



# AN INTEGRAL CONCEPT OF FRAILTY

**October, 27 2016 - Naples**

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Reference Sites Network for Prevention and  
Care of Frailty and Chronic Conditions in  
community dwelling persons of EU Countries

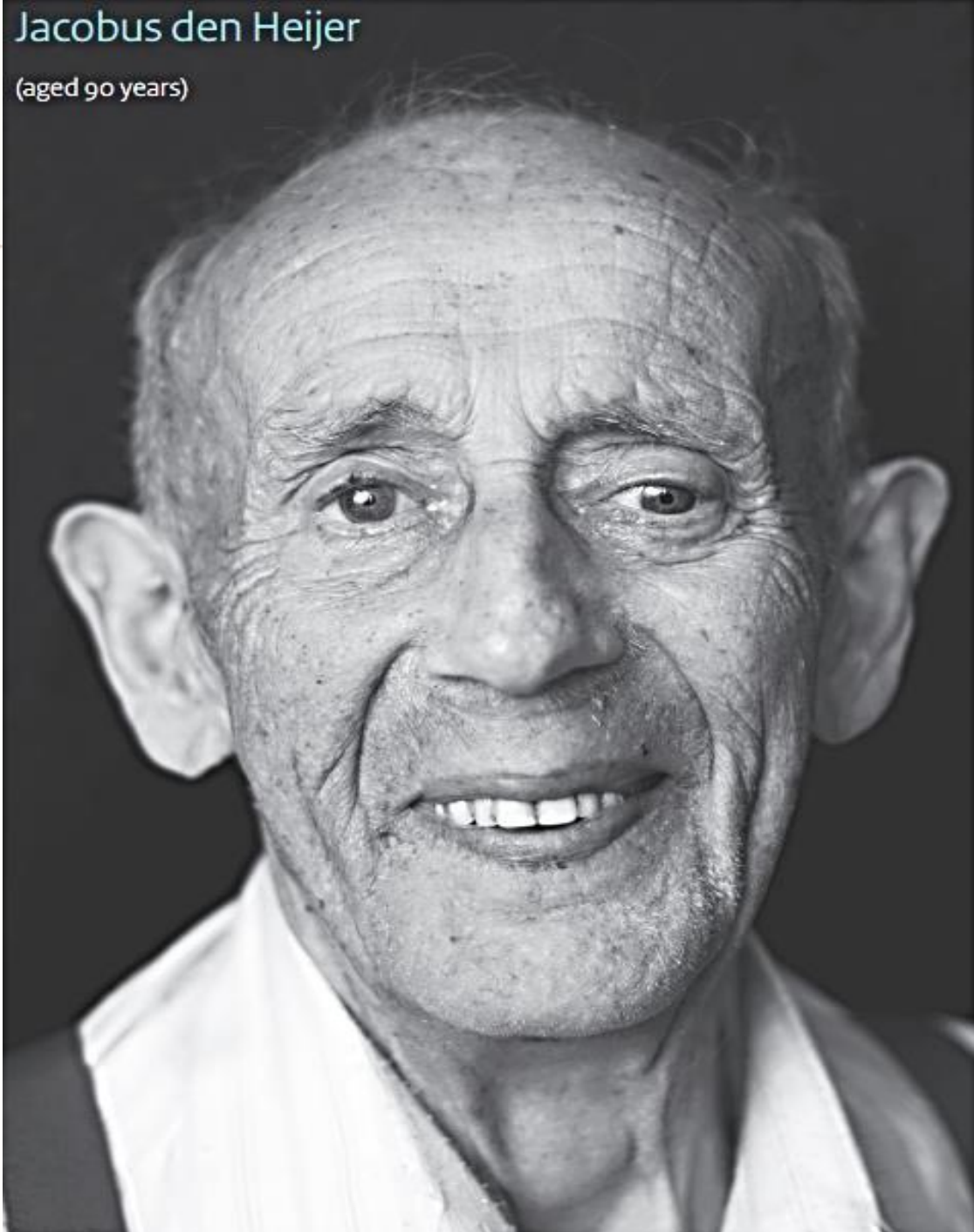


Co-funded by  
the Health Programme  
of the European Union

The SUNFRAIL Project has  
received funding from the  
European Union's Health  
Programme 2014-2020

