Who Thrives in Older Adulthood? Results from the National Population Health Survey 1994-2004

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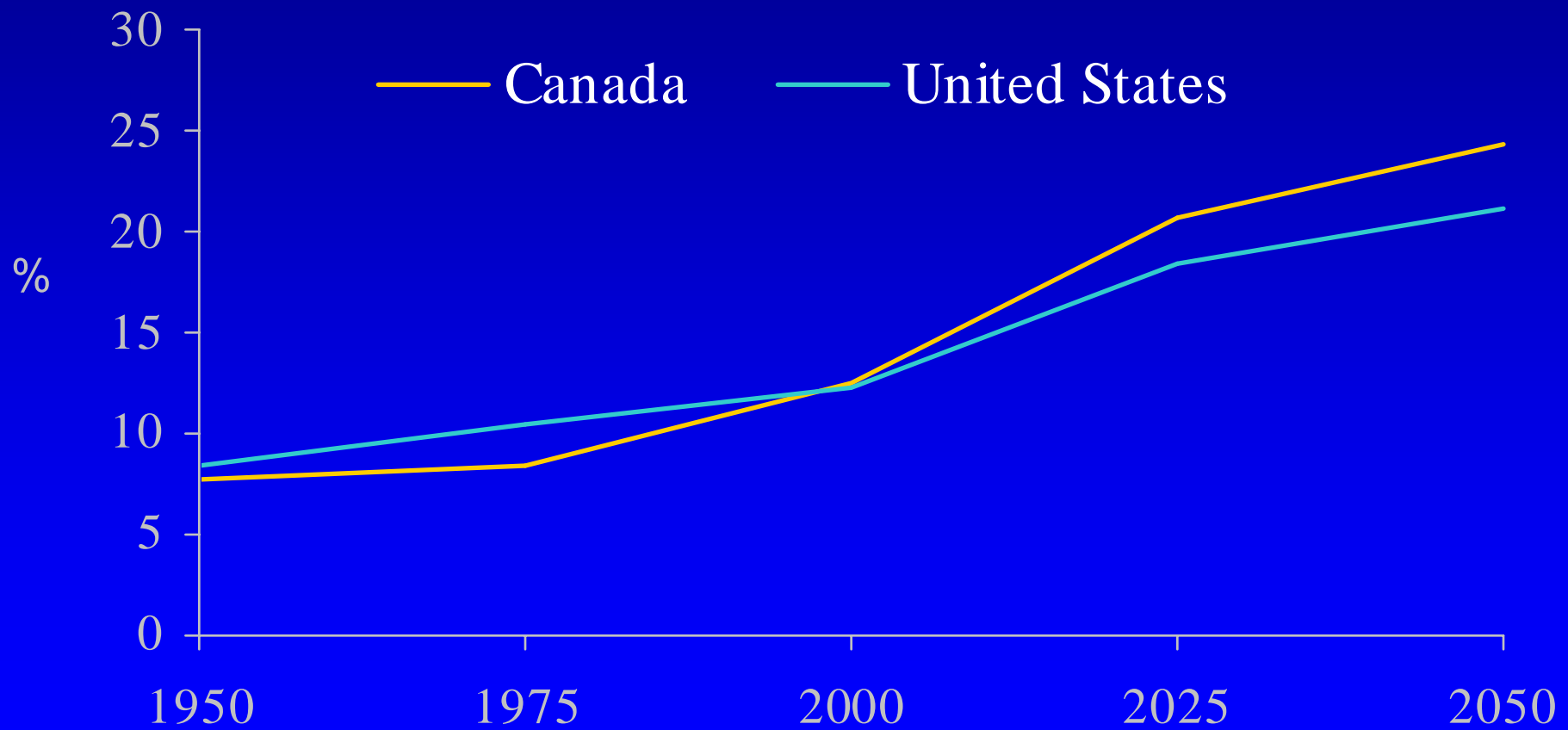
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Collaborators

