

衰弱、老龄化及其复杂性： 临床和科研机遇

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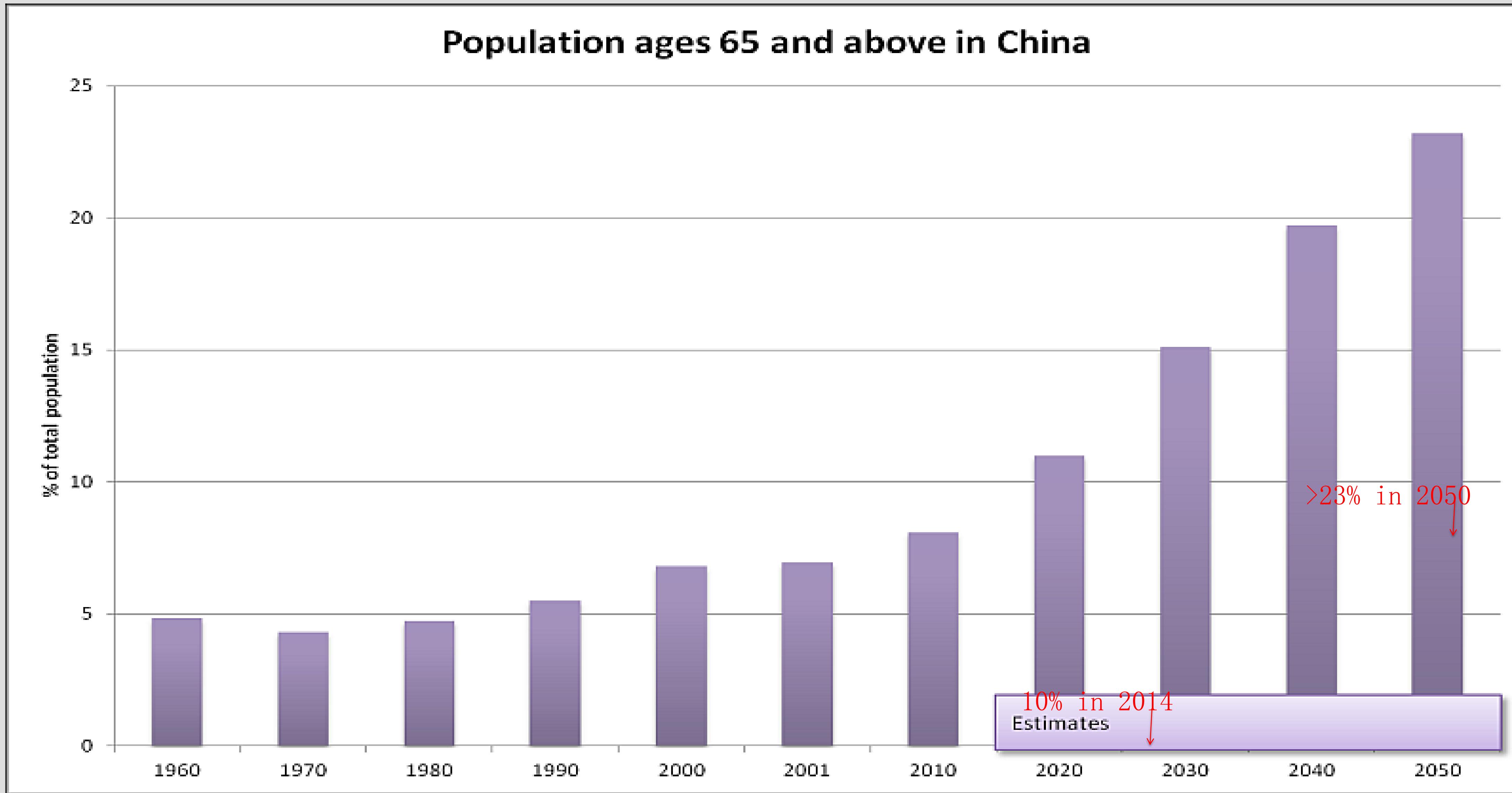
目的

