



# Period differences in mobility and self-care decline of older adults

Majogé van Vliet, Msc.  
Dr. Martijn Huisman  
Prof. dr. Dorly J. H. Deeg

# 1. Introduction

Chronic diseases and disability result in decline in mobility & self-care for older adults

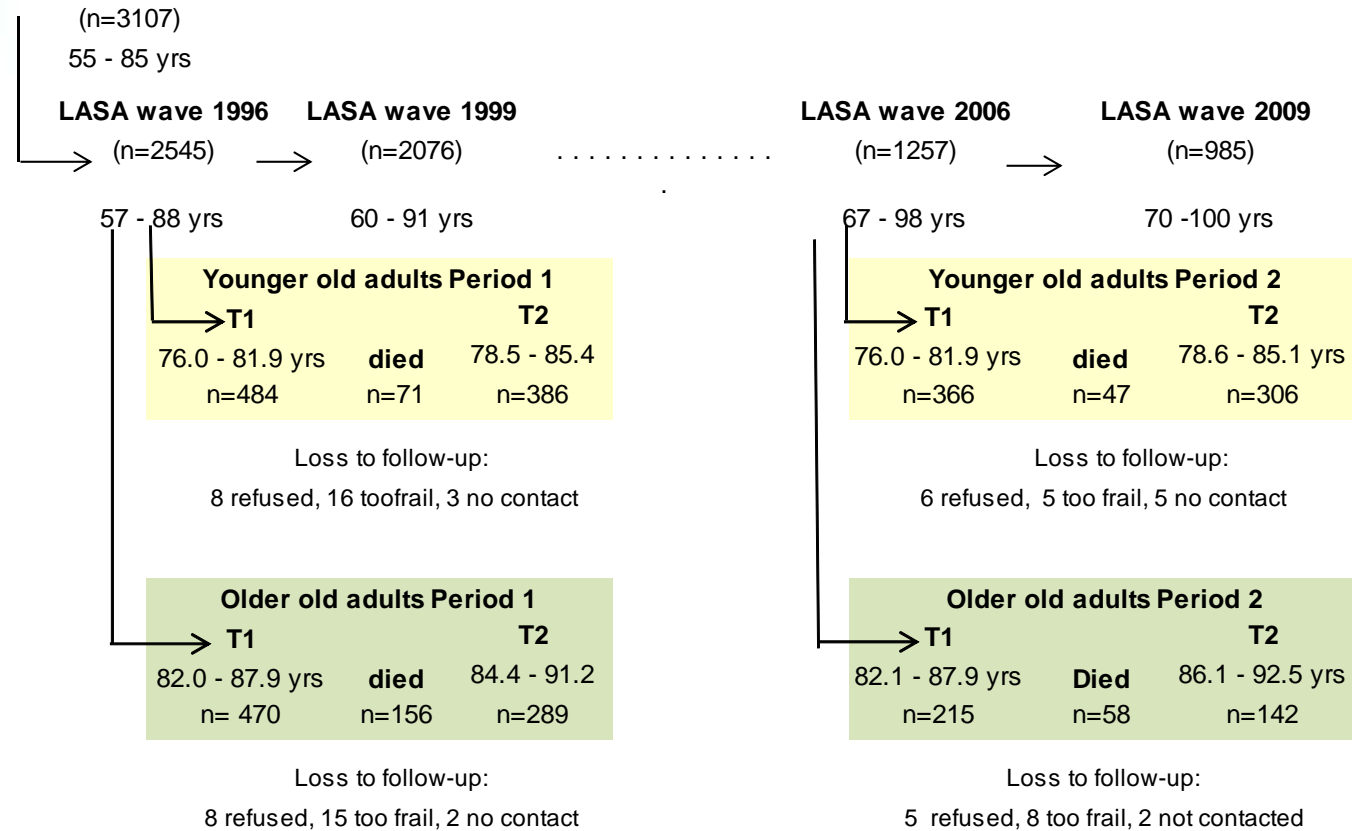
Are there period differences  
in mobility and self-care decline  
of older adults?