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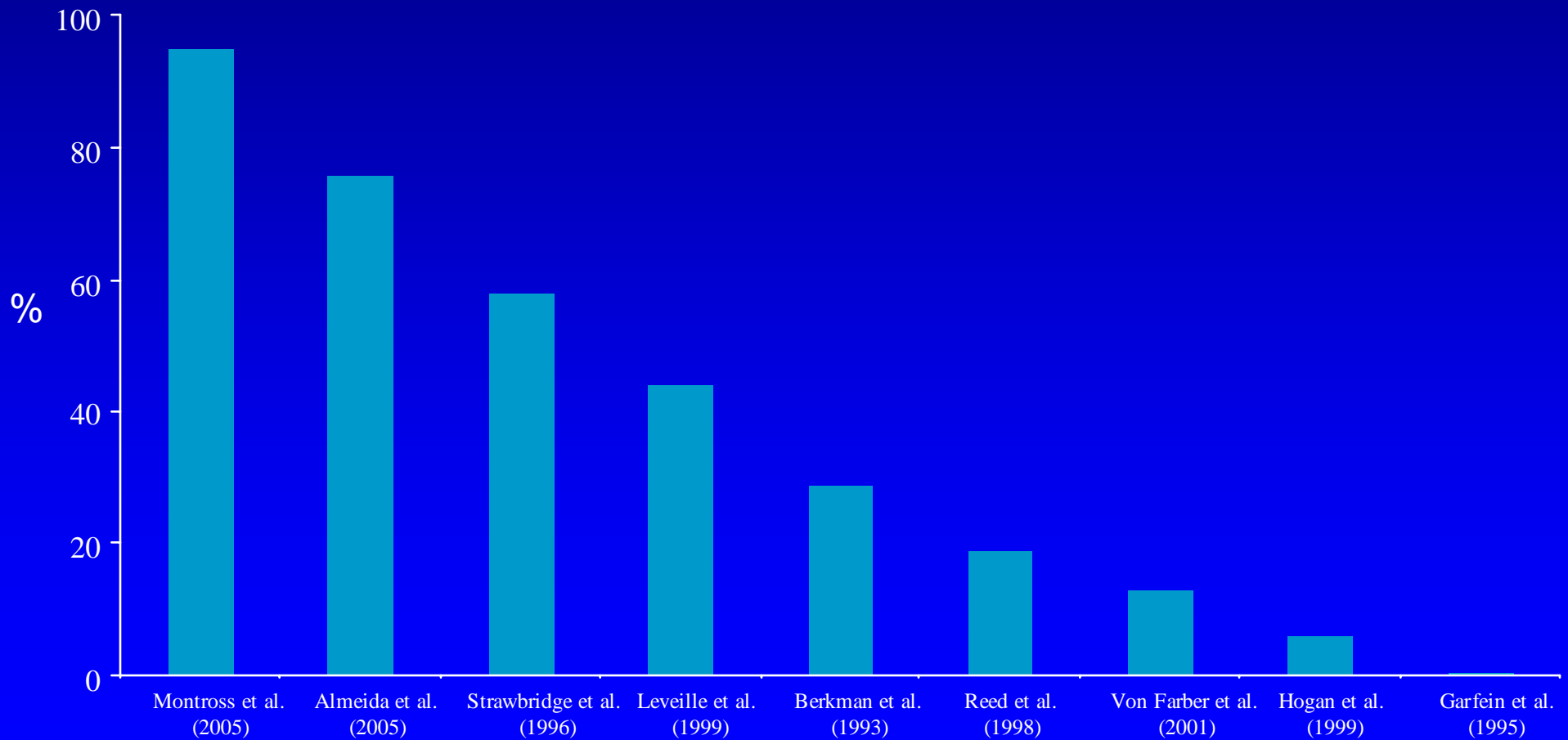
Growth in the older adult population

Definitions of successful aging

- Freedom from disability, high cognitive, physical, and social functioning (MacArthur Foundation Study)