回顾目前关于人口老龄化和衰弱的现状。

探讨衰弱如何影响健康状况的变化。

在全科医学中考虑衰弱的评估。

中国的人口老龄化

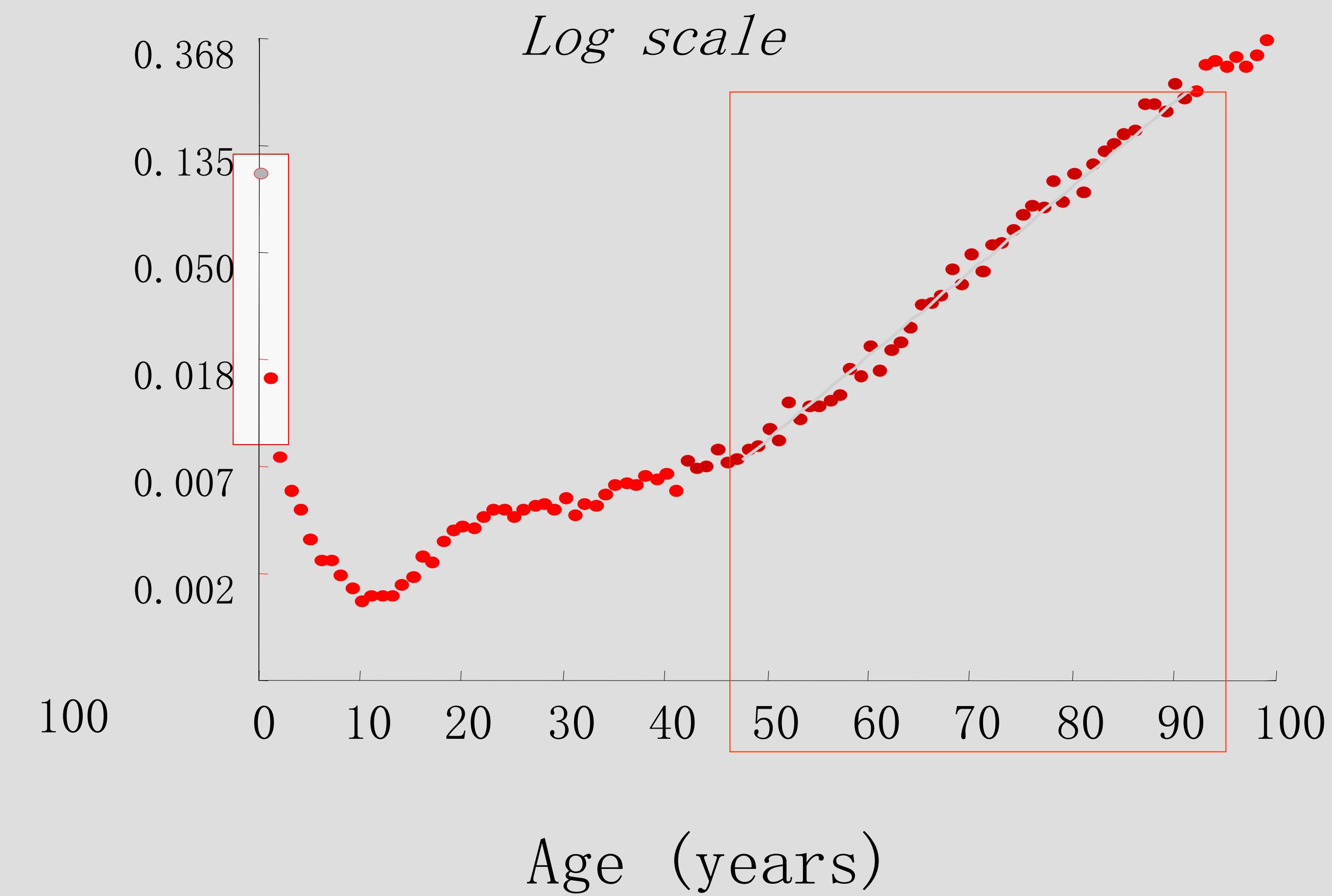


到2050年，中国65岁以上老年人数量将达到3.32亿，超过北美、欧洲以及日本老年人数量的总和。

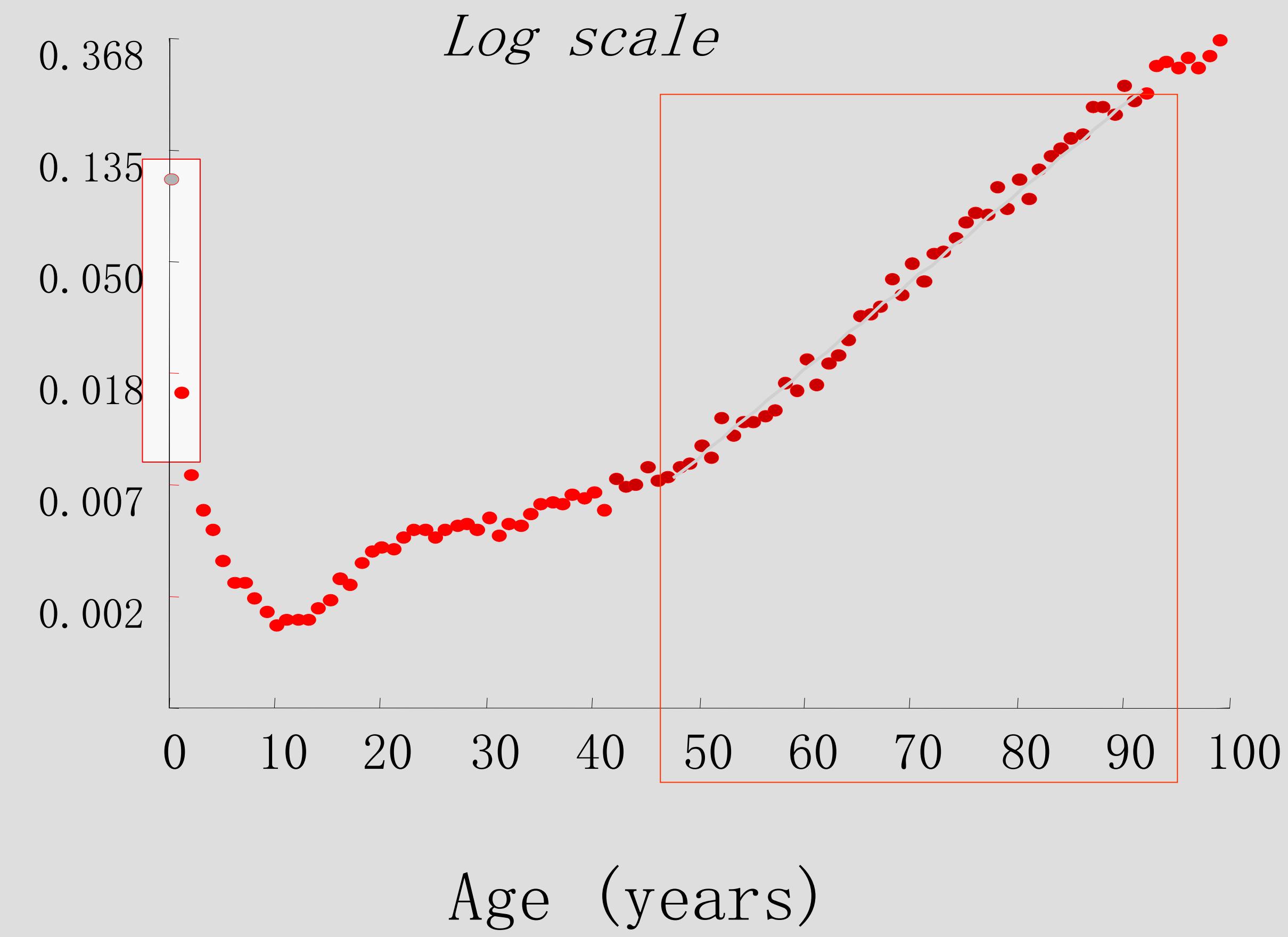
老年不是一个
问题
老年是一个机遇



老年人随年龄增加，死亡的可能性增加



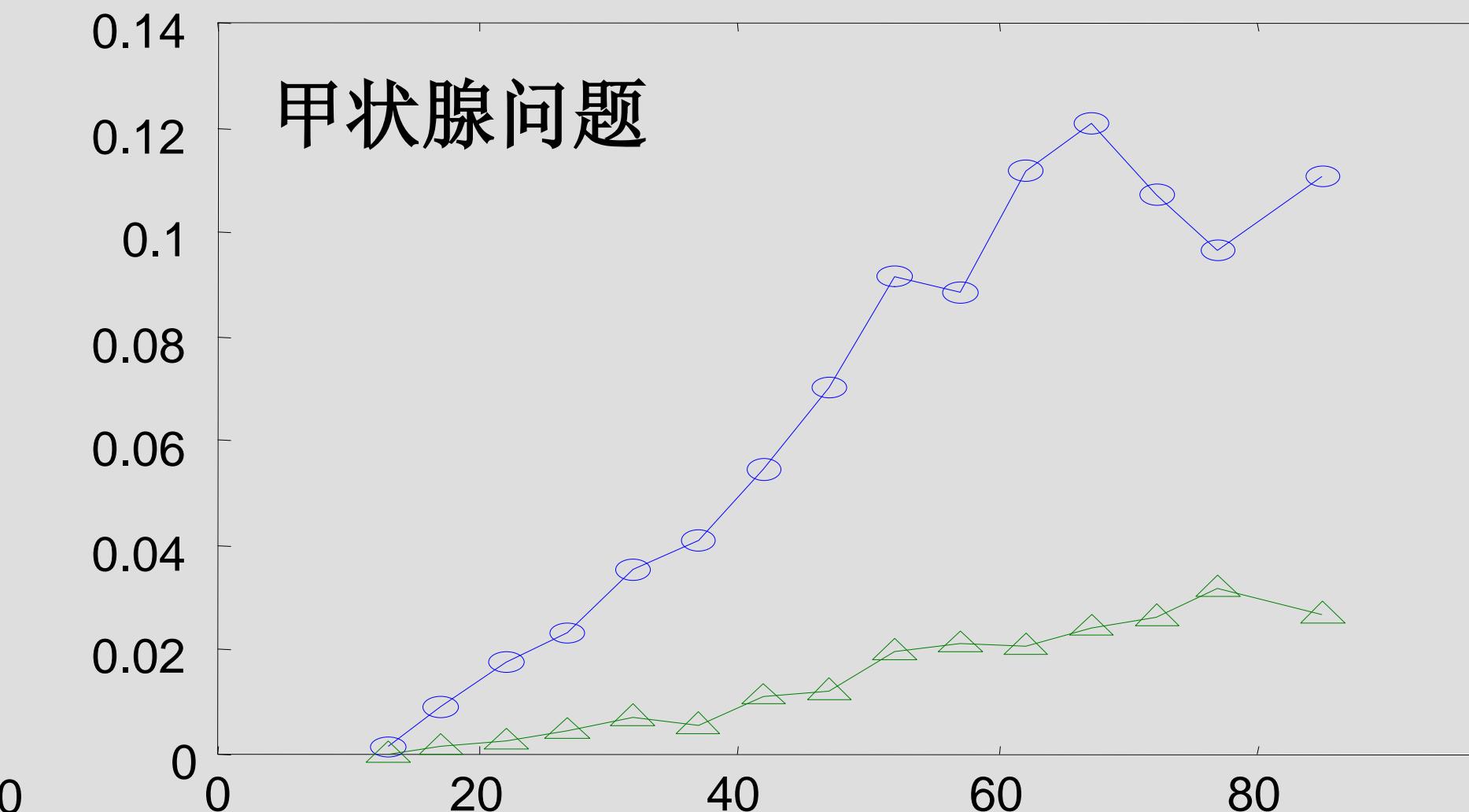
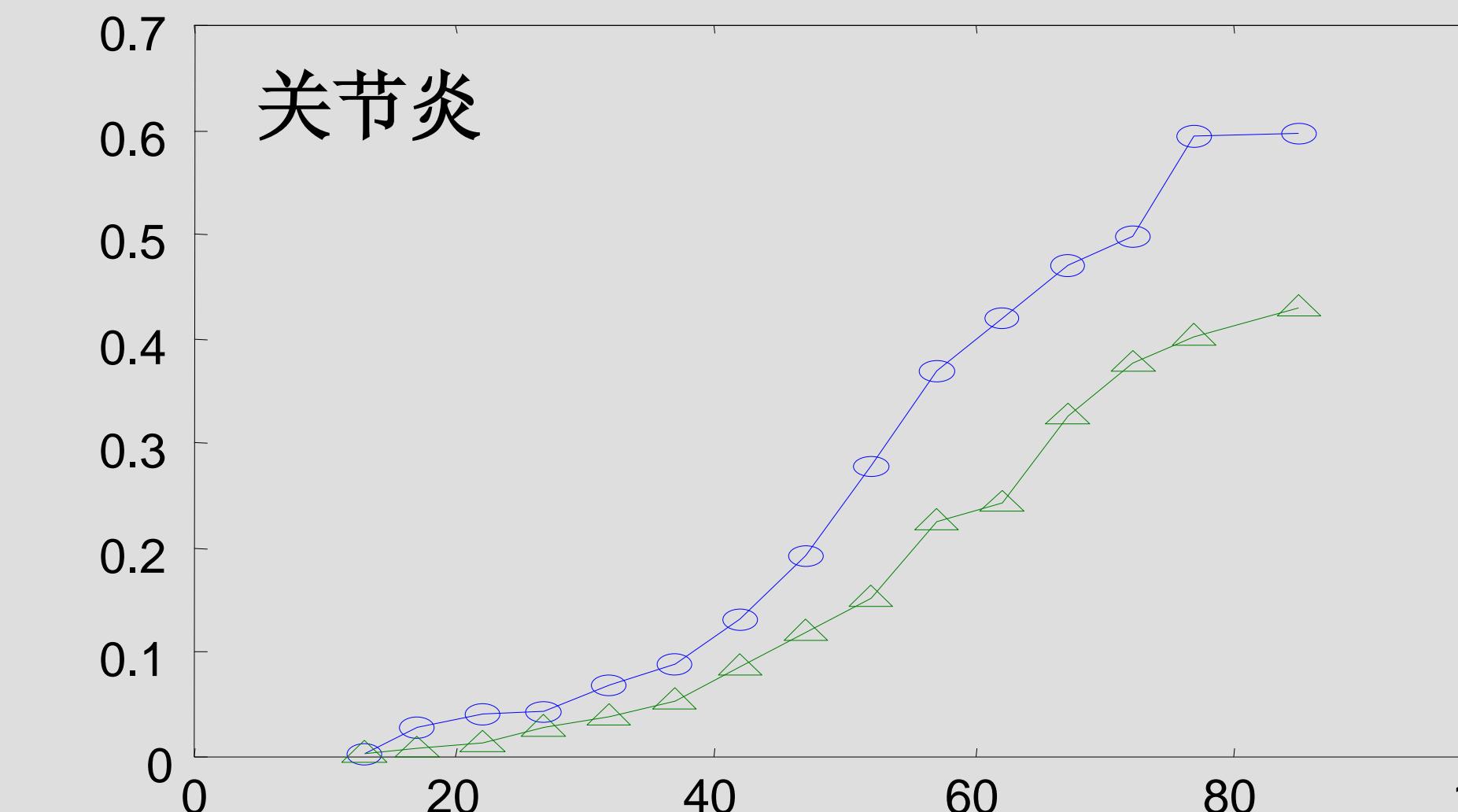
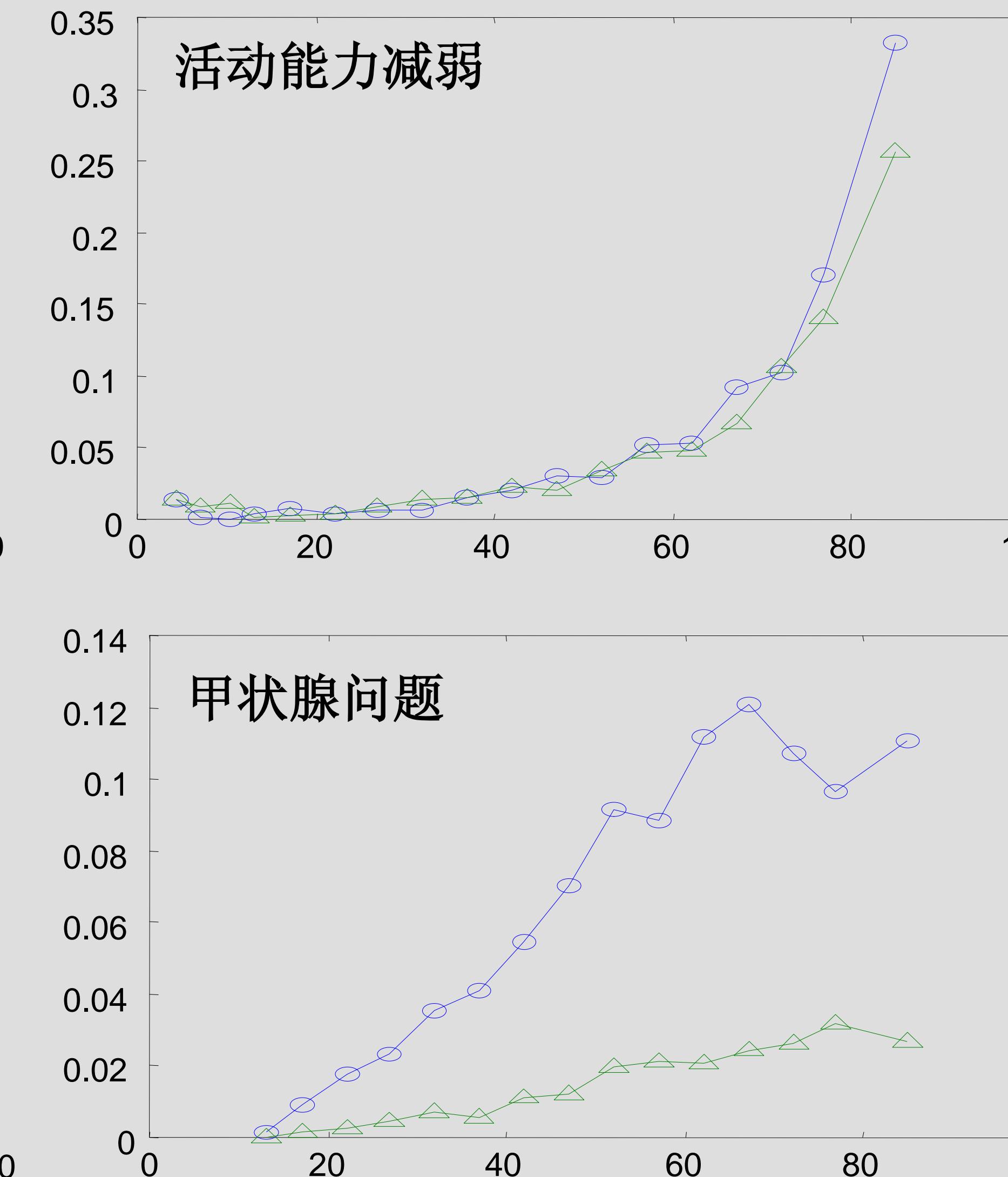
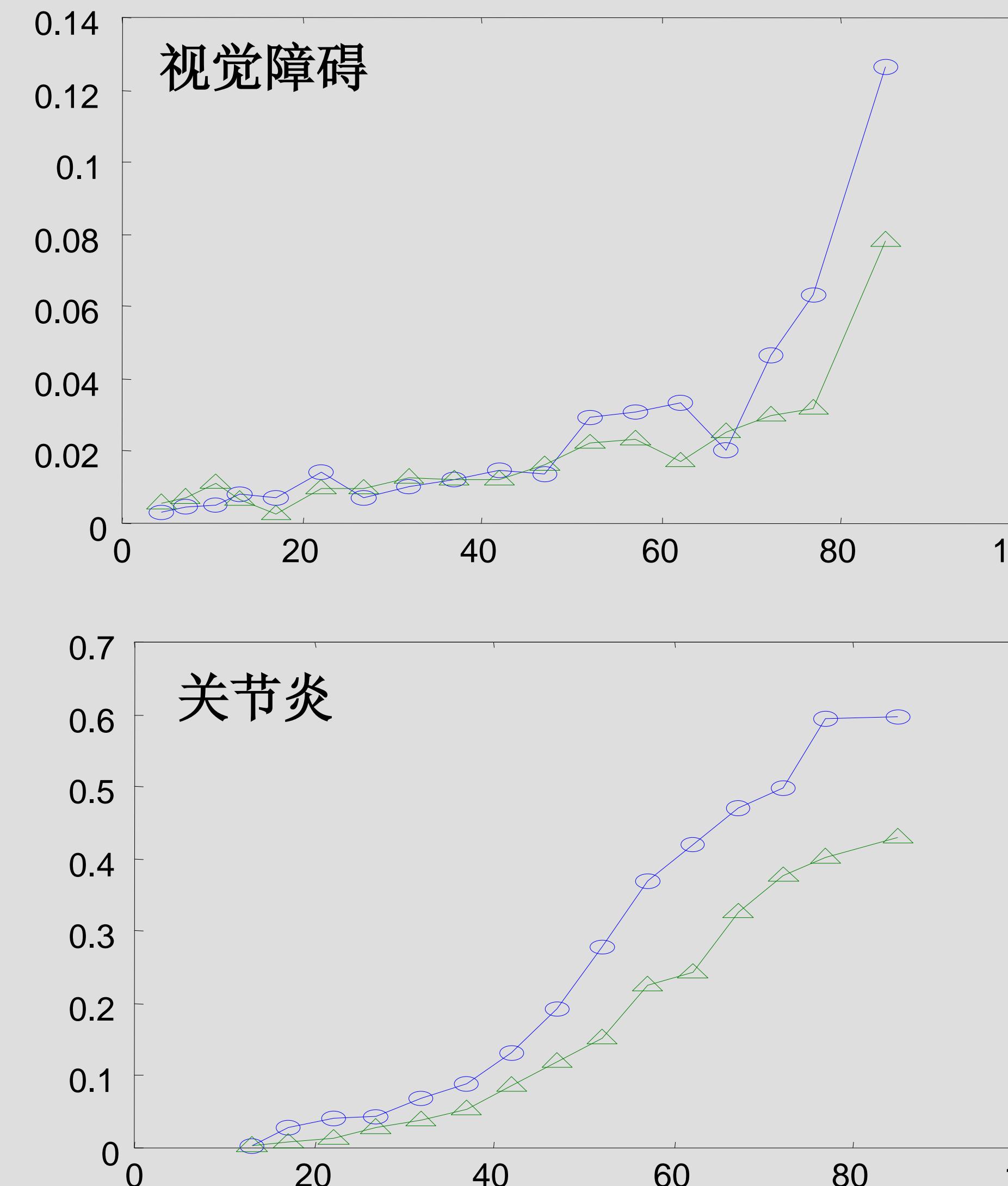
但不是每位相同年龄的老年人都具有相同的死亡风险



年龄越大的老年人，积累健康缺陷的可能性就越大

(加拿大国家人口健康调查研究, n= 66,580)