# Jacobus den Heijer

(aged 90 years)



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# SEARCHING FOR AN CONCEPTUAL AND OPERATIONAL DEFINITION OF FRAILTY

There is no consensus

[J Gerontol A Biol Sci Med Sci](#). 2013 Jan;68(1):62-7. doi: 10.1093/gerona/gls119. Epub 2012 Apr 16.

**Searching for an operational definition of frailty: a Delphi method based consensus statement: the frailty operative definition-consensus conference project.**

[Rodríguez-Mañas L](#), [Féart C](#), [Mann G](#), [Viña J](#), [Chatterji S](#), [Chodzko-Zajko W](#), [Gonzalez-Colaço Harmand M](#), [Bergman H](#), [Carcaillon L](#), [Nicholson C](#), [Scuteri A](#), [Sinclair A](#), [Pelaez M](#), [Van der Cammen T](#), [Beland F](#), [Bickenbach J](#), [Delamarche P](#), [Ferrucci L](#), [Fried LP](#), [Gutiérrez-Robledo LM](#), [Rockwood K](#), [Rodríguez Artalejo F](#), [Serviddio G](#), [Vega E](#); [FOD-CC group \(Appendix 1\)](#).

Small and broad definitions



# SMALL CONCEPTUAL DEFINITION

For example

A biologic syndrome of decreased reserve and resistance to stressors, resulting from cumulative declines across multiple physiologic systems, causing vulnerability to adverse outcomes.

(Fried et al., 2001)



# SMALL OPERATIONAL DEFINITION

Phenotype of frailty, five criteria:

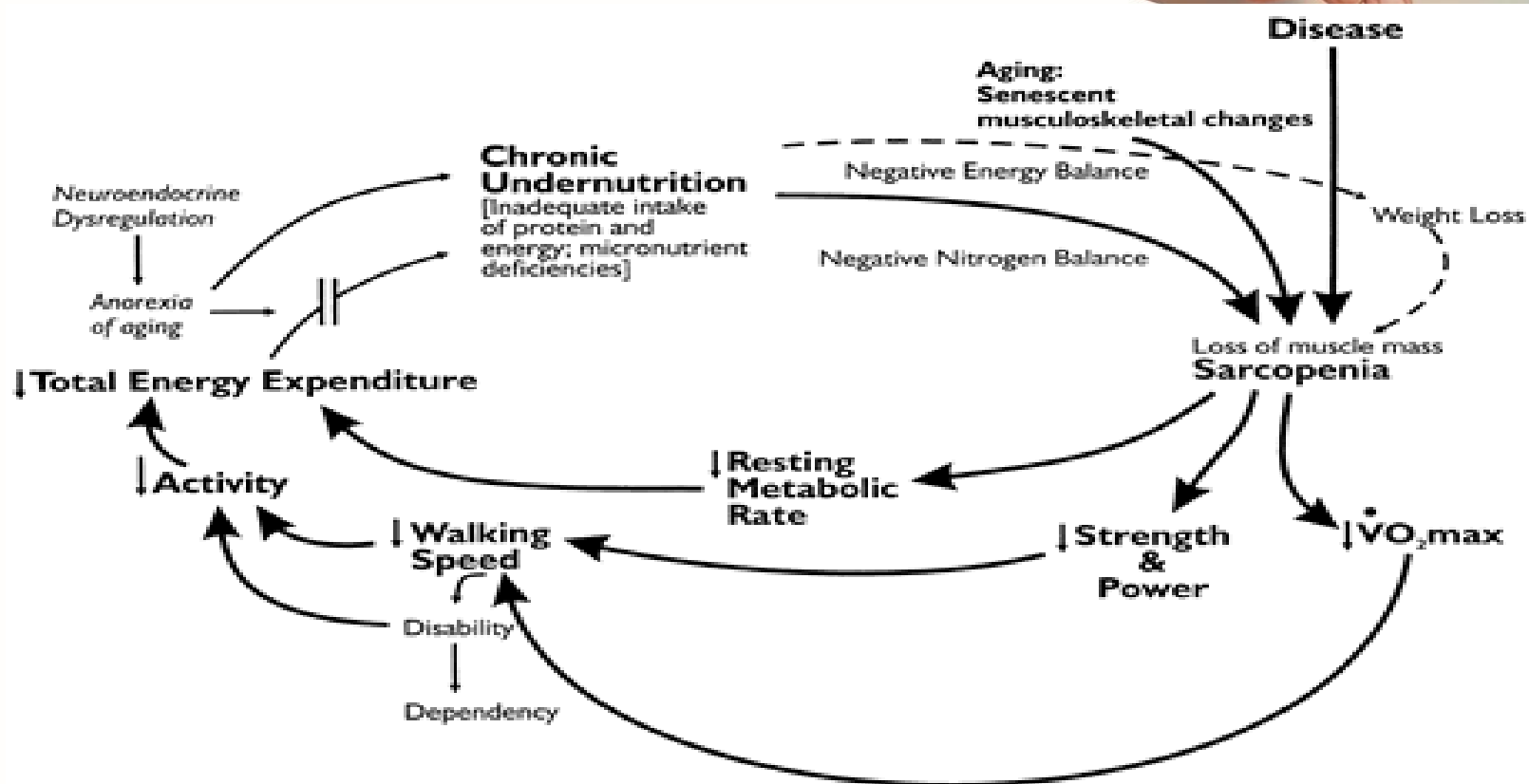
- Unintentional weight loss
- Weakness
- Poor endurance
- Slowness
- Low physical activity

Three frailty stages: not frail (score 0), pre-frail (score 1-2), frail (score 3-5)

(Fried et al., 2001)



# CYCLE OF FRAILITY (FRIED & WALSTON, 1998)



# TOWARDS AN INTEGRAL CONCEPT OF FRAILTY

Frailty provides a conceptual basis for moving away from organ- and disease based approaches towards a health-based, integrative approach (Bergman et al., 2007)

Focus exclusively on physical frailty; risk of fragmentation of care (Markle-Reid & Brown, 2003) and reduction in quality of care

Attention for the individual as a whole



# BROAD CONCEPTUAL DEFINITION

For example

Frailty is a dynamic state affecting an individual who experiences losses in one or more domains of human functioning (physical, psychological, social), which is caused by the influence of a range of variables and which increases the risk of adverse outcomes (Gobbens et al., 2010)





# INTEGRAL OPERATIONAL DEFINITION

Physical frailty: nutrition (weight loss), mobility (slowness), physical activity, strength, endurance, balance, sensory functions