- Absence of morbidity and physical/cognitive impairment in persons who survive to an advanced age (NIA)

- Degree of adaptation to age-associated changes (Berlin Aging Study)

- Avoidance of morbidity until the latest time point before death (J. Fries)

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Prevalence of successful aging

Y-axis: % (0 to 100)

Bar chart values:
- Montross et al. (2005): ~95
- Almeida et al. (2005): ~76
- Strawbridge et al. (1996): ~58
- Leveille et al. (1999): ~44
- Berkman et al. (1993): ~29
- Reed et al. (1998): ~19
- Von Farber et al. (2001): ~13
- Hogan et al. (1999): ~6
- Garfein et al. (1995): ~0

Adapted from Depp & Jeste, *Am J Geriatr Psychiatry.* 2006;14:6-20.

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Determinants of successful aging

- Younger

- Never smoked

- Physically active

- Socially connected

- Better self-assessed health

- Free of arthritis or cognitive impairment

- Absence of psychopathology

- Favorable financial status

- Live in safe neighborhoods

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Limitations in the research

- Inconsistent definitions

- Important comparison groups excluded (institutionalized and deceased)

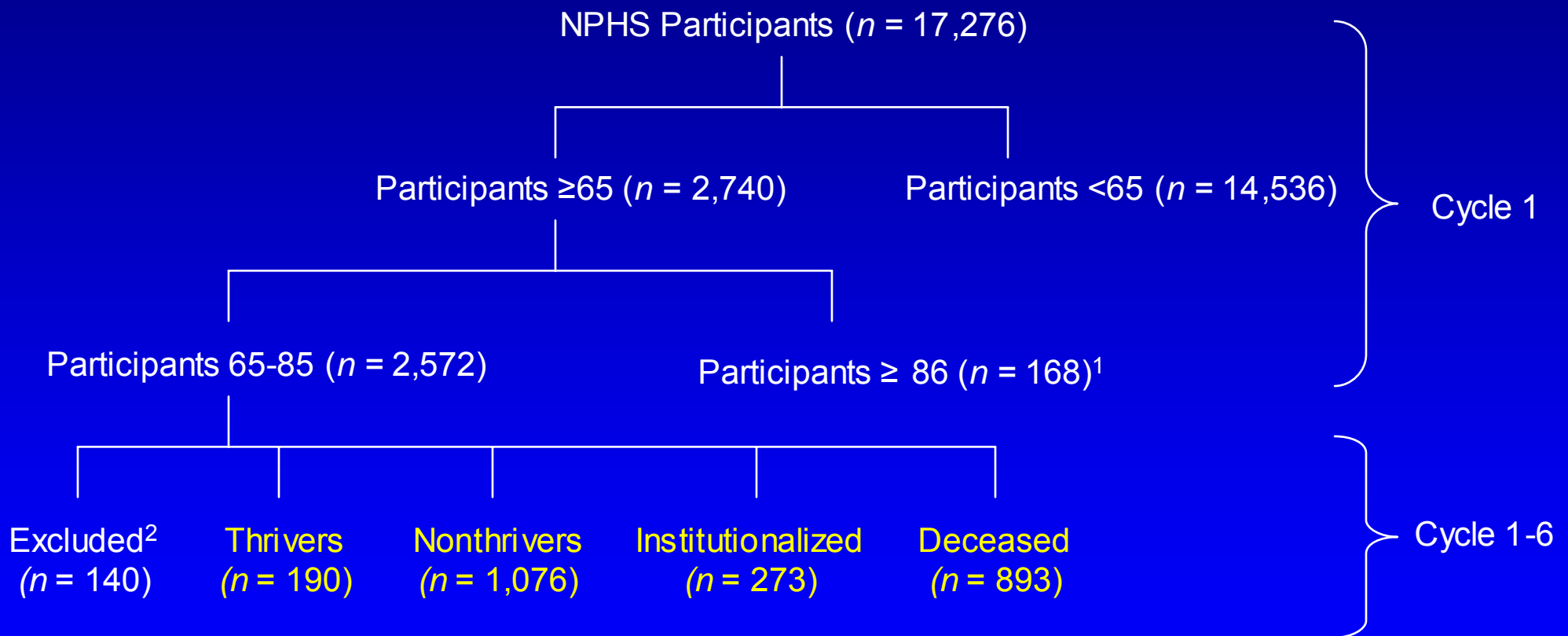- Pathology as the primary focus rather than positive health