存在健康缺陷的人口比例

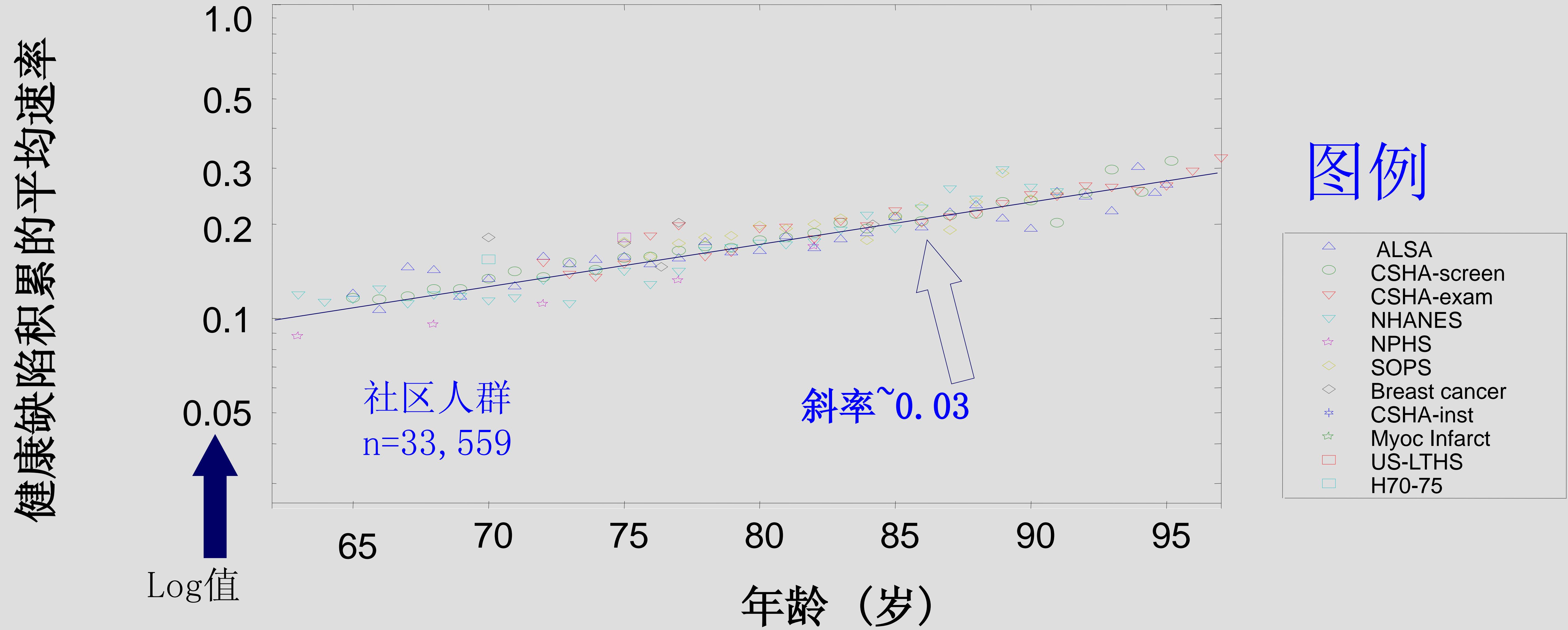


健康缺陷的累积能用衰弱指数进行评价

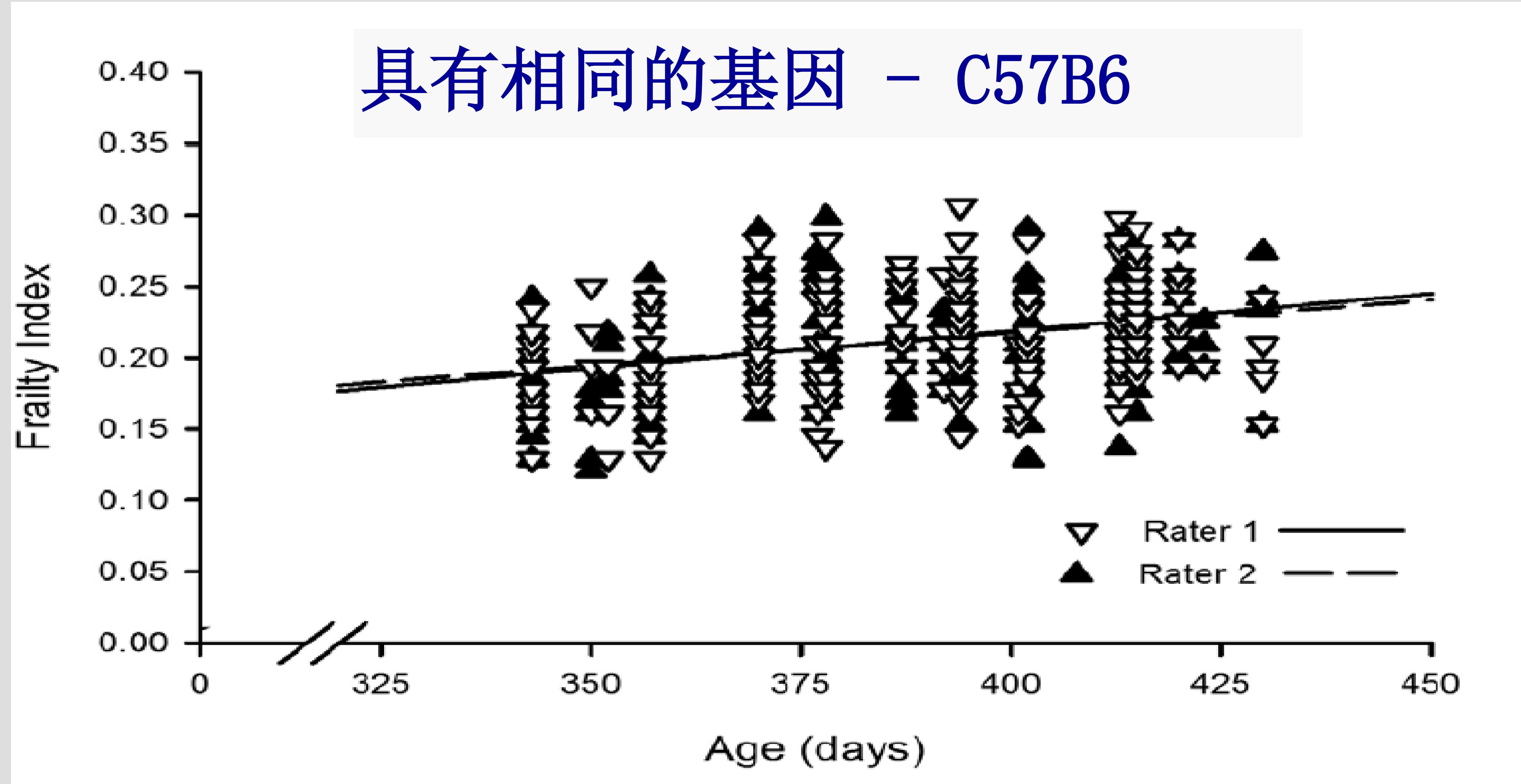
衰弱指数 = 个体存在健康缺陷的数目
 被视为健康缺陷项目的总数目

如：在一个数据库中包含50种健康缺陷项目，某患者存在有10种健康问题（10个健康缺陷项目），则其衰弱指数的数值为
 $10/50 = 0.20$ 。

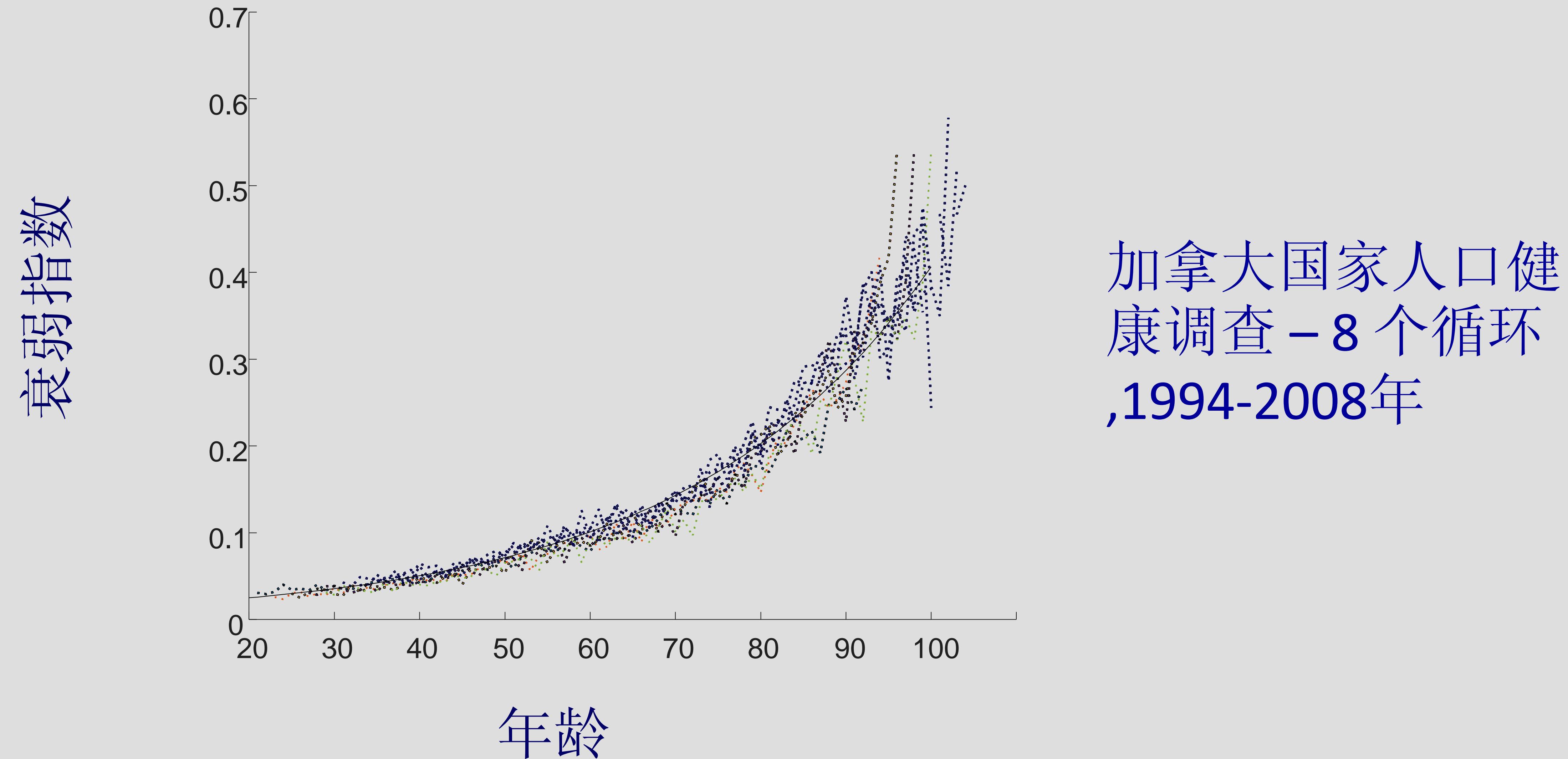
老年人健康缺陷积累的特征



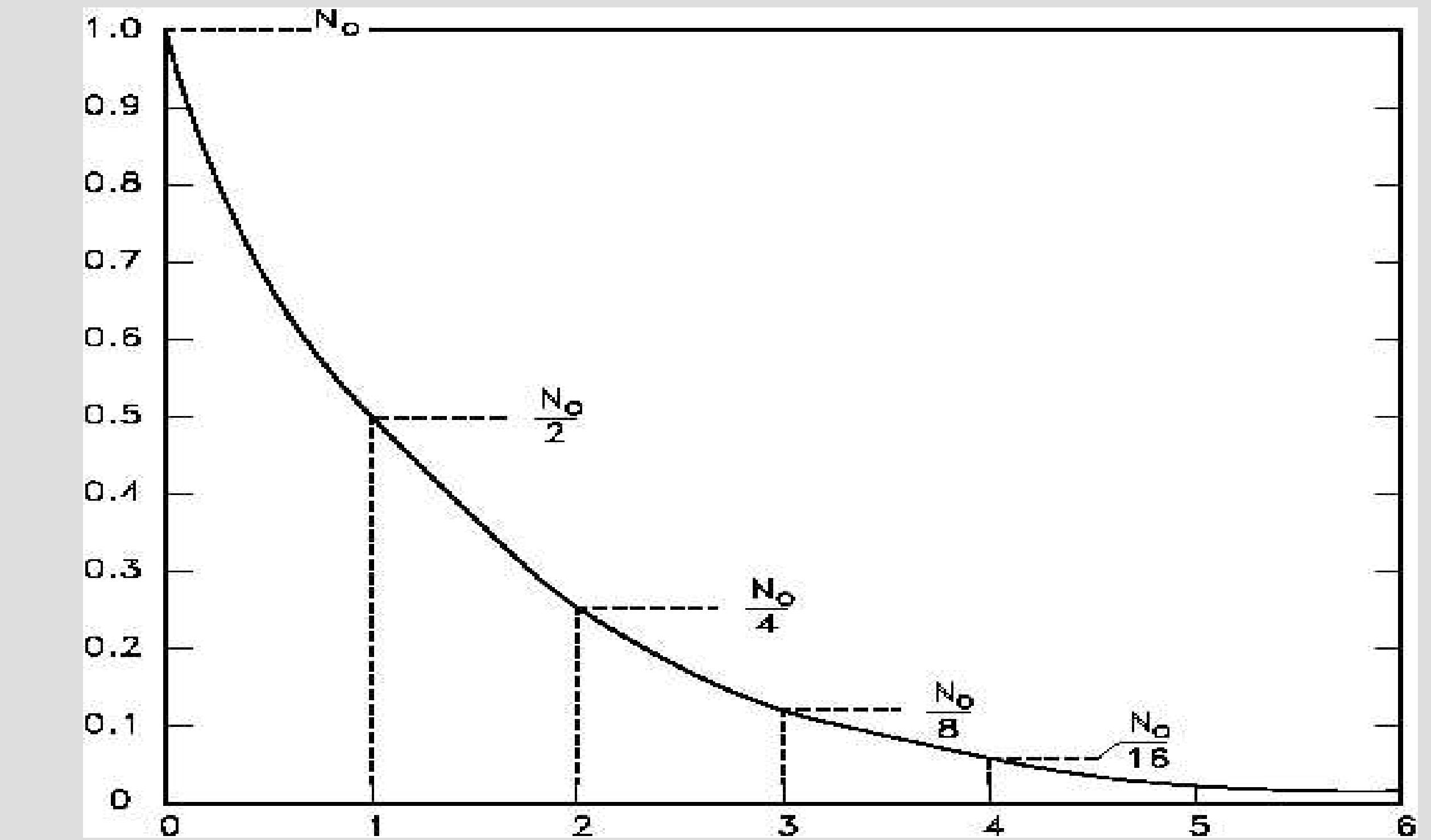
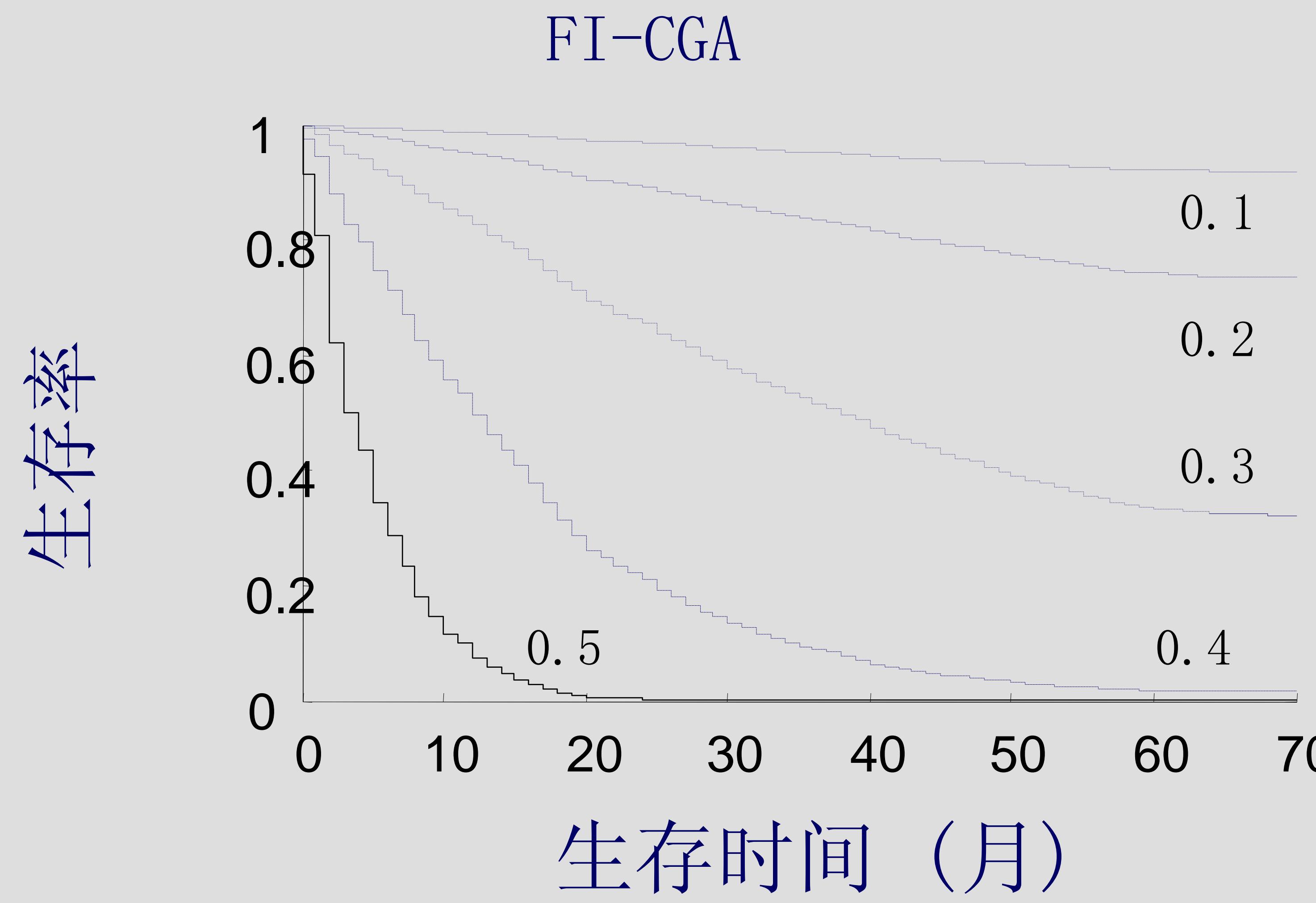
老鼠的健康缺陷积累过程



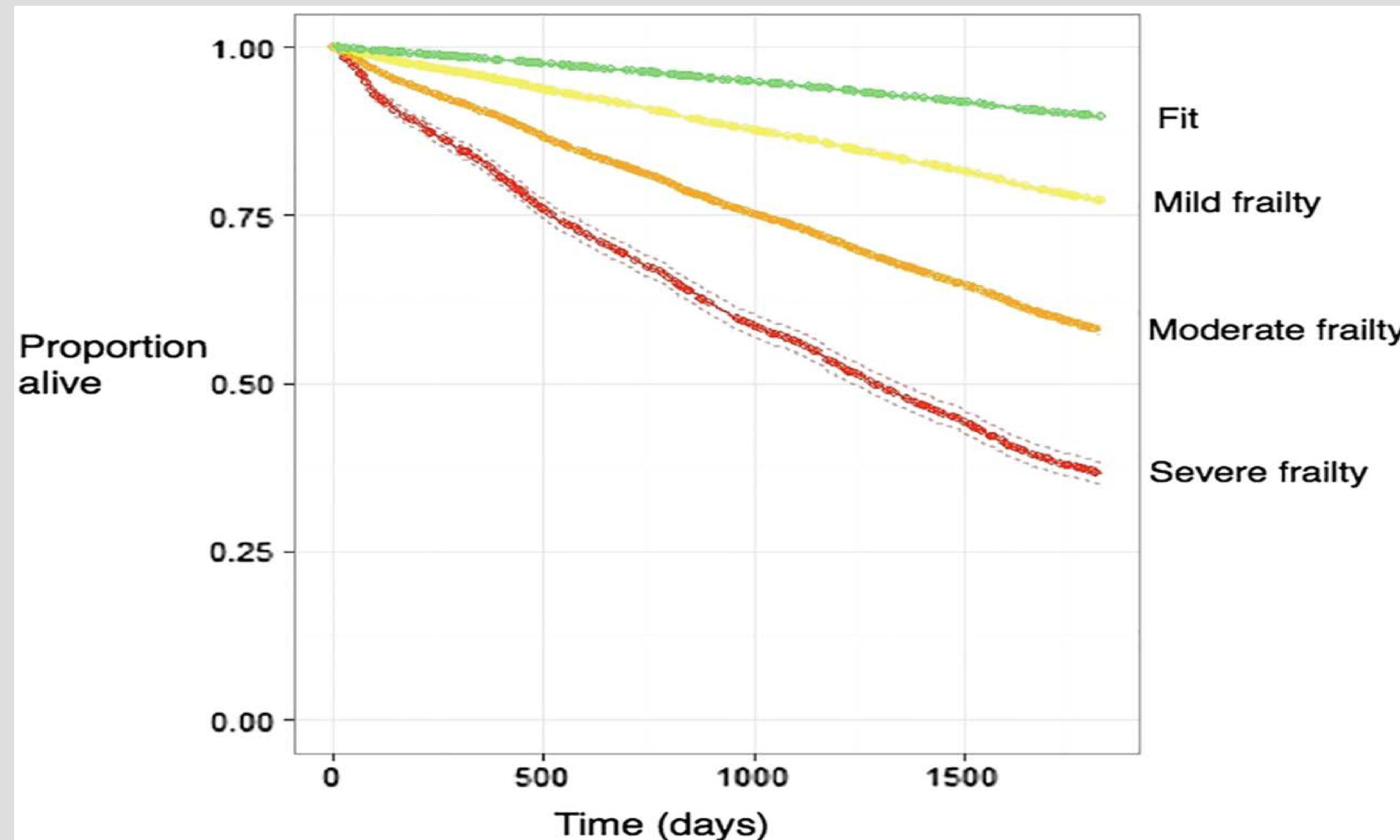
衰弱指数数值随年龄增加数值增大： 每15年缺陷的累积成倍增长



基于老年人综合评估的衰弱指数识别死亡风险最高的老年人群



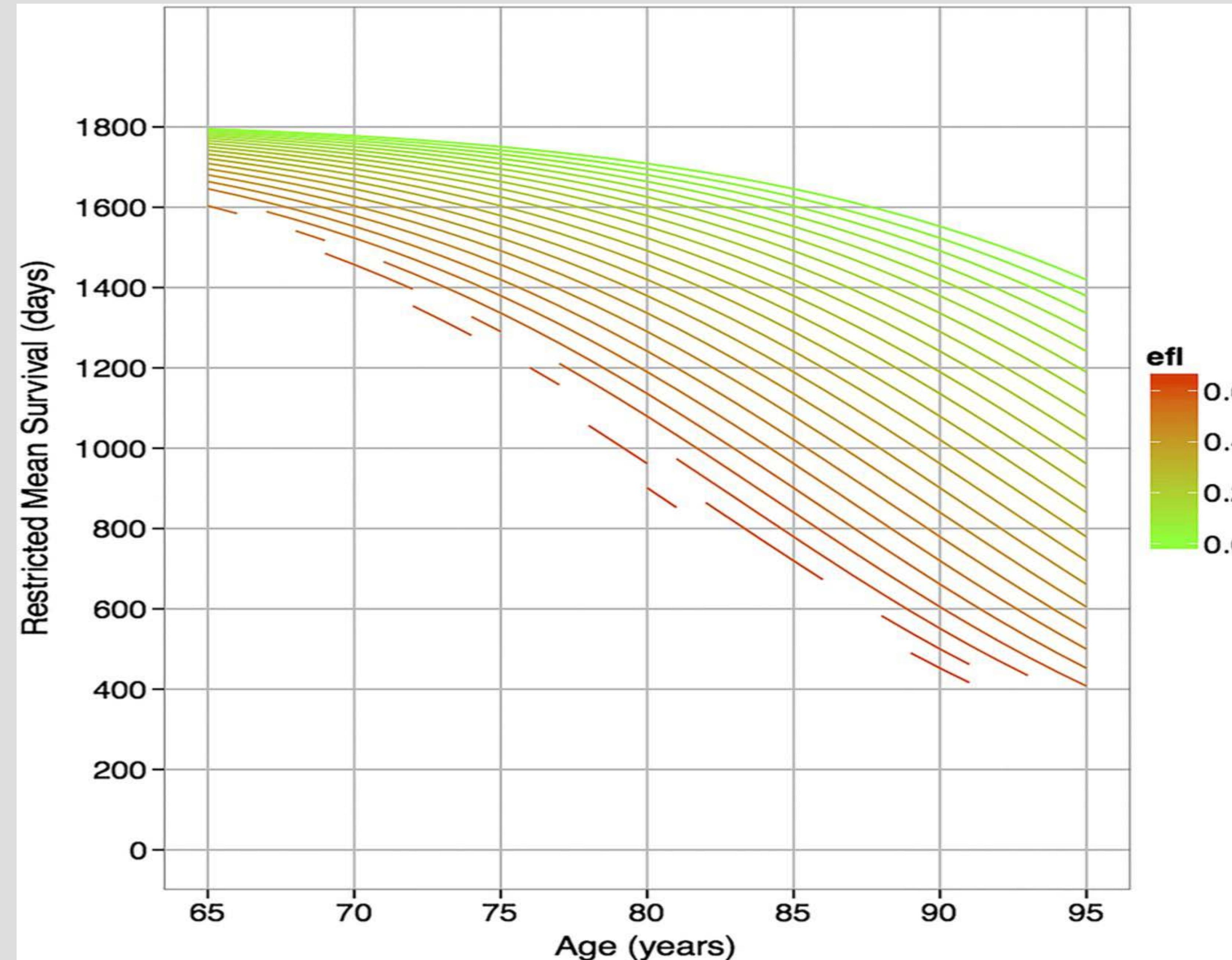
不同健康缺陷积累程度人群5年的Kaplan–Meier生存曲线



Andrew Clegg et al. Age Ageing 2016;ageing.afw039

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on behalf of the British Geriatrics Society.