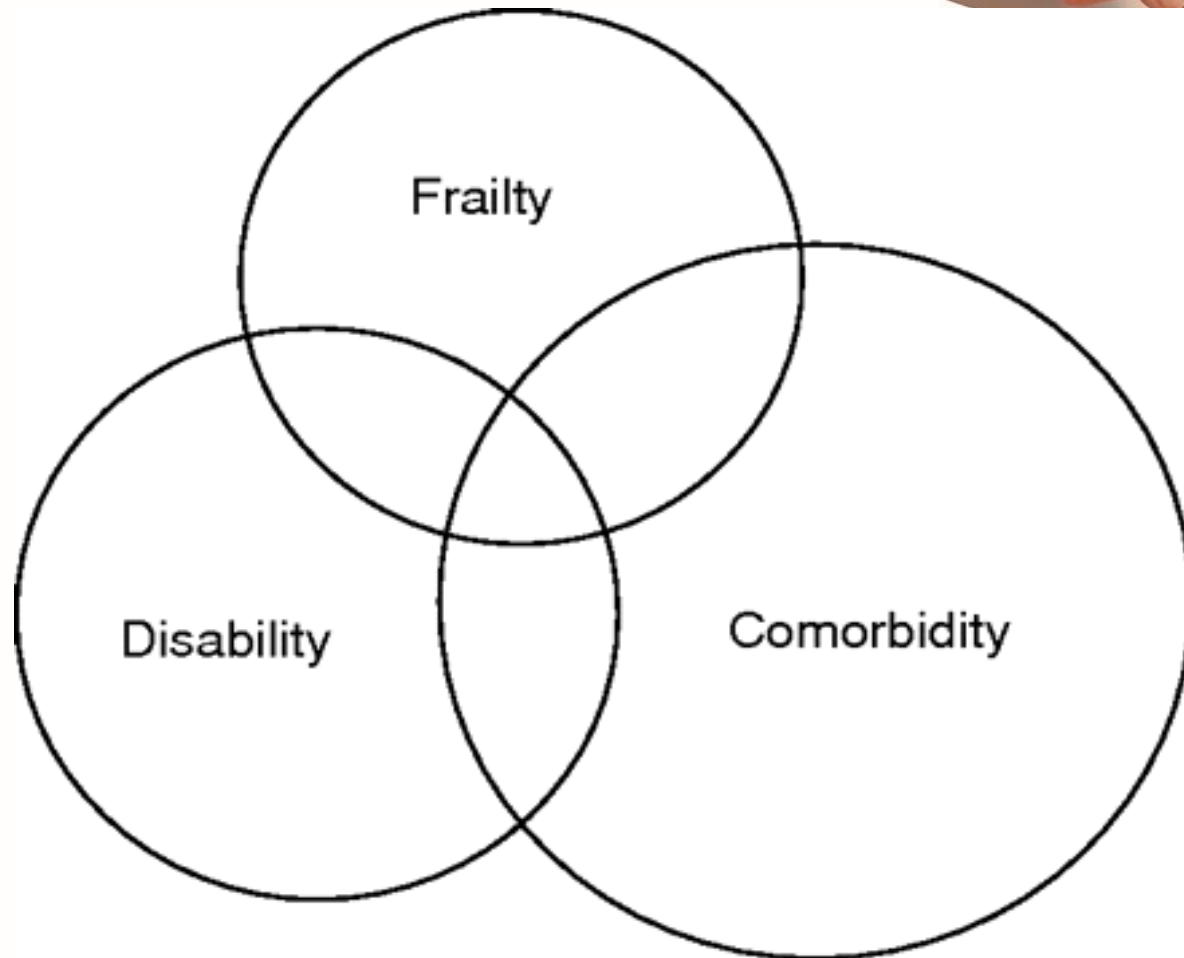
Psychological frailty: cognition, mood, coping