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Objectives

1. To assess the prevalence of exceptionally good health (termed "thriving") over 10 years among community-dwelling older adults

2. To identify the key health, behavioral, psychosocial, and sociodemographic factors associated with thriving in older adulthood

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Methods

- Longitudinal data from the Canadian National Population Health Survey

- Starting in 1994–95, Statistics Canada began to administer the NPHS every two years

- We used 6 cycles from 1994-95 to 2004-05

- The attrition rates across all the cycles ranged from 6.7% to 9.3%.

- Deaths (all causes) were confirmed through December 31, 2003 with data from the Canadian Vital Statistics System.

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Study participants

NPHS Participants (n = 17,276)

Participants ≥65 (n = 2,740)   Participants <65 (n = 14,536)   Cycle 1

Participants 65-85 (n = 2,572)   Participants ≥ 86 (n = 168)[1]

| Excluded[2] (n = 140) | Thrivers (n = 190) | Nonthrivers (n = 1,076) | Institutionalized (n = 273) | Deceased (n = 893) | Cycle 1-6 |

[1]Following Willcox et al. (2006), the age range was restricted to those aged 65 to 85 at baseline

[2]Potential thrivers with missing data in at least two survey cycles

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Health status measure: HUI3

- Health status was assessed with the Health Utilities Index Mark 3 (HUI3)

- The HUI3 includes a health-status description system based on eight attributes: vision, hearing, speech, ambulation, dexterity, emotion, cognition, and pain/discomfort.

- There are five or six levels per attribute, ranging from no problem through severe disability

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HUI 3 (cont.)

Theoretical range: 1.00 ("perfect health") to -0.36 (lowest possible level of disability across all attributes)

The following categories were created:
- no disability (1.00)
- mild disability (0.89 to 0.99)
- moderate disability (0.70 to 0.88)
- severe disability (< 0.70)

Feeny et al. *Med Care.* 2002;40:113-128; Feeny, et al. *Soc Sci Med* 2004; 58: 799-809.

Thriving eligibility criteria

- Have an HUI3 score ≥ 0.89 at each cycle (no or only mild disability)

- Have data for at least 5 out of 6 cycles

- Have no missing data for cycles 1 and 6

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Comparison groups

Nonthrivers
- Had at least one HUI3 score <0.89 during the decade
- Survived and were not institutionalized at any point during the 10-year follow-up

Deceased
- Participants who died during the follow-up (1996 to 2004)

Institutionalized
- Participants who were institutionalized anytime during the follow-up

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Independent variables

Sociodemographics
- Age
- Sex
- Marital status
- Education
- Household income

Psychosocial
- Psychological distress
- Self-esteem
- Sense of mastery
- Sense of coherence
- Social involvement
- Social support

Health Behaviors
- Smoking
- Alcohol use
- Physical activity
- Body Mass Index

Health status
- Life-threatening illnesses
- Other chronic illness
- Functional limitations
- Self-rated health
- Medication use

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Statistical procedures

- Prevalence estimates

- Multinomial logistic regression

- Weights were used to adjust for survey over-sampling and non-response

- SUDAAN (9.0.1) used to obtain valid statistical inferences and national estimates