# 2. Design



## LASA baseline 1993, first cohort



# 3. Demographics at baseline



	OLDER OLD SAMPLE (N=685)		YOUNGER OLD SAMPLE (N=850)	
	1996	2006	1996	2006
	N=470 (100%)	n=215 (100%)	n=484 (100%)	n=366 (100%)
<i>Gender: female</i>	253 (54%)	136 (63%)*	251 (52%)	219 (60%)*
<i>Age: mean (sd)</i>	84.8 yr (1.8)	84.7 yr (1.7)	79.1 (1.7)	78.9 (1.8)
<i>Education: lower</i>	264 (56%)	88 (41%)**	228 (47%)	143 (39%)*
<i>Interview mode</i>				
Face to face	397 (86%)	162 (76%)*	432 (90%)	310 (85%)*
Telephone	39 (8%)	24 (11%)	33 (7%)	31 (8%)
Proxy by phone	27 (6%)	28 (13%)	15 (3%)	25 (7%)

\*Level of significance is < 0.05

\*\* level of significance is < 0.001

## 4. Chronic diseases at baseline



	OLDER OLD SAMPLE (N=685)		YOUNGER OLD SAMPLE (N=850)	
	1996	2006	1996	2006
	N=470 (100%)	n=215 (100%)	n=484 (100%)	n=366 (100%)
<i>Number of self-reported chronic diseases, longitudinal (score 0-10)</i>				
Mean (sd)	2.0 (1.43)	2.6 (1.48)**	2.1 (1.37)	2.5 (1.46)**
2 to 10 diseases	284 (61%)	159 (75%)*	159 (63%)	267 (73%)*
<i>Cognitive state, MMSE (score 0, worse - 30, good) #</i>				
Score < 27	247 (62%)	77 (48%)*	188 (43%)	94 (30%)**
*Level of significance is < 0.05				
** level of significance is < 0.001				
# only face to face				

*Eight specific chronic diseases and upto two other chronic diseases can be reported:*

Older old adults: lung, heart\*, arterial, diabetes, CVA, arthritis\*, cancer\* and high blood pressure\*

Younger old adults: lung, heart, arterial, diabetes\*, CVA, arthritis\*, cancer\* and high blood pressure\*\*

# 5. Baseline mobility & self-care

Excluding specific male and female activities:

Mobility: climbing stairs, walk outside and using own or public transport

Self-care: (un)dressing, rise and sit down and cutting own toenails

Deeg (1993). Sex differences in IADL in the Netherlands: functional and situational disability.

	OLDER OLD SAMPLE (N=685)		YOUNGER OLD SAMPLE (N=850)	
	1996	2006	1996	2006
	N=470 (100%)	n=215 (100%)	n=484 (100%)	n=366 (100%)
<i>Mobility limitation (score 0 (no) - 12 (max))</i>				
none	145 (31%)	42 (20%)*	235 (49%)	143 (39%)*
score > 0 to 4	96 (20%)	56 (26%)	103 (21%)	117 (32%)
score >= 4 to 8	105 (23%)	61 (29%)	83 (17%)	64 (18%)
score >= 8	120 (25%)	54 (25%)	60 (12%)	41 (11%)
<i>Self-care limitation (score 0 (no) - 12 (max))</i>				
none	123 (26%)	36 (17%)*	235 (49%)	143 (39%)*
score > 0 to 4	112 (24%)	67 (31%)	103 (21%)	117 (32%)
score >= 4 to 8	200 (43%)	88 (41%)	83 (17%)	64 (18%)
score >= 8	33 (7%)	24 (11%)	60 (12%)	41 (11%)