Social frailty: social relations, social support



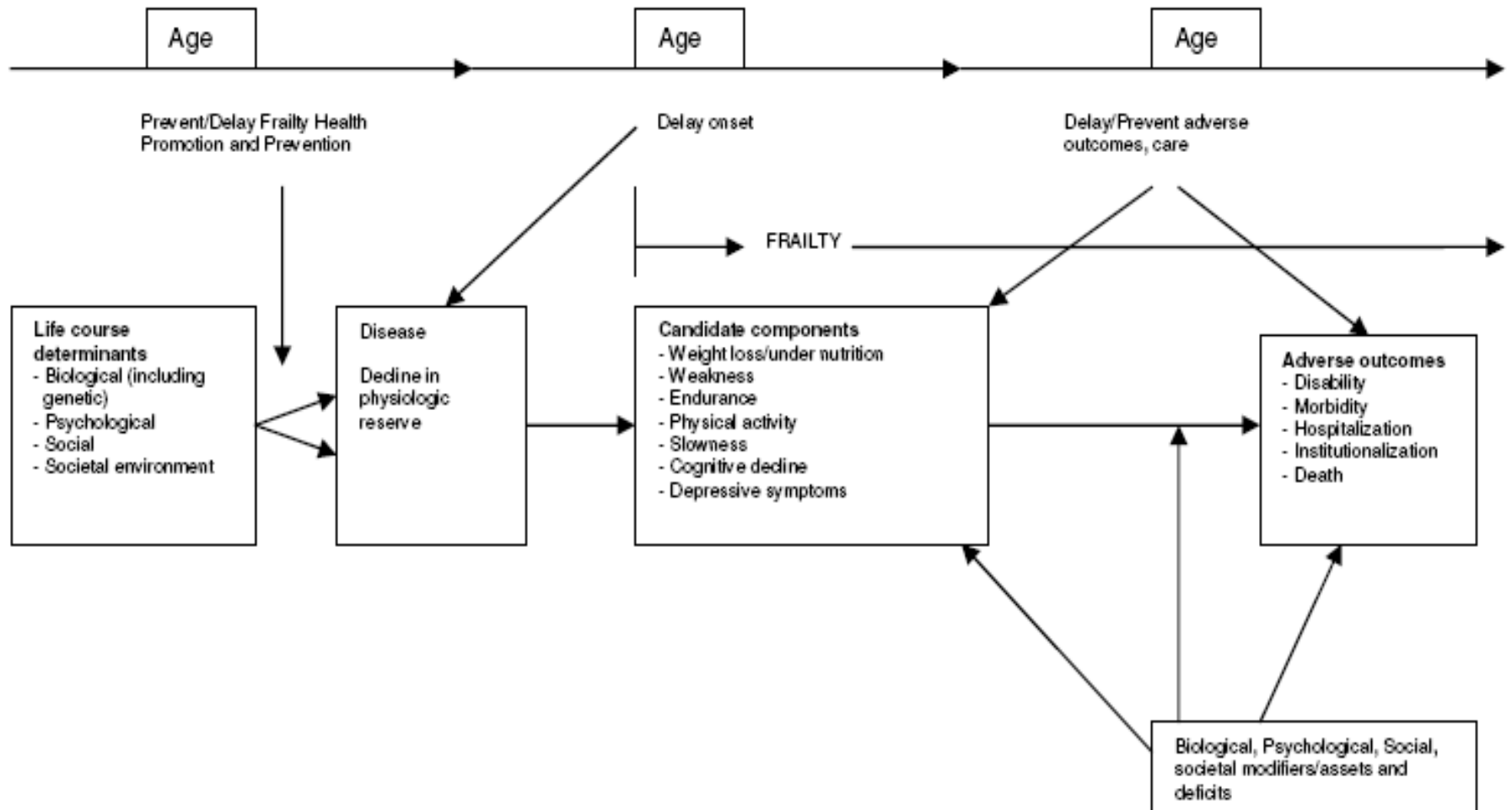
# FRAILITY, DISABILITY, COMORBIDITY

(FRIED ET AL., 2004)