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Means HUI3 scores by NPHS cycles
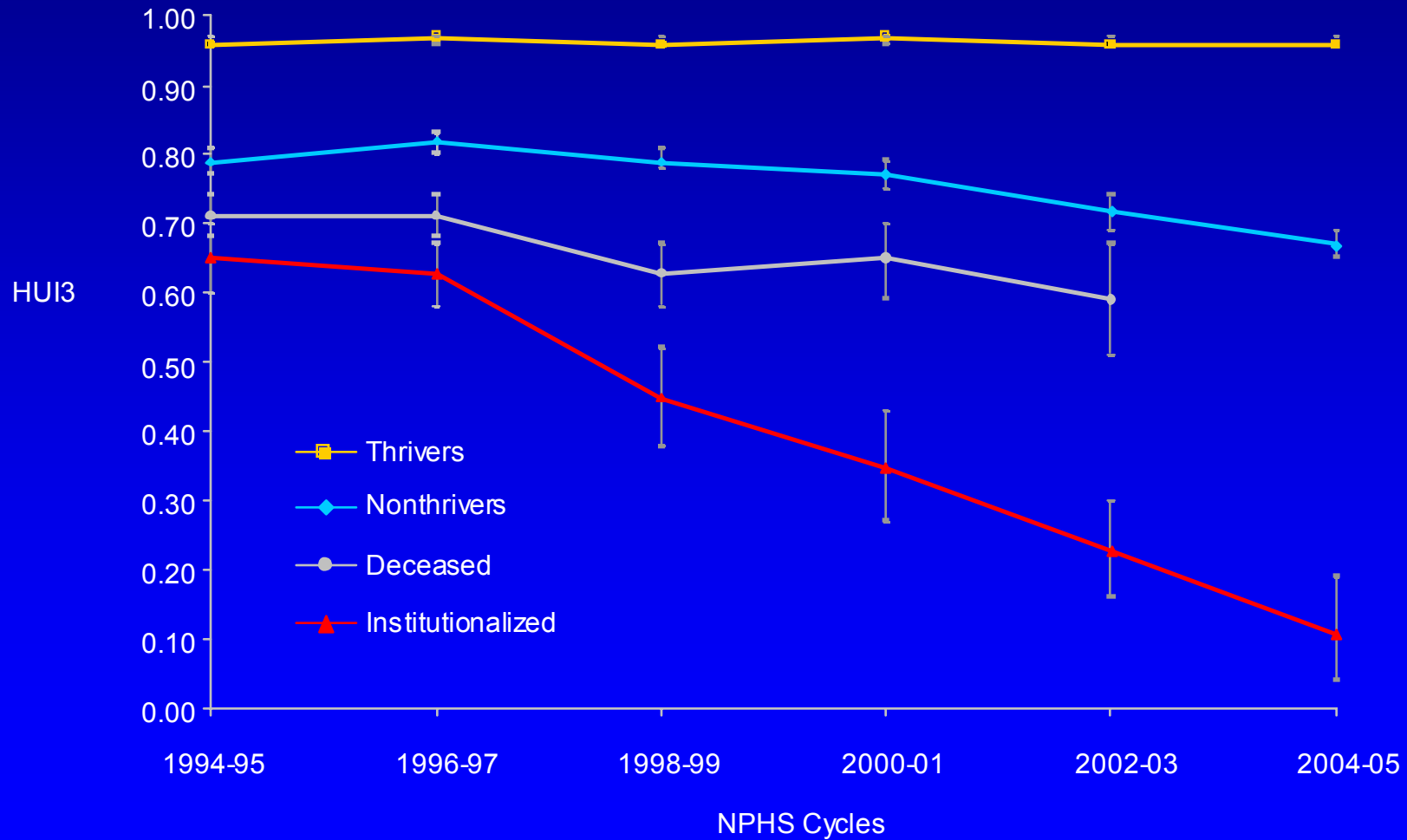
Note. Weighted means and 95% confidence intervals are presented.

