

# Disclosures

- Gilead Sciences                      Advisory Board
- Bristol Meyers Squibb              Travel Grant
- Gilead Sciences                      Travel Grant

# The impact of the number of co-morbidities and aging on Health Related Quality of Life in HIV-infected and uninfected individuals

Results of the AGE<sub>h</sub>IV Cohort Study

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# Background & rationale

- HIV-infected persons: premature onset of age-associated non-communicable co-morbidities (AANCCs) compared to the general population<sup>1,2</sup>.
- Such co-morbidities may have a negative impact on patients' Health-related quality of life (HRQL) and depression.
- Previous research<sup>3</sup>: HIV infection itself and aging may also have a negative impact on HRQL and depression

# Objectives

- To investigate the impact of the number of co-morbidities, ageing and HIV infection on HRQL and depression
- To investigate if age and the number of comorbidities have a different impact on HRQL and depression in HIV positive versus HIV negative persons.



# AGE<sub>h</sub>IV Cohort

- Comparative observational cohort study
- HIV-1-infected ≥45 years Academic Medical Center, Amsterdam
- HIV-uninfected ≥45 years STD clinic of Municipal Health Service, Amsterdam
- Participants were screened at enrollment for the presence of comorbidities:
  - DM2, hypertension, COPD, renal disease, chronic liver disease, myocardial infarction, angina pectoris, peripheral arterial disease, ischemic cerebrovascular disease and non-AIDS/AIDS associated cancer

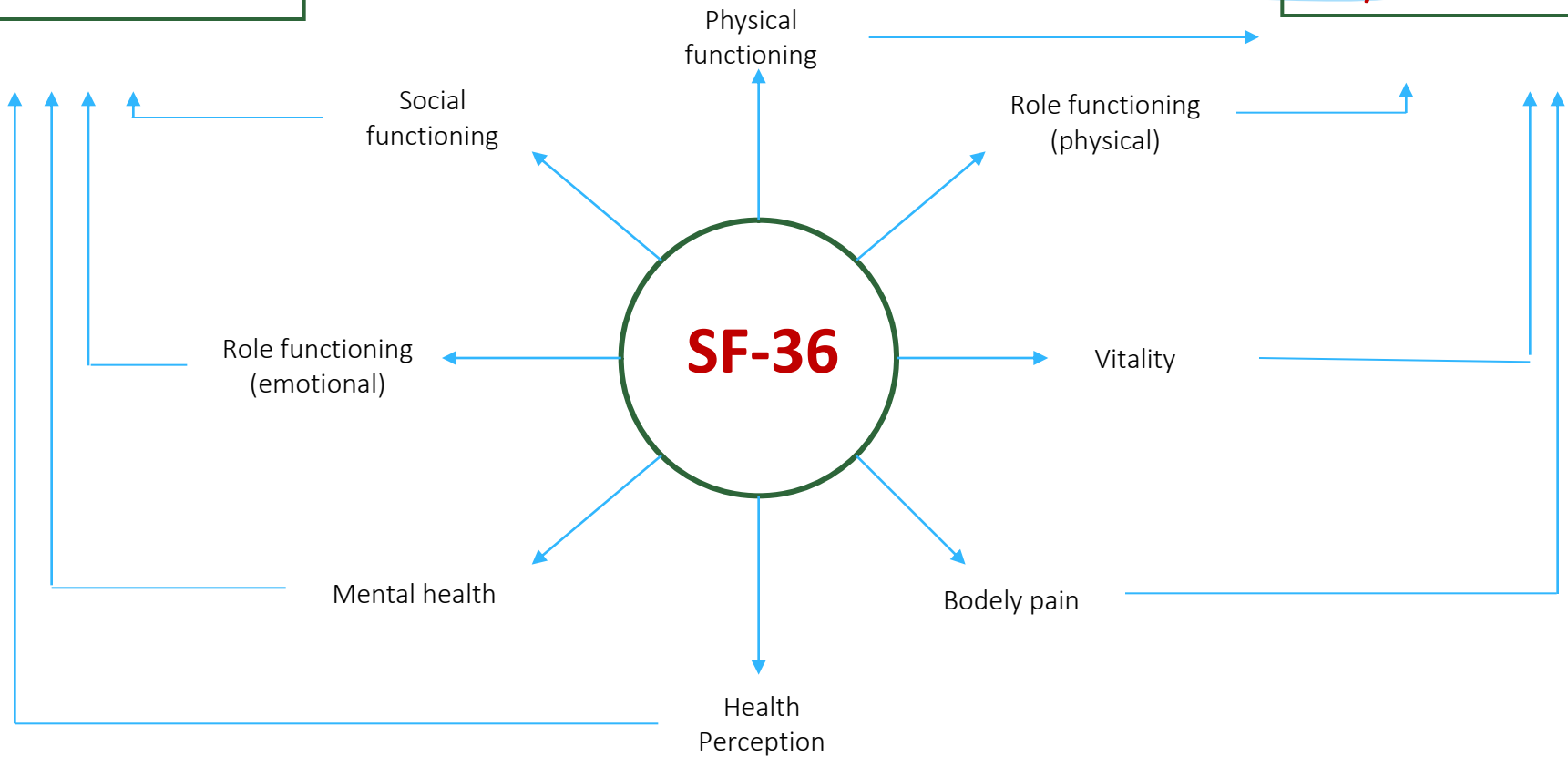
# Methods & analyses (1)

- Medical Outcomes Study Short Form 36-item health survey (SF36).