年龄、电子的衰弱指数评分以及死亡率的关系

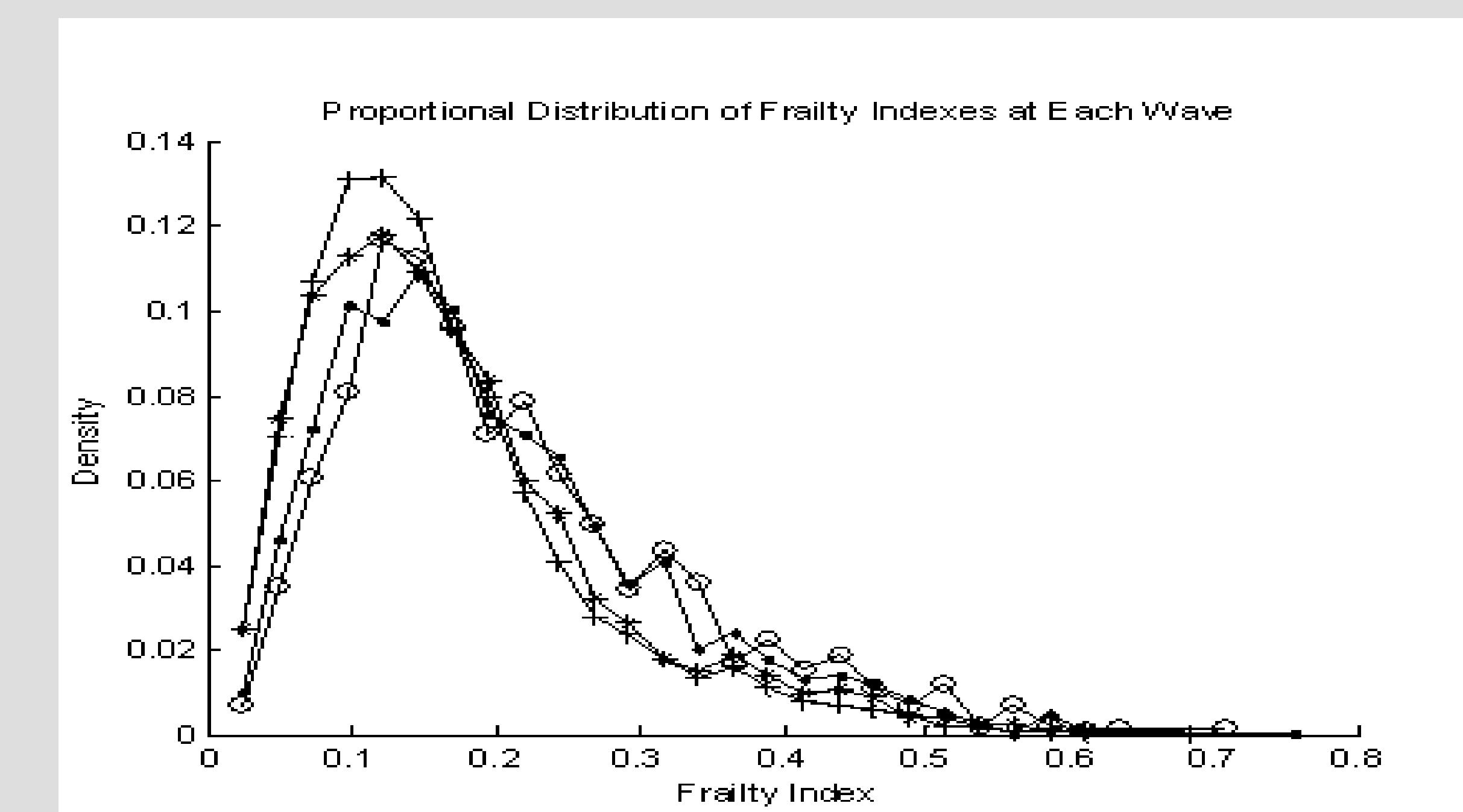
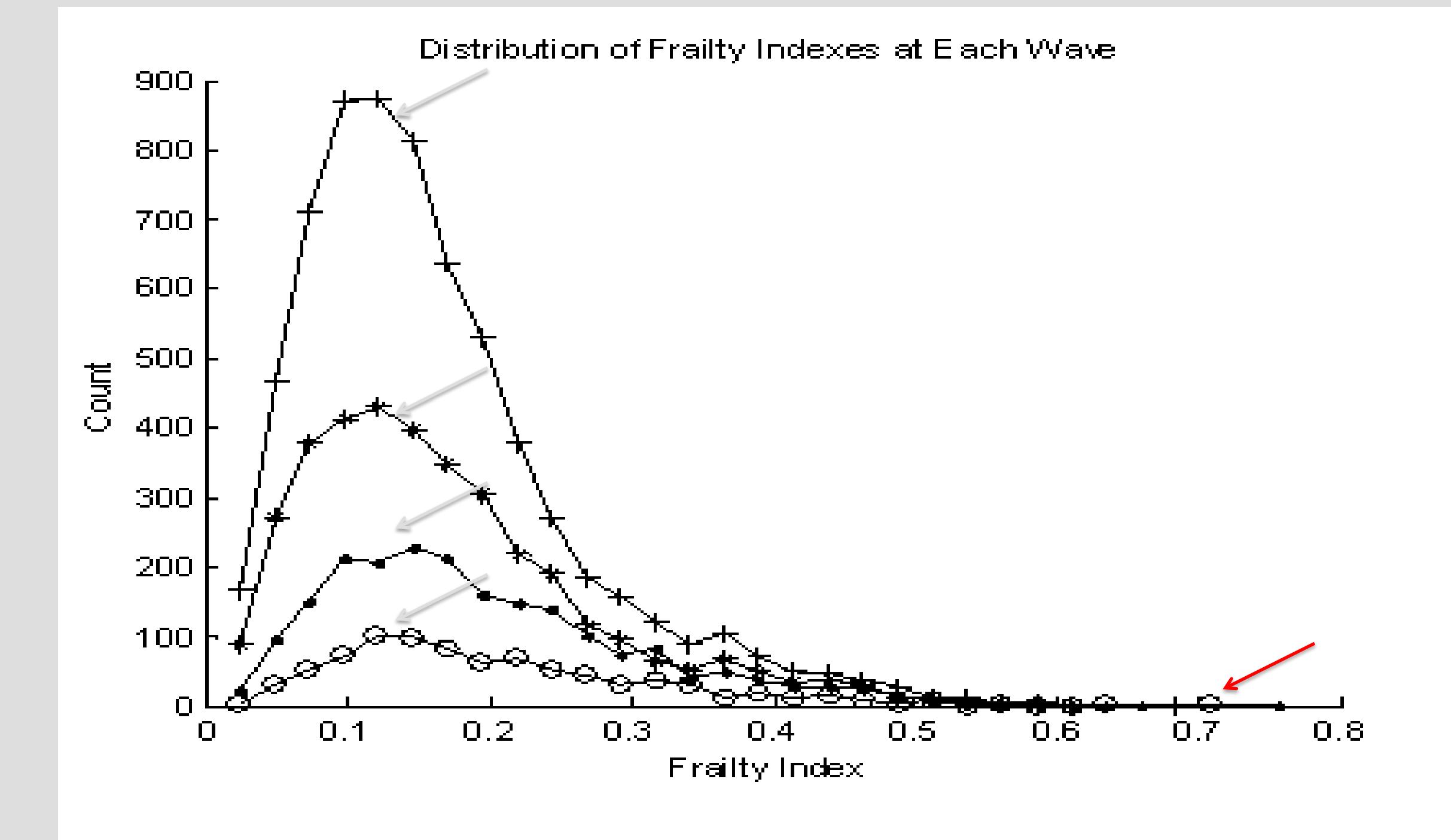


Andrew Clegg et al. Age Ageing 2016;ageing.afw039

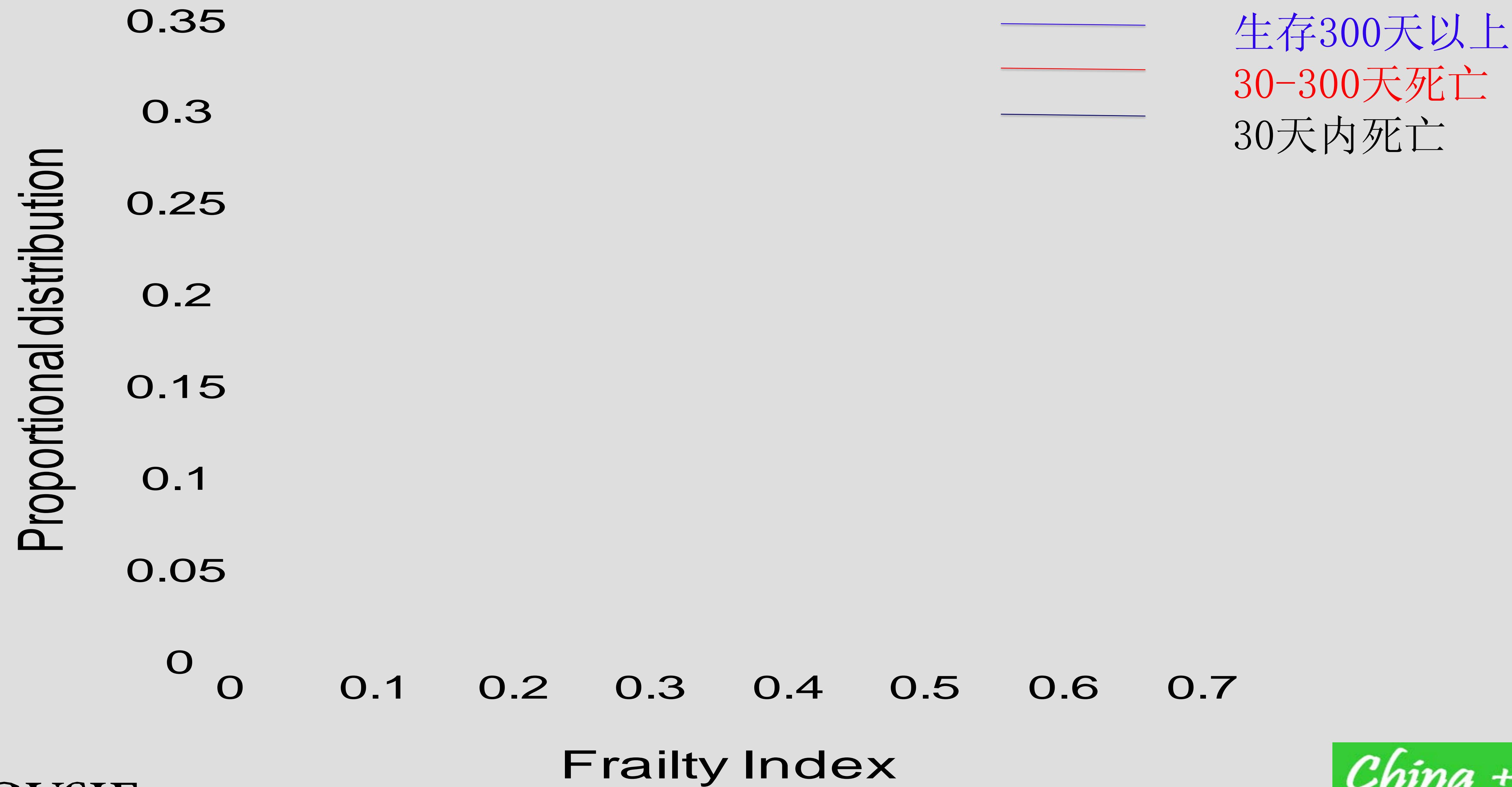
衰弱指数的分布

中国健康和长寿纵向研究的
4条曲线；

6664名80–99岁的老年人



广州军区总医院老年ICU人群： 入院前两周的衰弱指数评分



小结

衰弱是多方位综合评价老年人健康风险状况的工具，它表明不是每位相同年龄的老年个体死亡风险都是相同的。

衰弱的出现是整个生命过程中自然出现的，是健康缺陷随机性积累的结果。

当人们存在多种健康缺陷时，则变得衰弱。

在全科医学领域也能进行衰弱的常规评估。

老年医学的重要问题

活动减少

“老年人疾病常表现出敏感
但非特异性的体征”

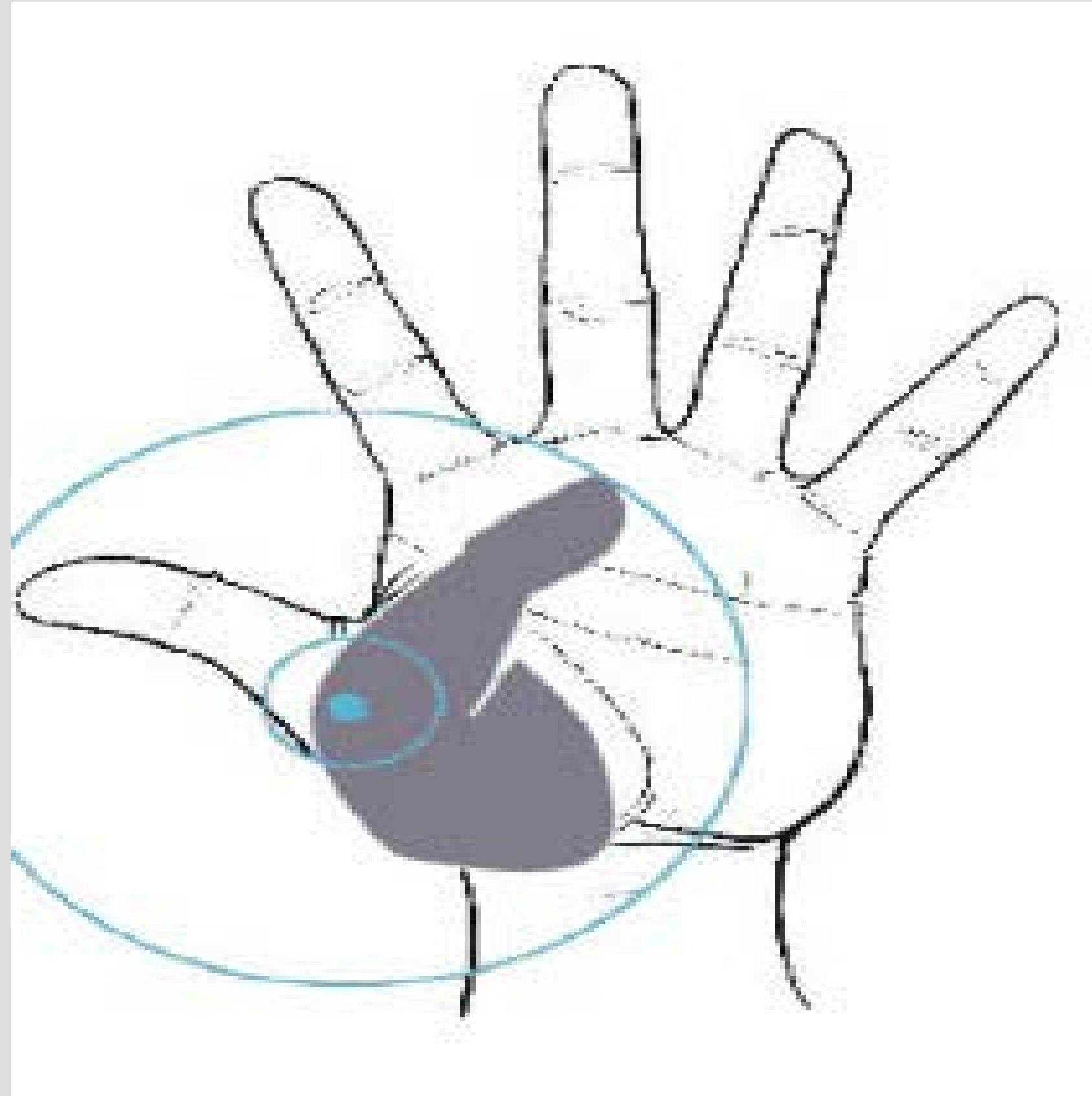
失禁

智力/记忆力受损

“高级功能的丧失”

自理能力受损

Isaacs B. *The Challenge of Geriatric Medicine.* OUP 1980



用新的眼光去看待 “老年医学的重要问题”

- 一些表现如活动能力、功能、认知以及社会参与度等反映老年人整体健康状态的指标很难如跌倒一样在病史和体检中被体现出来。

患急性病老年人衰弱的评估

筛查

- 快速
- 容易操作
- 有效
- 可靠
- 敏感度高



明确的评估

- 可行性
- 易于常规操作
- 有效
- 可靠
- 需高度特异性

The form includes sections for:

- Chief lifelong occupation
- Motivation
- Communication
- Strength
- Exercise
- Balance
- Mobility
- Nutrition
- Elimination
- ADLs
- Social
- Problems
- Action required

It also includes a section for caregivers, including their relationship to the patient and their own health status.

