity"*

Risk of death: lower by 82% for heart disease; 65% for cancer

U.S. ranked 31st in the world for life expectancy in 2015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Abstract

Impact of Healthy Lifestyle Factors on Life Expectancies in the US Population

Yanping Li, An Pan, Dong D. Wang, Xiaoran Liu, Klodian Dhana, Oscar H. Franco, Stephen Kaptoge, Emanuele Di Angelantonio, Meir Stampfer, Walter C. Willett and Frank B. Hu

Originally published 30 Apr 2018 | https://doi.org/10.1161/CIRCULATIONAHA.117.032047 | Circulation. 2018;138:345–355

is corrected by

Abstract

Background:

Americans have a shorter life expectancy compared with residents of almost all other high-income countries. We aim to estimate the impact of lifestyle factors on premature mortality and life expectancy in the US population.