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Sociodemographic variables

	Thrivers vs. Nonthrivers	Thrivers vs. Deceased	Thrivers vs. Institutionalized
Female	0.95 (0.57-1.61)	0.82 (0.39-1.75)	**2.04 (1.10-3.79)***
Age in years	**0.92 (0.87-0.97)****	**0.74 (0.69-0.79)*****	**0.80 (0.75-0.85)*****
Married	**0.56 (0.32- 0.98)***	0.50 (0.25-1.00)	0.74 (0.40-1.35)
Household income			
Lowest	1.00	1.00	1.00
Middle	1.41 (0.68-2.90)	1.90 (0.76-4.78)	1.36 (0.60-3.05)
Highest	**2.17 (1.01- 4.67)***	**2.86 (1.08-7.69)***	1.58 (0.66-3.75)

*p<.05, **p<.01, ***p<.001

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Psychosocial variables

	Thrivers vs. Nonthrivers	Thrivers vs. Deceased	Thrivers vs. Institutionalized
Perceived social support	0.99 (0.71-1.38)	1.10 (0.76-1.59)	0.93 (0.64-1.36)
Social involvement	1.00 (0.91-1.09)	0.98 (0.88-1.09)	1.07 (0.97-1.19)
Sense of coherence	**1.04 (1.01-1.07)***	1.03 (0.99-1.07)	1.03 (1.00-1.06)
Mastery	0.96 (0.89-1.03)	0.98 (0.89-1.08)	0.96 (0.89-1.03)
Self-esteem	1.09 (0.98-1.20)	1.11 (0.98-1.25)	1.10 (0.99-1.22)
Psychological distress (K6)	**0.87 (0.77-0.97)***	**0.78 (0.67-0.91)****	**0.81 (0.72-0.91)*****

$*p<.05, **p<.01, ***p<.001$

Health behavior variables

	Thrivers vs. Nonthrivers	Thrivers vs. Deceased	Thrivers vs. Institutionalized
Never smoked	**1.89 (1.10-3.23)***	**3.03 (1.49-6.25)****	**4.35 (2.44-7.69)*****
Moderate alcohol use	**1.78 (1.07-2.95)***	**2.87 (1.30-6.34)****	**2.22 (1.25-3.95)****
Physically active	1.08 (0.62-1.88)	1.46 (0.77-2.78)	1.30 (0.72-2.32)
Normal weight	1.15 (0.67-1.97)	1.07 (0.56-2.06)	0.89 (0.49-1.61)

*p<.05, **p<.01, ***p<.001

Health status variables

	Thrivers vs. Nonthrivers	Thrivers vs. Deceased	Thrivers vs. Institutionalized
Absence of life-threatening illness	1.59 (0.88-2.88)	**2.46 (1.21- 4.99)***	1.89 (0.97-3.69)
Absence of other chronic illness	**2.24 (1.31-3.81)****	**2.09 (1.03- 4.22)***	1.74 (0.95-3.16)
Functional limits	0.50 (0.24-1.07)	0.46 (0.21-1.00)	**0.40 (0.19-0.86)***
Self-rated health	**1.53 (1.12-2.10)****	**1.65 (1.14-2.39)****	**1.76 (1.24-2.50)****
Number of medications used	1.07 (0.87-1.33)	1.23 (0.95-1.59)	1.03 (0.82-1.30)

*p<.05, **p<.01, ***p<.001

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Conclusion

- Highest socioeconomic level correlated with the maintenance of exceptionally good health

- Absence of non-specific psychological distress is associated with thriving

- A few modifiable lifestyle behaviors are related to maintenance of exceptionally good health

- Surprisingly, perceived social support and social involvement were not associated with thriving

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Limitations

- The HUI3 cut-points used to define thrivers may have identified only the healthiest of the healthy.

- Almost 1 in 5 person lost to follow-up in the last cycle

- Reliance on self-reported measures

- Small cell sizes limited more extensive multivariate analyses

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Strength

- Large, representative sample of the older population

- Long follow-up period

- Use of a multidimensional health status measure

- Analysis focused on protective factors with a positive outcome

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Thank you

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