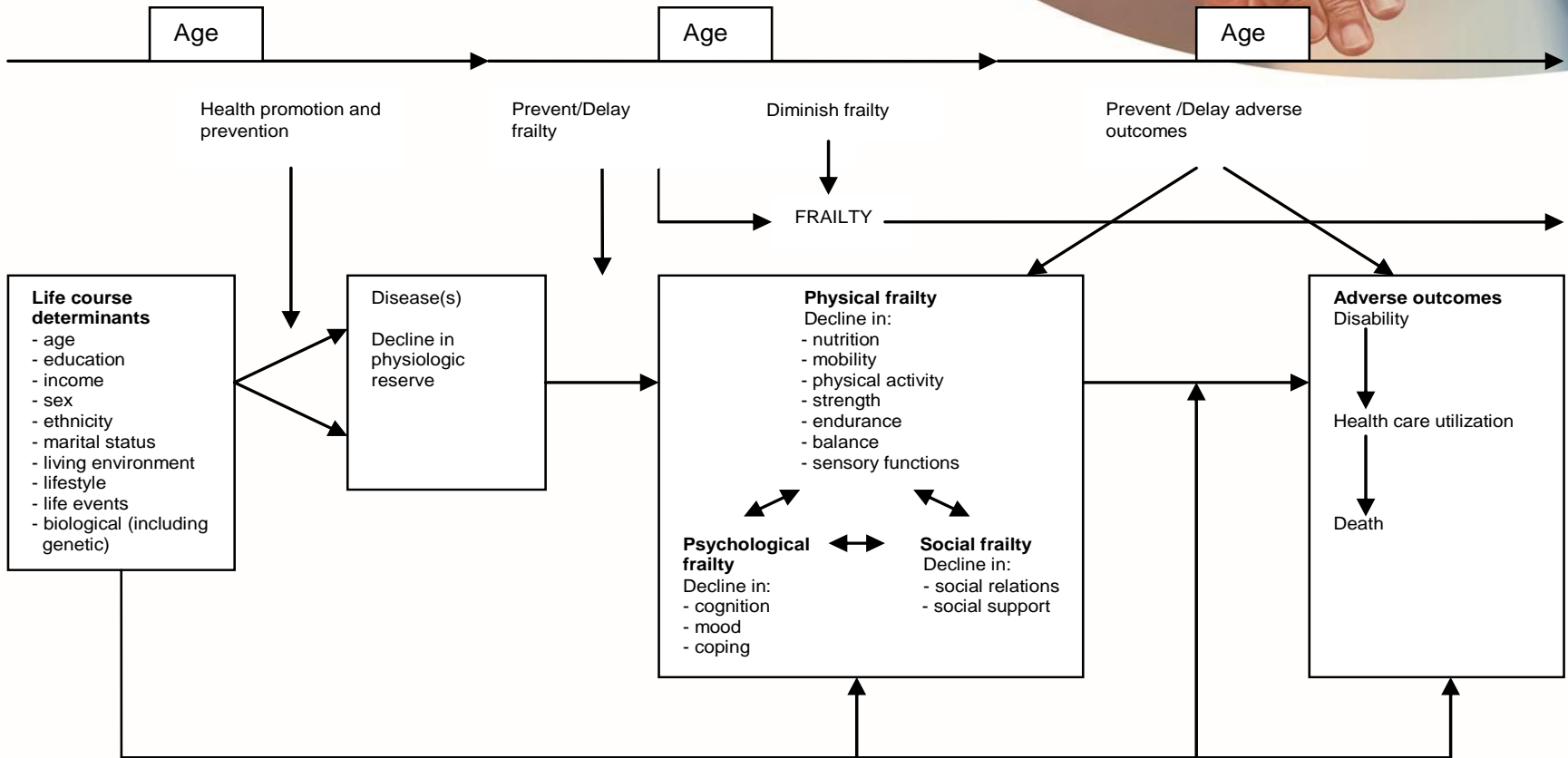


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# A WORKING FRAMEWORK IN DEVELOPMENT (BERGMAN ET AL. 2004)



# AN INTEGRAL CONCEPTUAL MODEL OF FRAILITY (GOBBENS ET AL. 2010)



# DETERMINANTS OF FRAILITY



	Physical	Psychological	Social
Age	x		
Sex			x
Marital status			
Education			
Income			x
Unhealthy lifestyle	x	x	x
Life-events		x	
Multimorbidity	x	x	

Gobbens et al., 2010



# TILBURG FRAILTY INDICATOR (TFI)

A user-friendly instrument, based on the integral conceptual model of frailty

Aim: identification of frailty

Two parts:

Determinants of frailty, 10 questions e.g.: age, income, lifestyle

Components of frailty, 15 questions e.g.: balance, cognition, social relations

Differs from other measurement instruments

Includes only self-reported information

Measures three domains of human functioning (physical, psychological, social)

Does not refer to disability and multimorbidity



# TILBURG FRAILTY INDICATOR (PHYSICAL SUBSCALE)

## Physical components

11. Do you feel physically healthy? 0 yes 0 no

12. Have you lost a lot of weight recently 0 yes 0 no

without wishing to do so?