\*Level of significance is < 0.05

\*\* level of significance is < 0.001



## 6. Decline in mobility & self-care

Assessing relevant decline with  
the Edwards–Nunnally (EN) method:

$$[ r_{xx} (X_{pre} - M_{pre}) + M_{pre} ] \pm 2 S_{pre} \sqrt{1 - r_{xx}}$$

$r_{xx}$  = reliability of the measurement scale at baseline

$X_{pre}$  = individual mobility or self-care score at baseline

$M_{pre}$  = mean of the sample scores at baseline

$S_{pre}$  = standard deviation of the sample scores at baseline

# 6. Relevant decline in mobility and self-care



	OLDER OLD SAMPLE (N=685)		YOUNGER OLD SAMPLE (N=850)	
Period	1996-1999	2006-2009	1996-1999	2006-2009
	N=443 (100%)	n=199 (100%)	n=454 (100%)	n=352 (100%)
<b>Mobility</b>				
Stable	206 (47%)	107 (55%)*	310 (68%)	253 (72%)
declined	77 (18%)	31 (16%)	72 (16%)	51 (15%)
Died	156 (36%)	58 (30%)	71 (16%)	47 (13%)
<b>Self-care</b>				
Stable	246 (56%)	119 (60%)	341 (75%)	275 (78%)
declined	41 (9%)	22 (11%)	42 (9%)	30 (9%)
Died	156 (35%)	58 (29%)	71 (16%)	47 (13%)

\*Level of significance is < 0.20



# 7. Results of younger old adults



## The effect of period on decline in mobility#

		<b>b</b>	<b>OR</b>	<b>p</b>
Bivariate	Recent vs earlier	-0,142	0,87	0,482
Adding gender	"	-0,171	0,84	0,399
" age	"	-0,159	0,85	0,435
" education	"	-0,114	0,89	0,578
" chronic disease	"	-0,183	0,83	0,379

# Ref. stable, multinomial regression analysis, corrected for death during follow-up

- Lower educated people decline more often in mobility (OR=1.7; p=0.012) compared to higher educated people
- More chronic diseases support decline in mobility (OR=1.7, p=0.037).
- Adding sum of chronic diseases \* period shows no effect modification (p=0.914)

# 7. Results of younger old adults



The effect of period on dying during follow-up #				
		b	OR	p
Bivariate	Recent vs earlier	-0,209	0,98	0,31
Adding gender	"	-0,169	0,84	0,416
" age	"	-0,142	0,87	0,496
" education	"	-0,101	0,9	0,632
" chronic disease	"	-0,16	0,85	0,453
# Ref. stable in mobility , multinomial regression analysis				

- Lower education (OR=1.5, p=0.051) and being male (OR=1.9, p=.002) raises the chances to die earlier
- More chronic diseases (OR=1.7, p=0.042) and older age (OR=2.0, p=0.004) increase mortality
- Adding sum of chronic diseases \* period shows no effect modification (p=0.552)
- Older old sample showed no period effect either

## 8. Conclusions

- The prevalence of chronic diseases increased in 10 years time.
- Older people have more mild limitations in mobility and self-care than 10 years ago.
- Lower educated older people show more frequent decline in self-care and in mobility than higher educated older people.
- Older men have more chance to die earlier than older women.
- Having more chronic diseases accelerates decline in mobility.
- Having more chronic diseases increases mortality.
- No ten year period difference is found in decline in mobility or in decline in self-care of older adults.



## 9. Discussion

Despite higher prevalence of chronic diseases, older people don't decline faster than ten years ago.

*Has the care for older people with chronic diseases become better?*

or

*Is the role of cognition and interview mode not sufficient examined?*

or

*Is mild decline not detected due to EN-method?*



# Literature

Atkins et al. (2005). Assessing clinical significance: Does it matter which method we use? *J Consult Clin Psychol* 73 (5) 982-988

Deeg (1992). Sex differences in IADL in the Netherlands: functional and situational disability. In: Robine J, Mathers C, Bone M, et al., editors. Harmonization, consensus achieved and future perspectives. London: Colloque INSERM/ John Libbey Eurotext Ltd.; 203-213.

Huisman et al. (2011) Cohort Profile: The Longitudinal Aging Study Amsterdam. *Int J Epidemiol* Advance Access published Jan 6, 2011.

Speer (1992). Clinically significant change: Jacobsen and Truax (1991) revisited. *J Consult Clin Psychol* 60 (3) 402-408