Clinical Frailty Scale*



1 **Very Fit** – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 **Well** – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



3 **Managing Well** – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



4 **Vulnerable** – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being “slowed up”, and/or being tired during the day.



5 **Mildly Frail** – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 **Moderately Frail** – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.

衰弱的筛查



7 **Severely Frail** – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 **Very Severely Frail** – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9. **Terminally Ill** - Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging, Revised 2008.

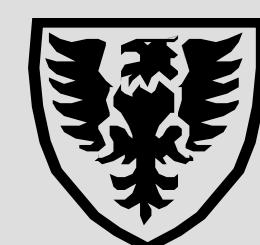
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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Frailty States:

1. 非常健康
2. 健康
3. 维持健康
4. 脆弱易损伤
5. 轻度衰弱
6. 中度衰弱
7. 严重衰弱
8. 非常严重的衰弱
9. 疾病终末期



DALHOUSIE
UNIVERSITY

Inspiring Minds

1. Canadian Study on Health and Aging
2. K Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005; 173:489-495

老年人综合评估量表

© Geriatric Medicine Research,
Dalhousie University, 2008



Capital Health Comprehensive Geriatric Assessment Form

WNL = Within Normal Limits ASST = Assisted IND = Independent DEP = Dependent

Cognition WNL CIND MCI Dementia Delirium MMSE: _____ FAST: _____
Chief lifelong occupation: _____ Education (years): _____

Emotional WNL ↓ Mood Depression Anxiety Fatigue Hallucination Delusion Other

Motivation High Usual Low Health Attitude Excellent Good Fair Poor Couldn't say

Communication Speech WNL Impaired Hearing WNL Impaired Vision WNL Impaired

Strength WNL Weak Upper: PROXIMAL DISTAL Lower: PROXIMAL DISTAL

Exercise Frequent Occasional Not

O Balance	Balance Falls	WNL		Impaired		WNL	Impaired	
		N	Y	Number	N		Y	Number

O Mobility	Walk Outside Walking Transfers Bed Aid	IND		ASST		Can't		IND		ASST		Can't		
		IND	SLOW	ASST	DEP	IND	Stand by	ASST	DEP	IND	PULL	ASST	DEP	None

O Nutrition	Weight Appetite	GOOD		UNDER		OVER		OBES		STABLE		LOSS		GAIN	
		WNL	FAIR	FAIR	POOR	WNL	FAIR	POOR	WNL	FAIR	POOR	WNL	FAIR	POOR	WNL

O Elimination	Bowel Bladder	CONT		CONSTIP		INCONT		CONT		CONSTIP		INCONT		NOTE	
		CONT	CATHETER	CATHETER	INCONT	CONT	CATHETER	INCONT	CONT	CATHETER	INCONT	CONT	CATHETER	INCONT	NOTE

O ADLs	Feeding Bathing Dressing Toileting	IND		ASST		DEP		IND		ASST		DEP		IND	
		IND	ASST	ASST	DEP	IND									

O IADLs	Cooking Cleaning Shopping Medications Driving Banking	IND		ASST		DEP		IND		ASST		DEP		IND	
		IND	ASST	ASST	DEP	IND									

Sleep Normal Disrupted Daytime drowsiness Socially Engaged Frequent Occasional Not

O Social	Married Divorced Widowed Single	Lives Alone Spouse Other		Home House (Levels Number) Steps (Number)		Supports Informal HCNS Other		Caregiver Relationship Spouse Sibling Offspring Other		Caregiver Stress None Low Moderate High					
		Married	Divorced	Widowed	Single	Alone	Spouse	Other	House (Levels)	Steps (Number)	Apartment	Assisted Living Nursing home Other	Req. more support	None	Do not resuscitate

Advance directive in place? Yes No

Problems: Med adjust req. Associated Medication: (*mark meds started in hospital with an asterisk)

1. _____ O _____
2. _____ O _____
3. _____ O _____
4. _____ O _____
5. _____ O _____
6. _____ O _____
7. _____ O _____
8. _____ O _____
9. _____ O _____
10. _____ O _____
11. _____ O _____
12. _____ O _____

Action Required (check appropriate circles)

- Action Required
- Monitor

Patient contact:

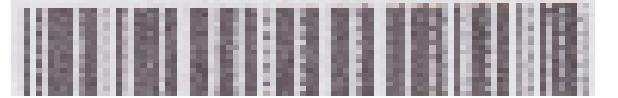
- Inpatient
- Clinic
- GDH
- NH
- Outreach
- Home
- Assisted Living
- ER
- Other

PT = PATIENT
CG = CAREGIVER

Current Frailty Scores:

Scale	PT	CG
1. Very fit		
2. Well		
3. Well with few co-morbid disease		
4. Apparently vulnerable		
5. Mildly frail		
6. Moderately frail		
7. Severely frail		
8. Very severely frail		
9a. Terminally ill - walker		
9b. Terminally ill - bed		

Caregiver occupation (CG):



Assessment Forms

CD0184MR_06_09

Assessor/Physician: _____

Date: _____

(YYYY/MM/DD)

老年人综合评估量表：功能评估

工具性日常活动能
力评估

基线
(两周前)

目前
(当天)

O IADLs	Cooking	IND	ASST	DEP	IND	ASST	DEP
	Cleaning	IND	ASST	DEP	IND	ASST	DEP
	Shopping	IND	ASST	DEP	IND	ASST	DEP
	Medications	IND	ASST	DEP	IND	ASST	DEP
	Driving	IND	ASST	DEP	IND	ASST	DEP
	Banking	IND	ASST	DEP	IND	ASST	DEP

老年人综合评估量表：功能评估

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	Shopping	IND	ASST	DEP	IND	ASST	DEP
	Medications	IND	ASST	DEP	IND	ASST	DEP
	Driving	IND	ASST	DEP	IND	ASST	DEP
	Banking	IND	ASST	DEP	IND	ASST	DEP

老年人综合评估量表：功能评估

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(两周前)

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(当天)

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	Cleaning	IND	ASST	DEP	IND	ASST	DEP
	Shopping	IND	ASST	DEP	IND	ASST	DEP
	Medications	IND	ASST	DEP	IND	ASST	DEP
	Driving	IND	ASST	DEP	IND	ASST	DEP
	Banking	IND	ASST	DEP	IND	ASST	DEP

常规照护收集衰弱数据的原因

衰弱老年人能做得更好的方面

- 高血压治疗 Warwick et al. *BMC Med* 2015;13:78
- 壕酮激素治疗 Kenny *J Am Geriatr Soc* 2010;58(6):1134-43
- 老年人综合评估 Ellis *BMJ* 2011;343:d6553

衰弱老年人做得不够好的方面

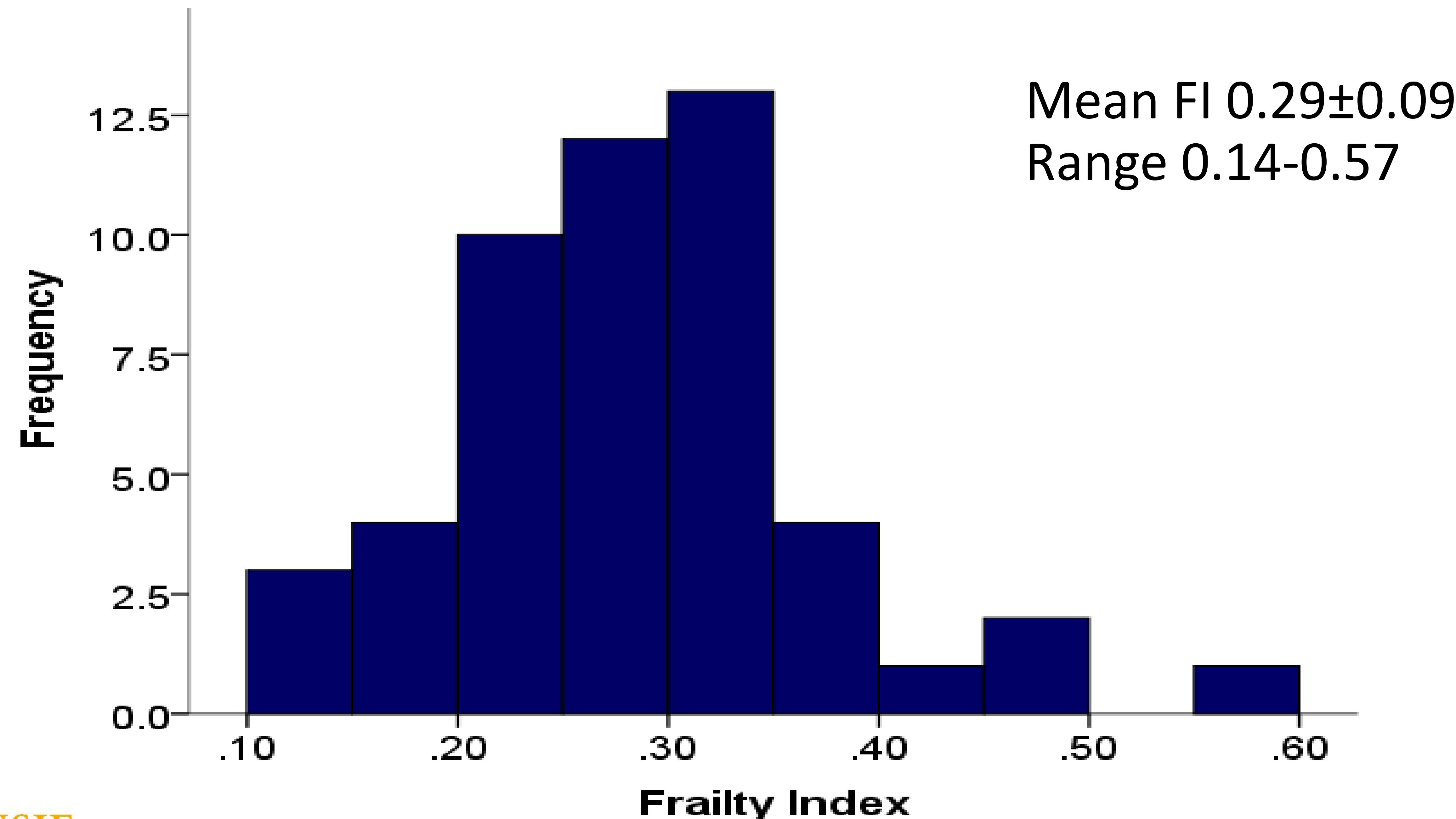
- 外伤手术 Joseph et al. *JAMA Surgery* 2014
- 急性心肌梗死 Ekerstad *Circulation* 2011

这是从整体改善对老年人照护的一个信号吗？

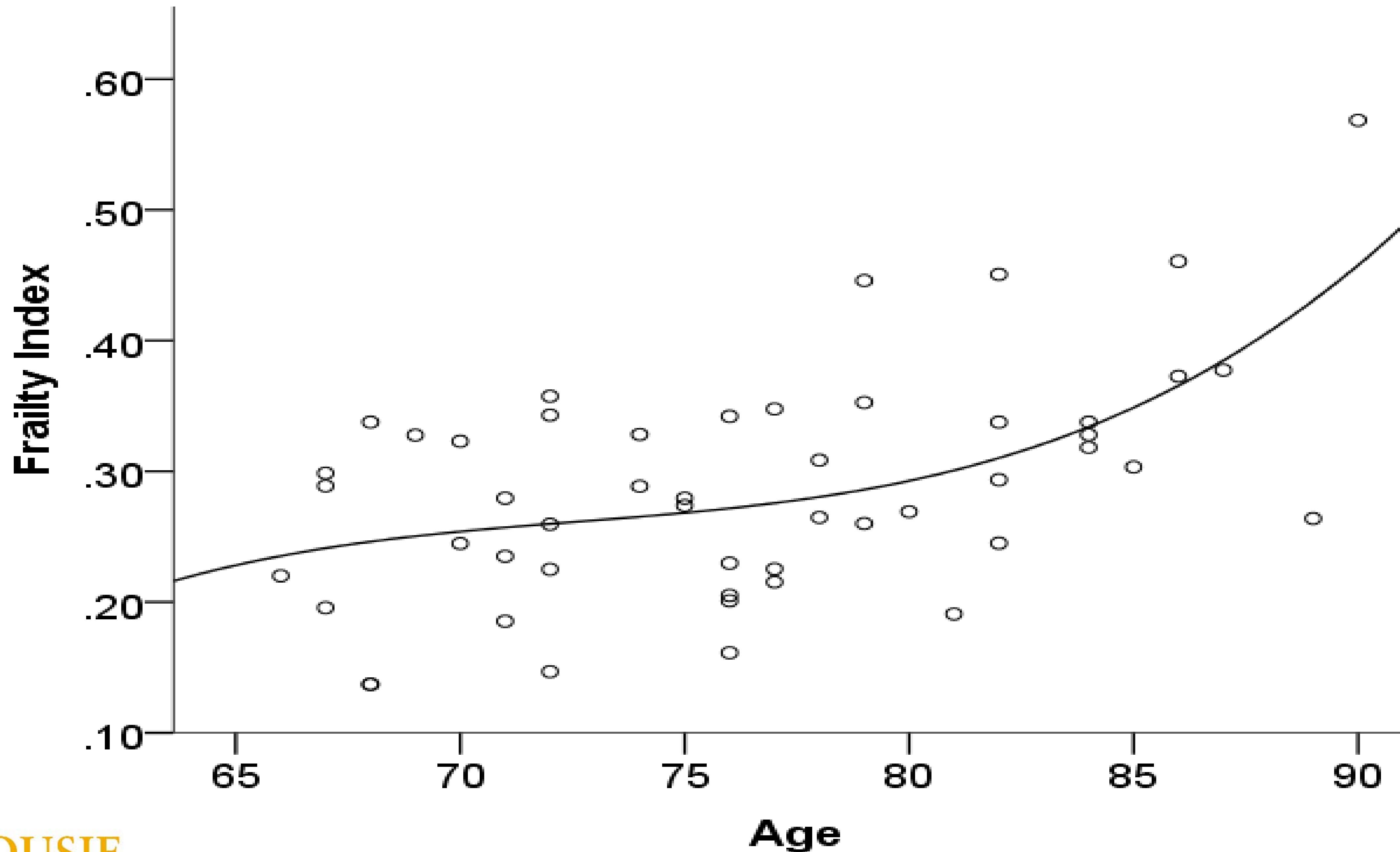
34项构建衰弱指数

神志	Cognition	纳呆食少	Appetite
健忘	Recall	消瘦	Emaciate
面色	Face Color	便溏	Loose Stool
心悸	Palpitation	便秘	Constipation
眩晕	Dizzy	夜尿频数	Night Bladder
畏寒	Chilling	尿少	Oliguresis
五心烦热	Burning	浮肿	Edema
潮热	Hectic Fever	口渴	Thirsty
盗汗	Night Sweating	耳鸣	Tinnitus
自汗	Sweating	不寐	Sleep
气短	Short of Breath	发槁齿摇	Hair and Teeth
神疲乏力	Weak	多重用药	Medications
腰膝酸软	Waist and Knee Pain	合并症	Comorbidities (up to 9)