(‘a lot’ is: 6 kg or more during the last six months, or 3 kg or more during the last month)

Do you experience problems in your daily life due to:

13 .....difficulty in walking? 0 yes 0 no

14. ....difficulty maintaining your balance? 0 yes 0 no

15. ....poor hearing? 0 yes 0 no

16. ....poor vision? 0 yes 0 no

17 . ....lack of strength in your hands? 0 yes 0 no

18. ....physical tiredness? 0 yes 0 no



# TILBURG FRAILTY INDICATOR (PSYCHOLOGICAL AND SOCIAL SUBSCALE)



## Psychological components

- |   |       |             |      |
|---|-------|-------------|------|
| 19. Do you have problems with your memory?                  | 0 yes | 0 sometimes | 0 no |
| 20. Have you felt down during the last month?               | 0 yes | 0 sometimes | 0 no |
| 21. Have you felt nervous or anxious during the last month? | 0 yes | 0 sometimes | 0 no |
| 22. Are you able to cope with problems well?                | 0 yes |             | 0 no |

## Social components

- |  |       |             |      |
|--|-------|-------------|------|
| 23. Do you live alone?                               | 0 yes |             | 0 no |
| 24. Do you sometimes miss having people around you?  | 0 yes | 0 sometimes | 0 no |
| 25. Do you receive enough support from other people? | 0 yes |             | 0 no |



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# TILBURG FRAILTY INDICATOR (TFI)

Scoring, range 0-15

Frail, score  $\geq 5$

A systematic review by Sutton et al. (2016) concluded:

*‘The TFI has the most robust evidence of reliability and validity and has been the most extensively examined in terms of psychometric properties’.*





# PREDICTION OF HEALTHCARE UTILIZATION

A multidimensional assessment predicted one and/or two years later:

- contacts with healthcare professionals
- hospitalization
- personal care
- nursing
- informal care
- facilities in residential care

Gobbens et al., 2012



# PREDICTION OF DISABILITY

Physical frailty: Tilburg Frailty Indicator (TFI), 8 items

Disability: Groningen Activity Restriction Scale (GARS), 18 items (11 ADL) and 7 IADL (Kempen et al., 1996)