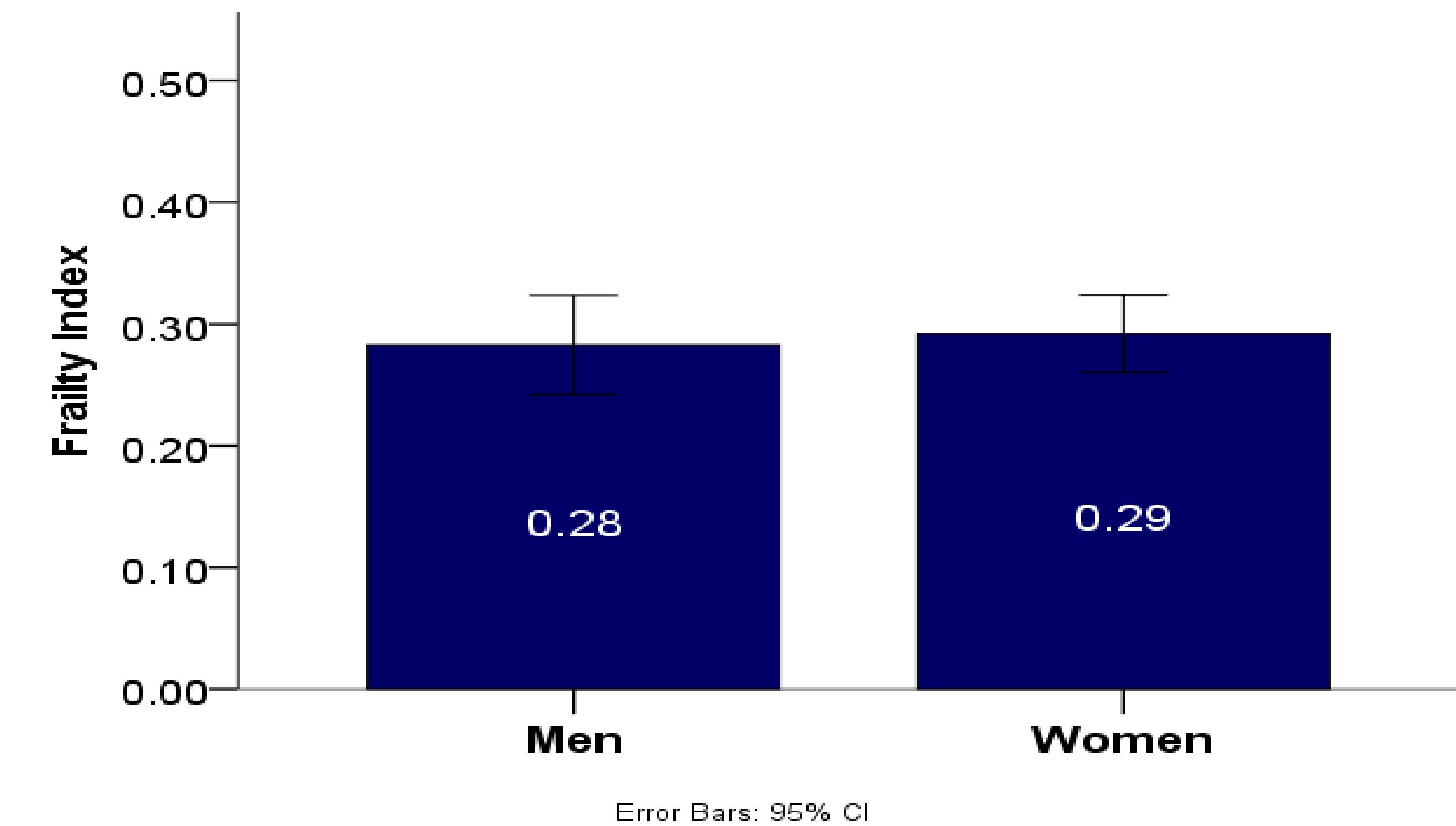
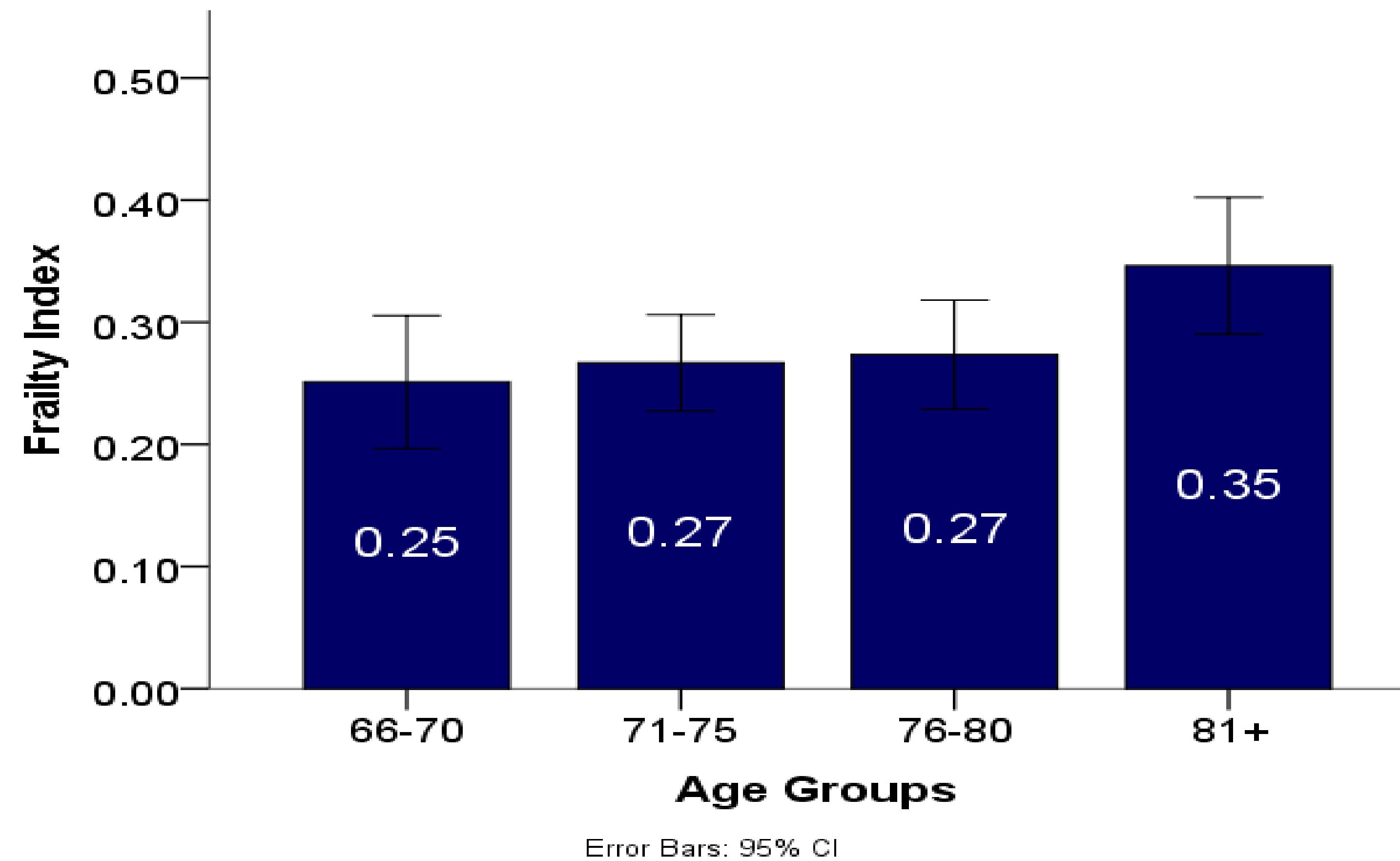
衰弱指数分布



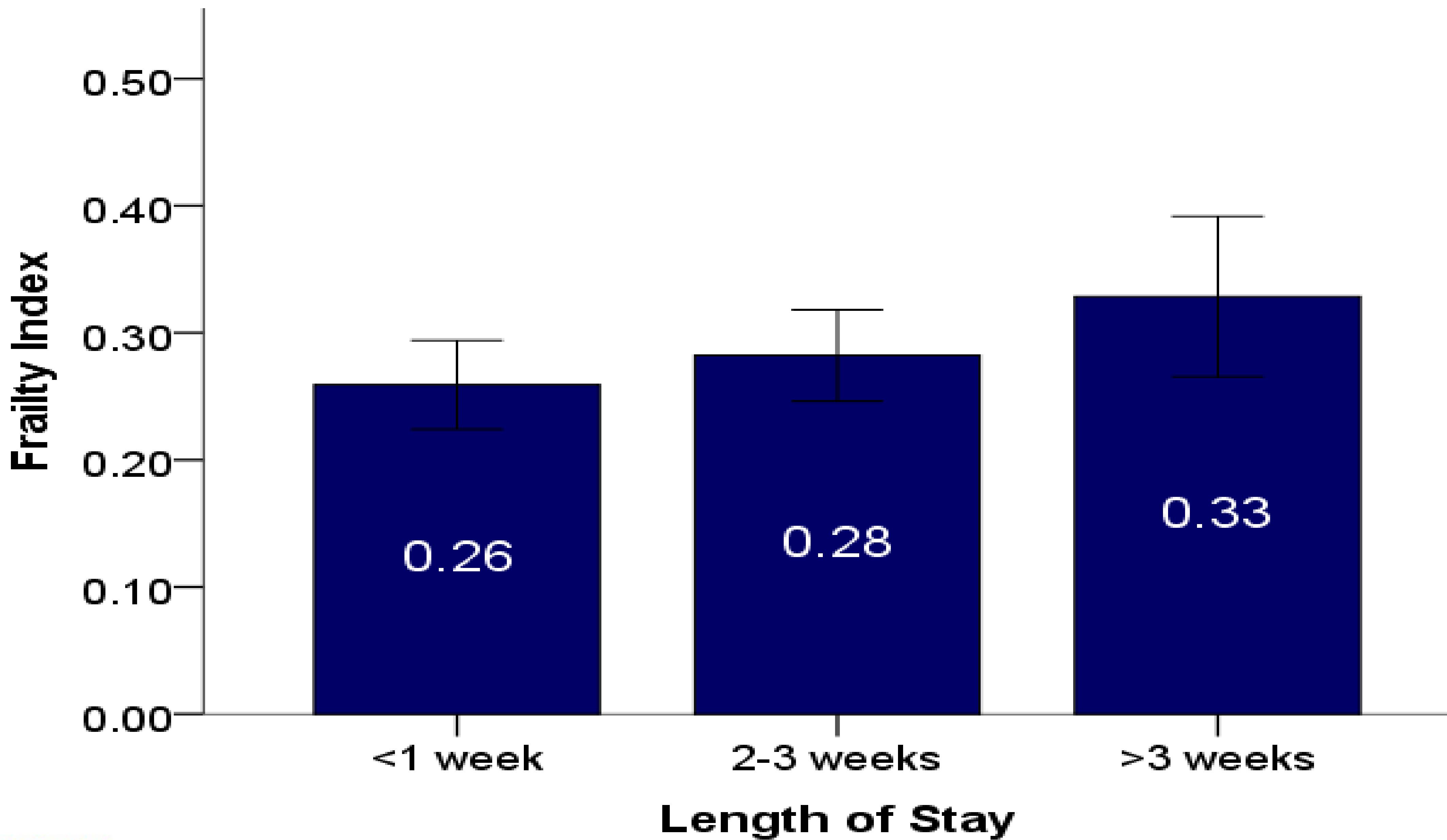
随年龄增长衰弱指数增加



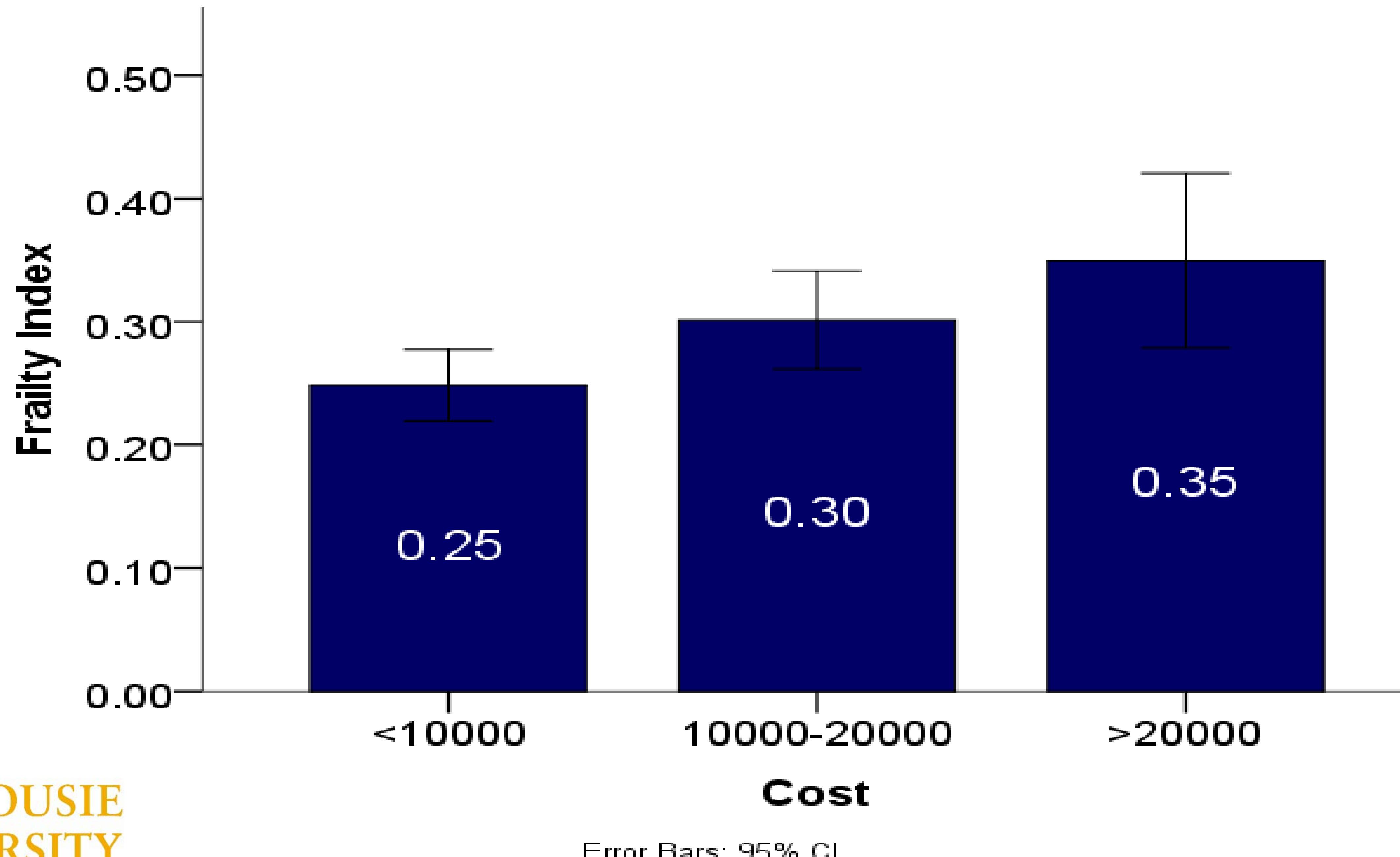
分年齡和性別比較



住院时间与衰弱指数的关系



医疗费用(¥)与衰弱指数的关系



回顾我们的目的

回顾目前关于人口老龄化和衰弱的现状。

探讨衰弱如何影响健康状况的变化。

在全科医学中考虑衰弱的评估。

致 谢

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- Fountain Family Innovation Fund , Queen Elizabeth II Health Sciences Foundation
- Nova Scotia Health Research Foundation
- Mathematics of Information Technology and Computer Science program, National Research Council
- Alzheimer Society of Canada
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- China Scholarship Council
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- Olga Theou
- Melissa Andrew
- Samuel Searle
- Tommy Brothers
- Lindsay Wallace
- Oliver Hathaway
- Judah Goldstein
- Kathryn Hominick
- Swadhin Taneja
- Quikui Hao
- Rob Beiko
- Andrew Rutenburg
- Susan Howlett

临床 vs. 亚临床状态的健康 缺陷积累

分布：

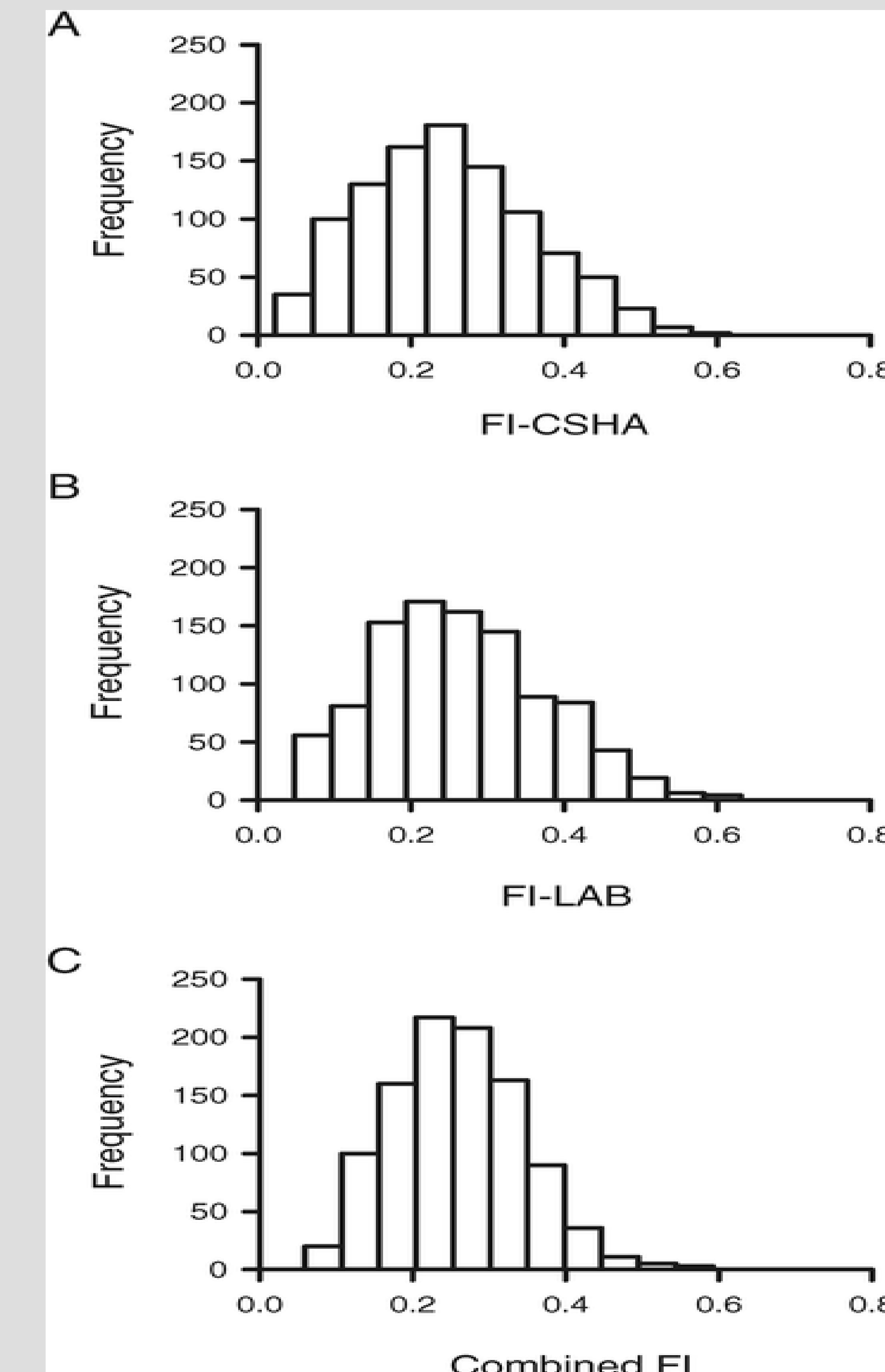
A: 临床衰弱指数

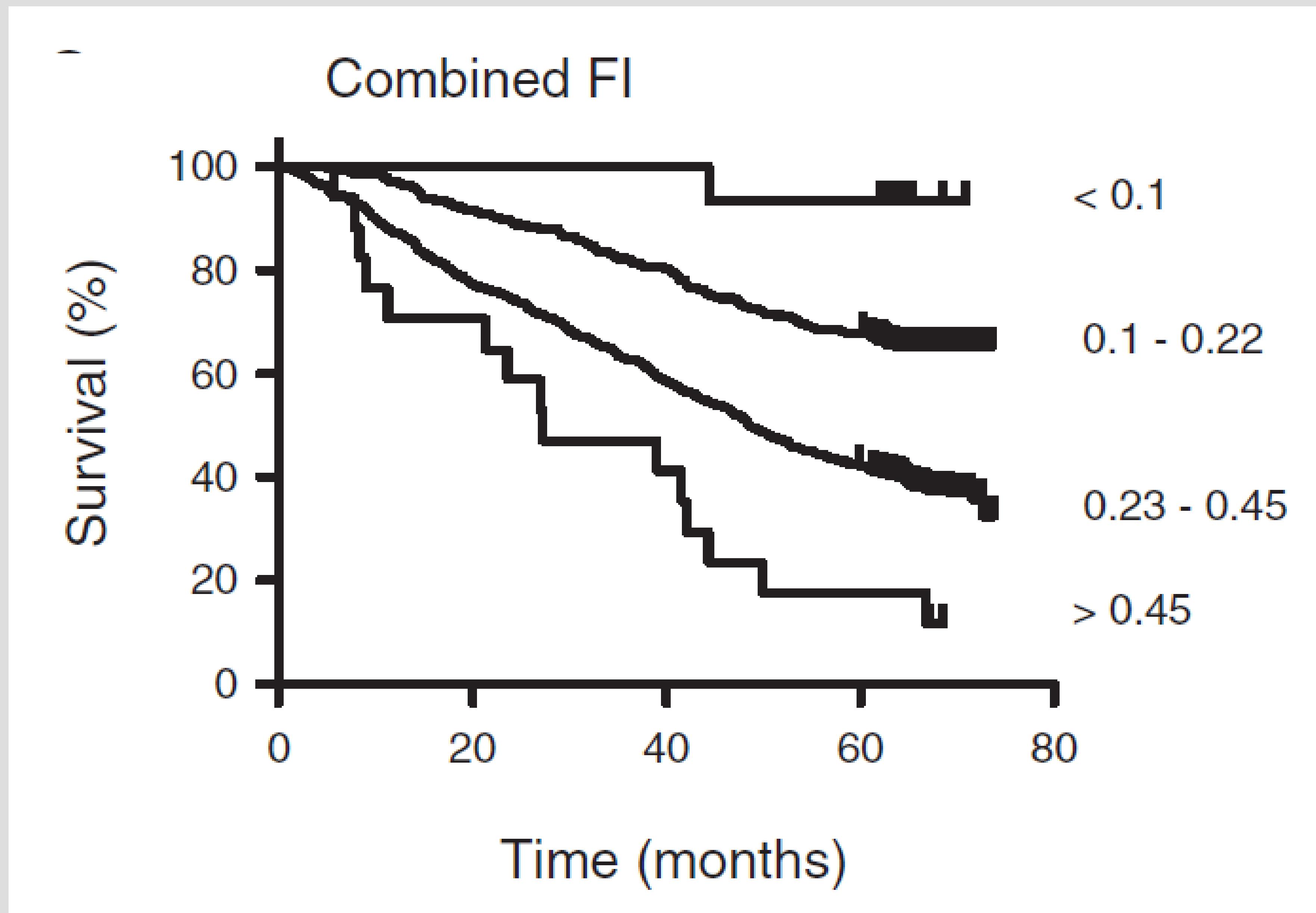
B: 实验室数据-衰弱指数

表C: 临床联合实验室数据-衰弱指数

N=1008, Canadian Study of Health & Aging,
1st Clinical exam cohort

Howlett et al., *BMC Medicine* 2014;12:171; see also
Rockwood et al. *J Am Med Dir Assoc* 2015 May 5 E-pub.





Howlett et al., *BMC Medicine* 12: 171, 2014.
Rockwood et al., *J Am Med Dir Assoc*, 16:842-847, 2015
Blodgett et al., *Age Ageing*, 2016; Apr 13 pii afw054.

定义衰弱

采用特定的变量：

衰弱表型定义

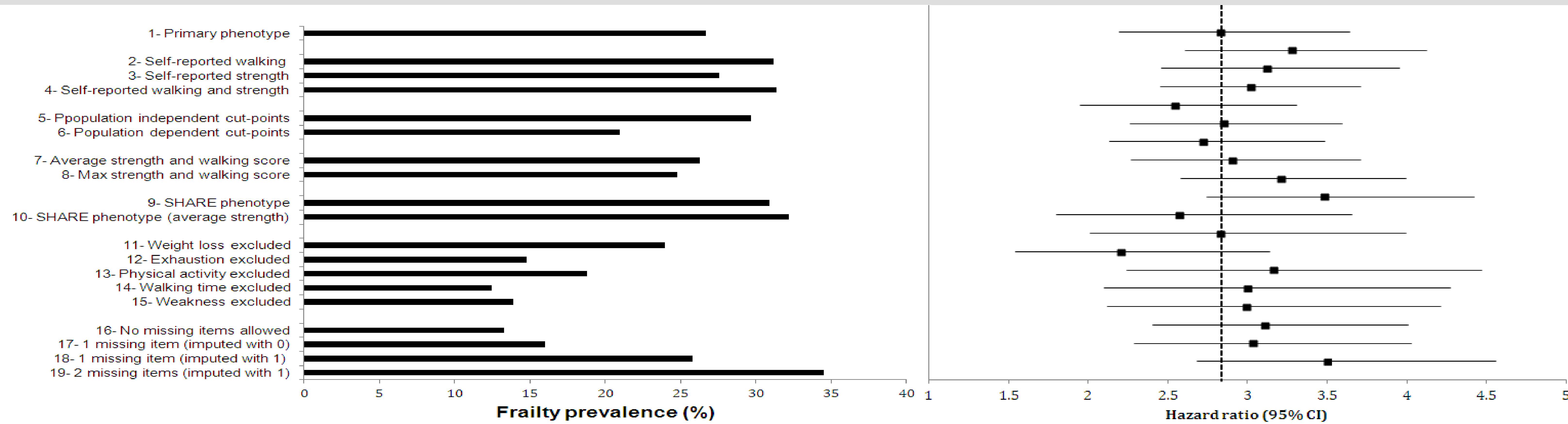
- 行走速度慢
- 肌力弱
- 体重下降
- 躯体活动量降低
- Fried et al.,. 2001;56 *J Gerontol A Biol Sci Med Sci* (3):M146-56.

采用非特定的变量：衰弱指数

- 对健康缺陷进行计数（通常30-100个变量）
 - 年龄相关但是在人群中的患病率不能达到饱和的变量；
 - 与不良健康结局相关的变量；
 - 变量缺失数据<5%
- 除以被视为健康缺陷的总数目。
 - Mitnitski et al., *ScientificWorldJ* 2001;1:323-326.
 - Searle et al., *BMC Geriatr* 2008;8:24.

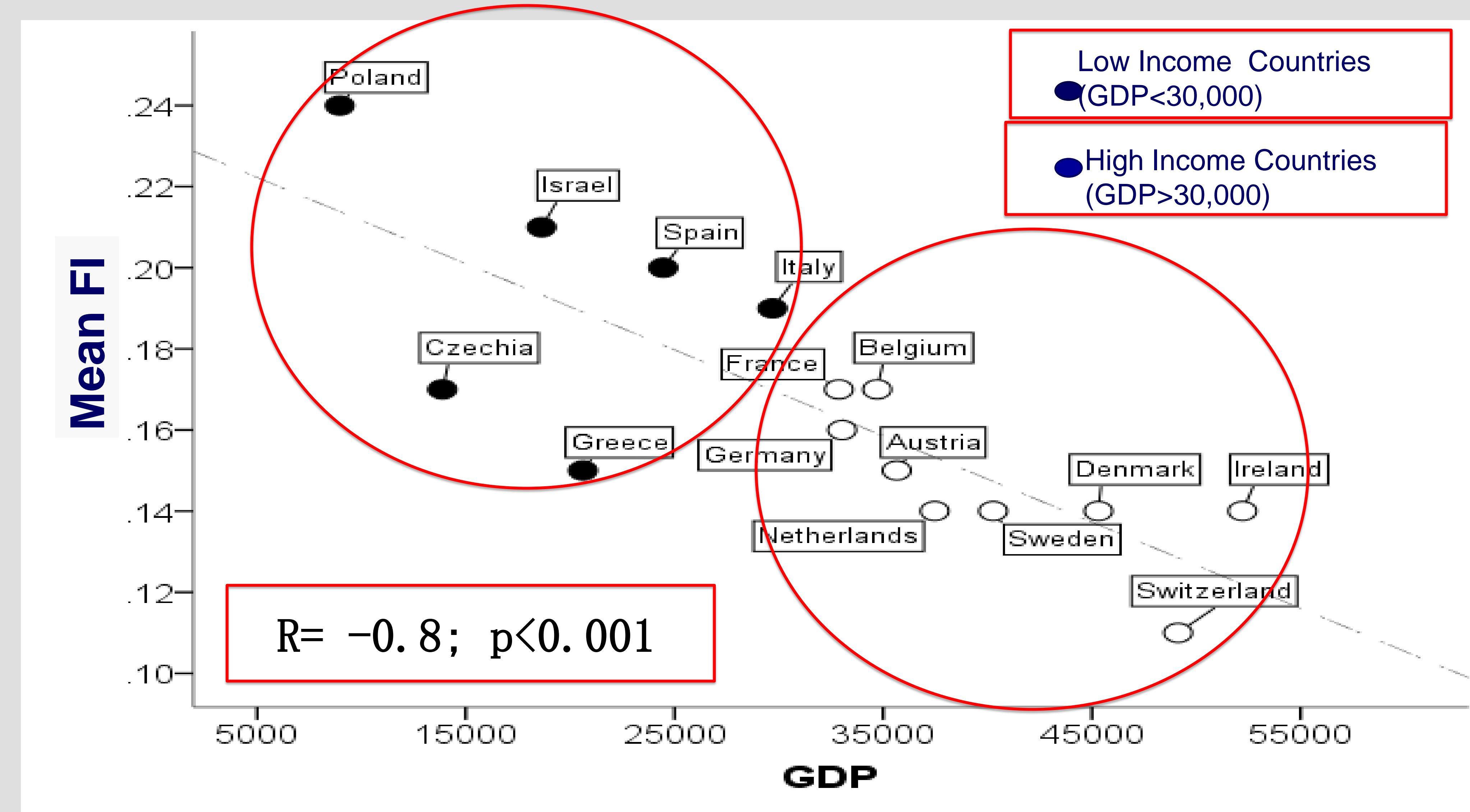
衰弱表型定义的修正

- 系统性回顾：包含264项研究
- 24项研究对2001年提出的衰弱表型定义进行了评估



衰弱和国民收入的关系

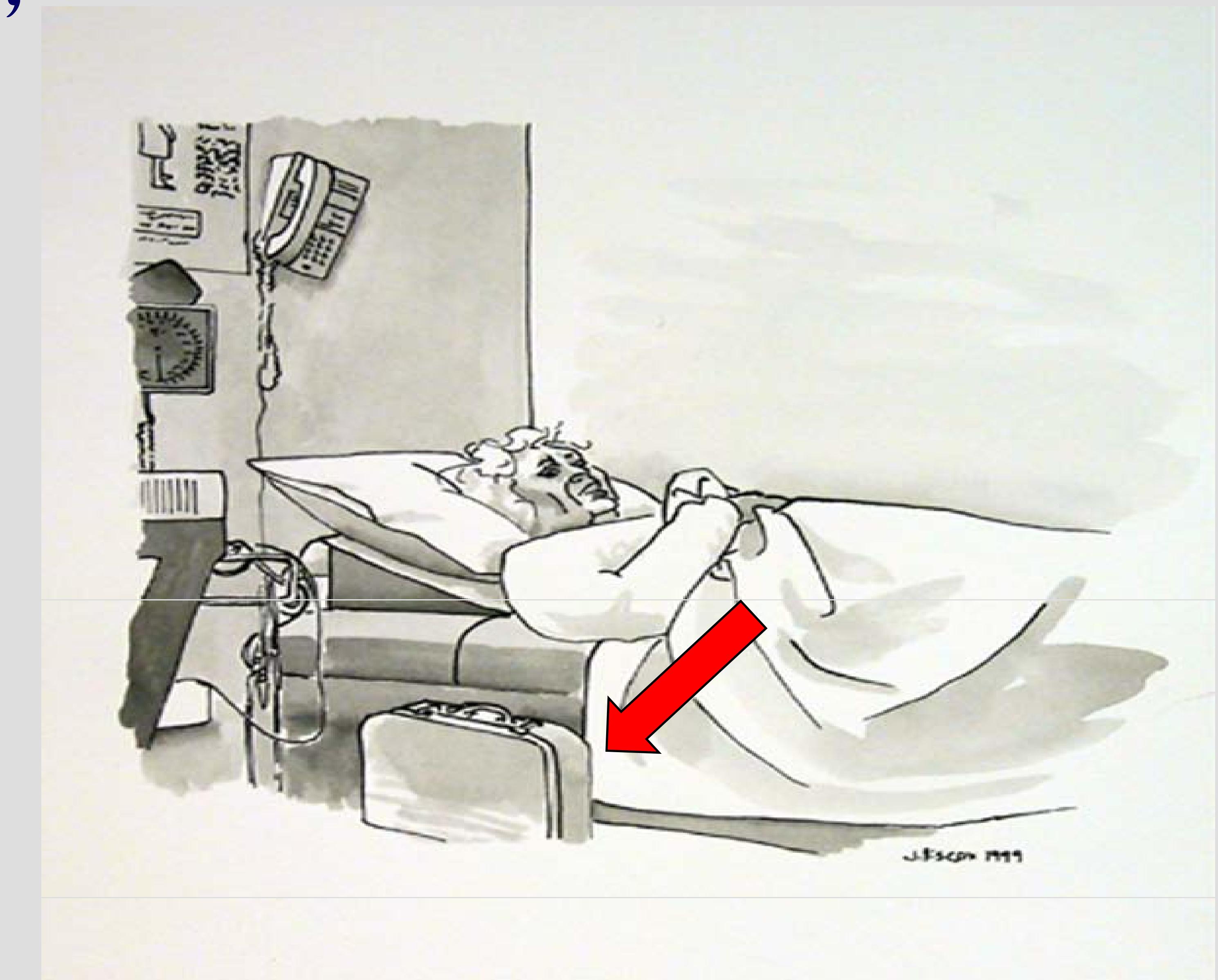
衰弱指数均值与国民生产总值 (*GDP*)