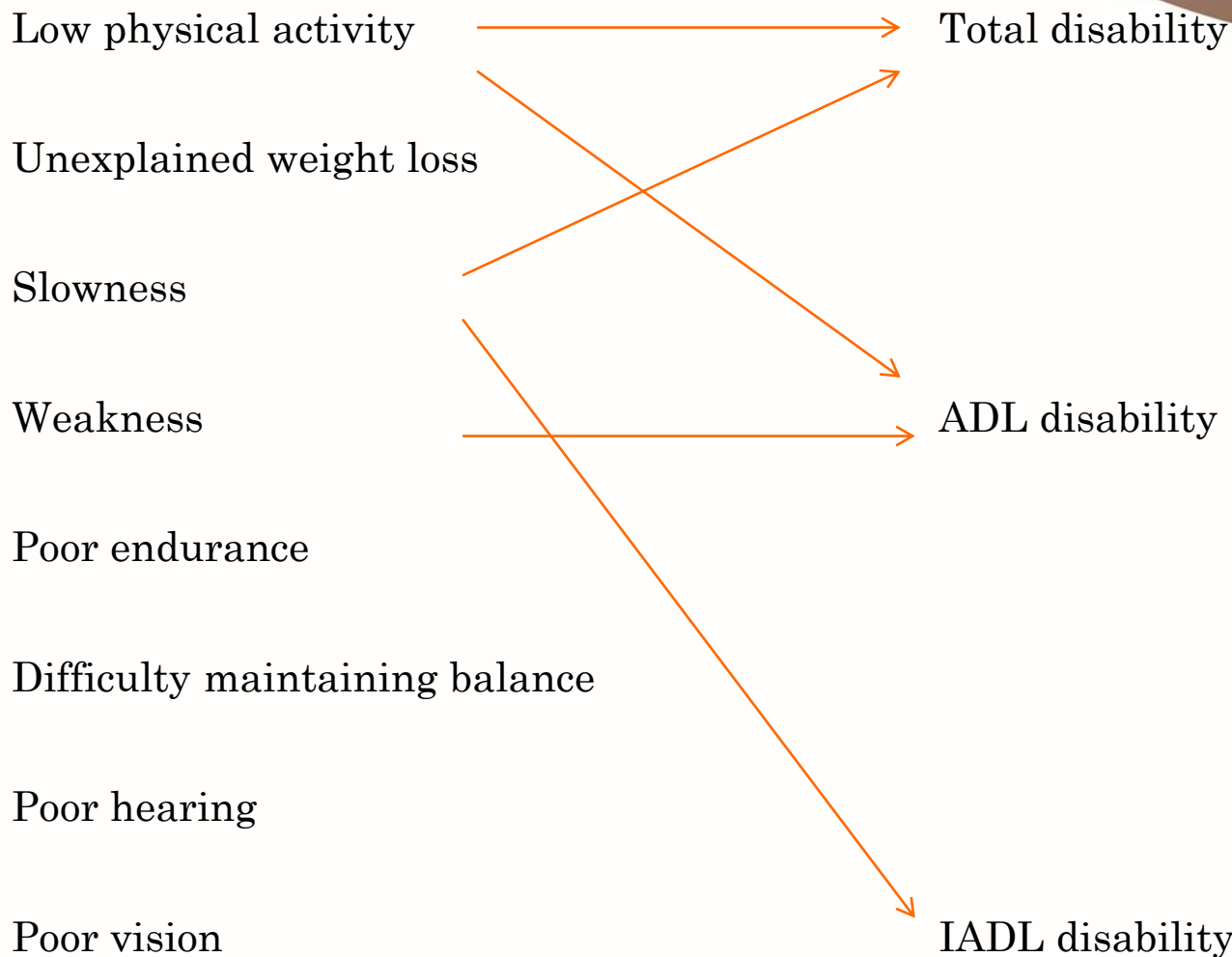
Results:

Bivariate associations: all eight items were associated with total, ADL and IADL disability





# RESULTS SEQUENTIAL LINEAR REGRESSION ANALYSES



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# PHYSICAL ACTIVITY



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# PREDICTING QUALITY OF LIFE OF OLDER PEOPLE

Physical, psychological and social frailty: TFI

Quality of life domains (physical health, psychological, social relations, environmental):  
WHOQOL-BREF (WHOQOL Group, 1998)

Bivariate associations: all four psychological and three social components were associated with all four quality of life domains.



# CONCLUSIONS



The prediction of all four quality of life domains by physical frailty was improved after adding psychological and social frailty.

Feeling down significantly improved prediction of all quality of life domains, after controlling for the effect of all other variables.

Lack of social relations and lack of social support significantly improved the prediction of three quality of life domains, after controlling for the effect of all other variables.



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# TAKE HOME MESSAGE

Adverse outcomes of frailty are differently and uniquely affected by the three domains of frailty (physical, psychological, social) and their components.

Findings of several studies emphasize the importance of an integral concept of frailty.



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# FINALLY

Thanks for your attention!

Questions?

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SCP, 2011