- Mrs. UD, 一位82岁的老年女性，在1次跌倒后由救护车送来医院。

- 她很消瘦、打扮凌乱，而且态度很愤怒及意识糊涂。

- 他的丈夫，一个很难“应付”的人，一直坚持要做些什么。



Mr. UD期望对他的夫人做的是什么呢？

- 一个能诊断危机本质和原因的应对体系。
- 一个能实施有效护理计划和积极力争避免不良结局的支持体系。
- 一项期望和力争防止或缓和危机的前瞻性体系。

我们如何达到给予老年人更简单、更安全的健康照护？

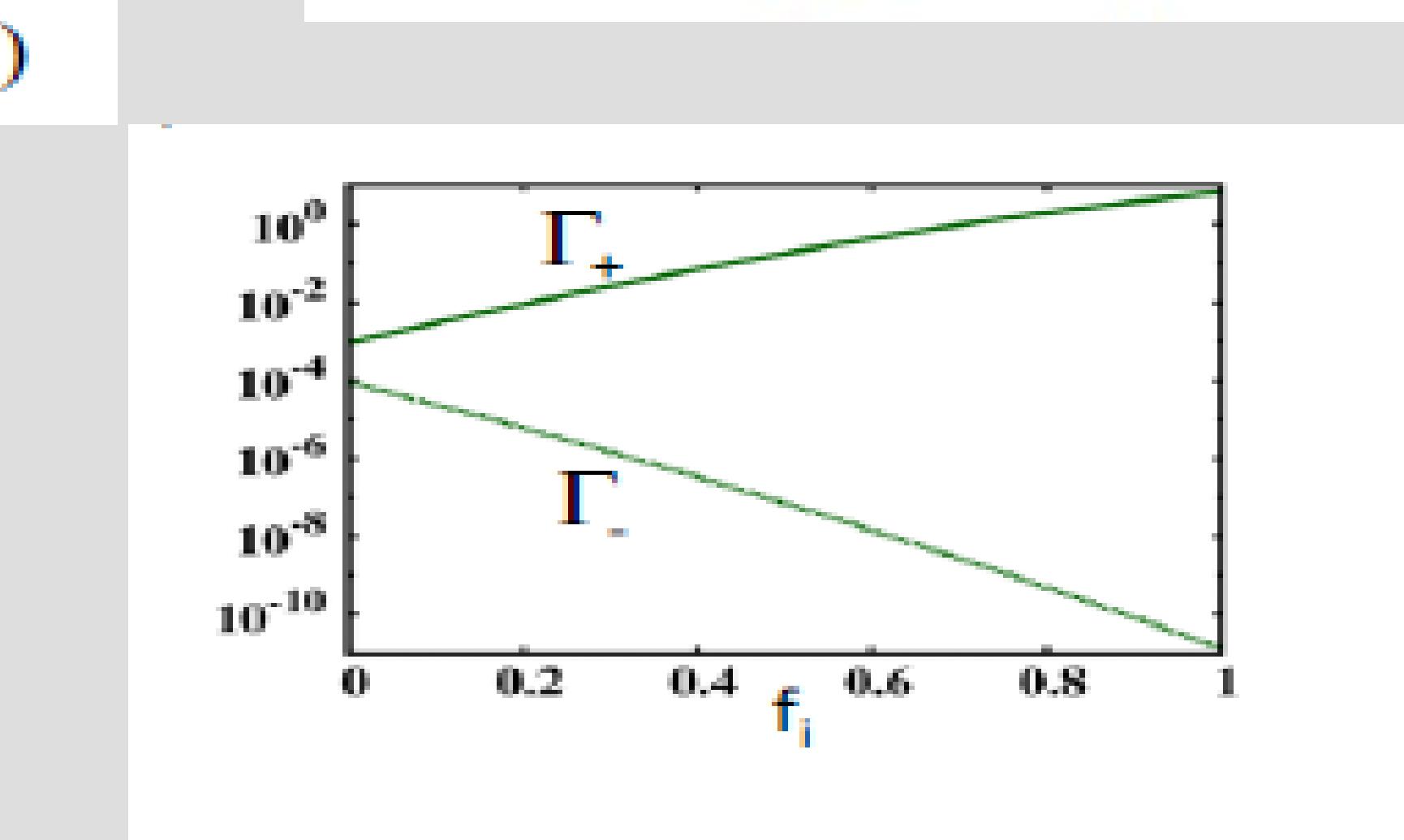
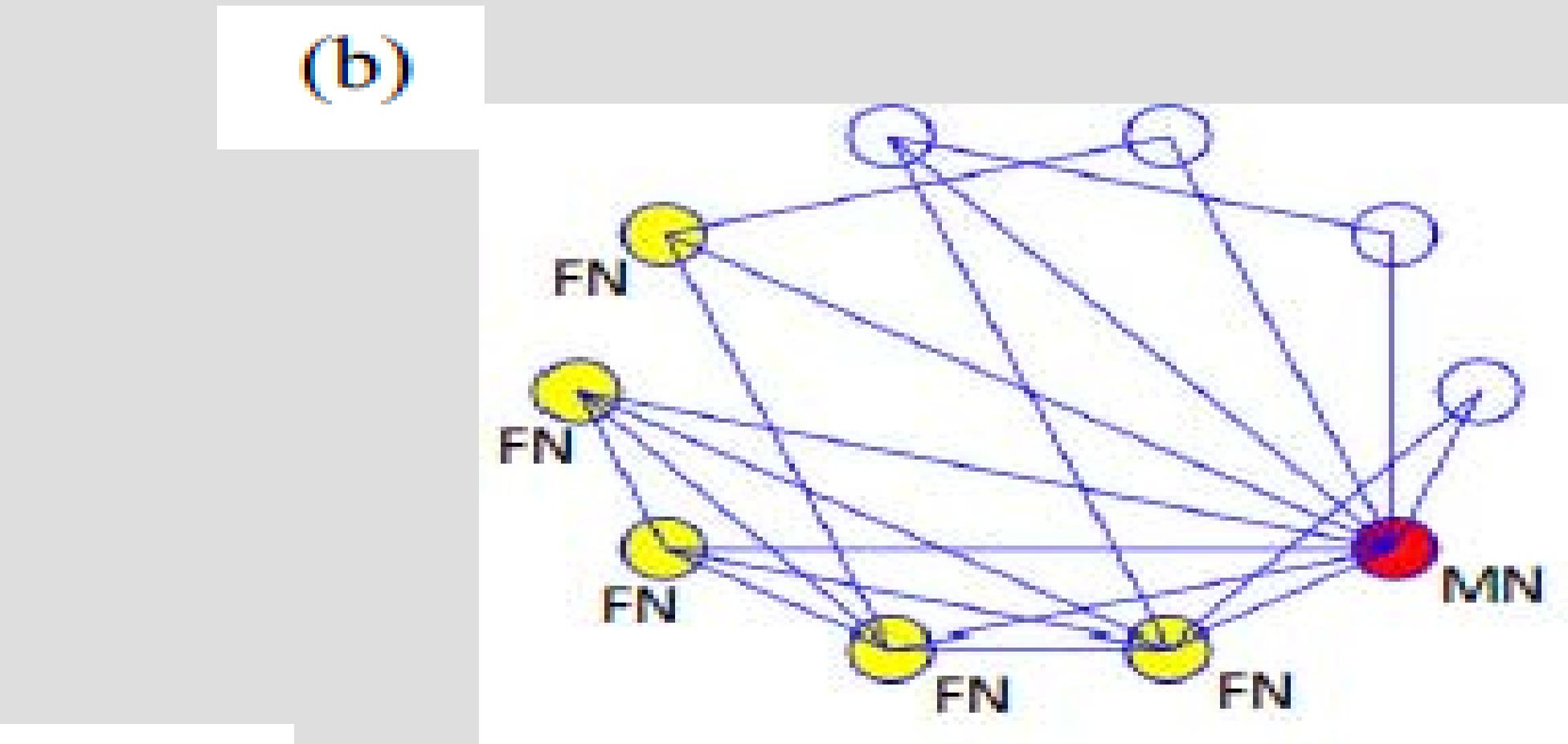
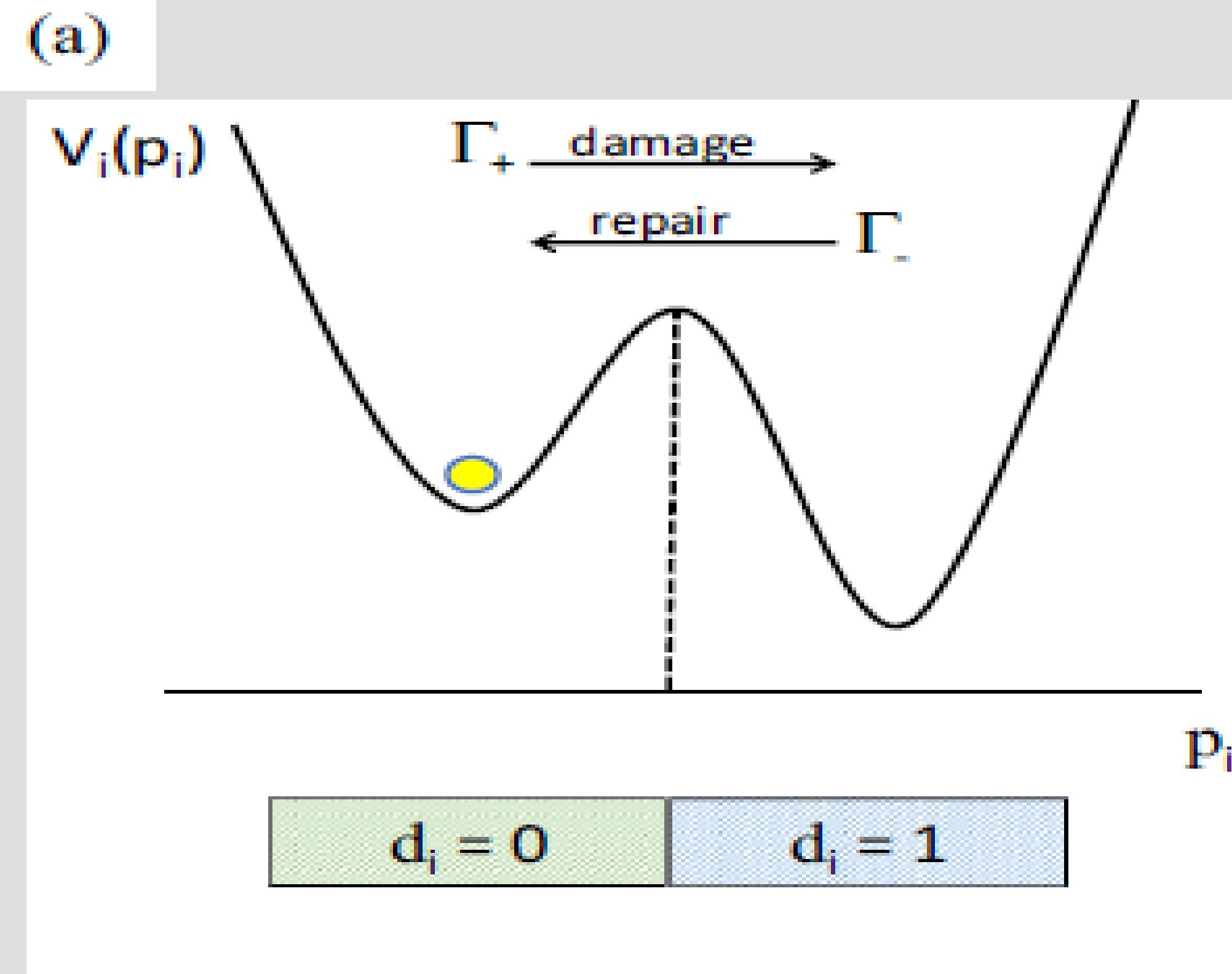
背景：为什么随年龄增长出现衰弱？为什么我们谈论“衰弱及其复杂性”？

改革之路：现在我们能为老年人提供更简单、更有效的健康照护吗？

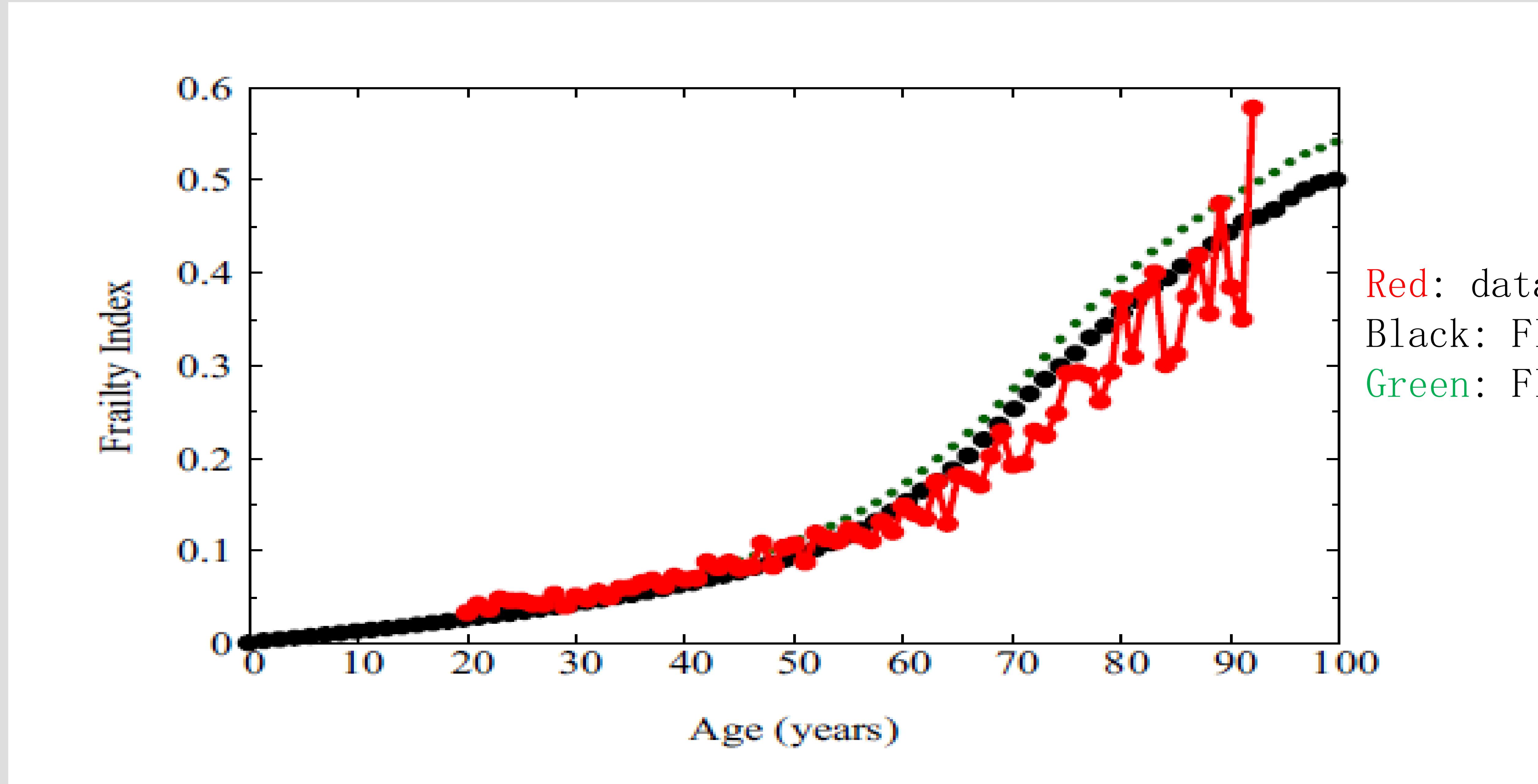
改革之路

- 包含衰弱复杂性的整合模式。
- 综合评分法能更容易识别其复杂性以及患者的健康状态是否变得更好或更差。
- 关于我们需要达到的目标的系统性思考（出院后减少衰弱）。

健康缺陷是如何出现及增殖的



模型与加拿大的数据相比较



研究对象

- 中医科
- 50 例
- 平均年龄 76.4 ± 6.4 岁(年龄范围 66-90岁)
- 54% 的女性