# General Health

Mental Health

Physical Health



# Methods and analysis (2)

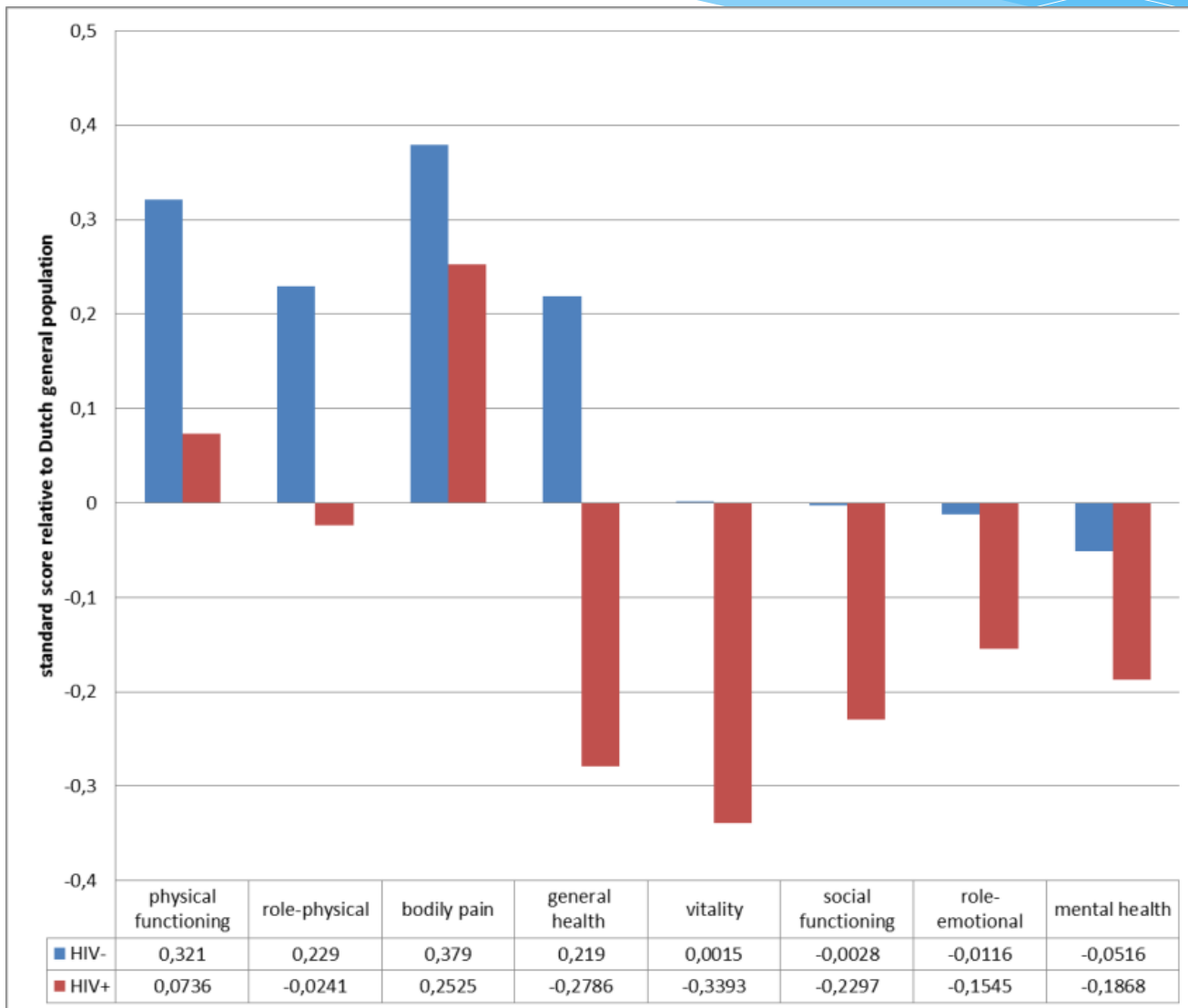
- Depression: Patient Health Questionnaires (PHQ-9) and Centers for Epidemiologic Studies Depression scale (CES-D)
- General linear models HRQL: HIV-infection (y/n), number of co-morbidities (0, 1, 2, >2), and age (<50, 50-55, 55-60, 60-65, >65)
- Effect sizes for differences in HRQL between HIV+ en HIV-:  
mean differences/pooled standard deviations.
- All models adjusted for background characteristics: gender, MSM (y/n), Dutch origin, living together (y/n), educational level, and life style factors, i.e., current smoker (y/n), heavy daily drinking (y/n), and ever IVD (y/n).



# Characteristics at enrollment

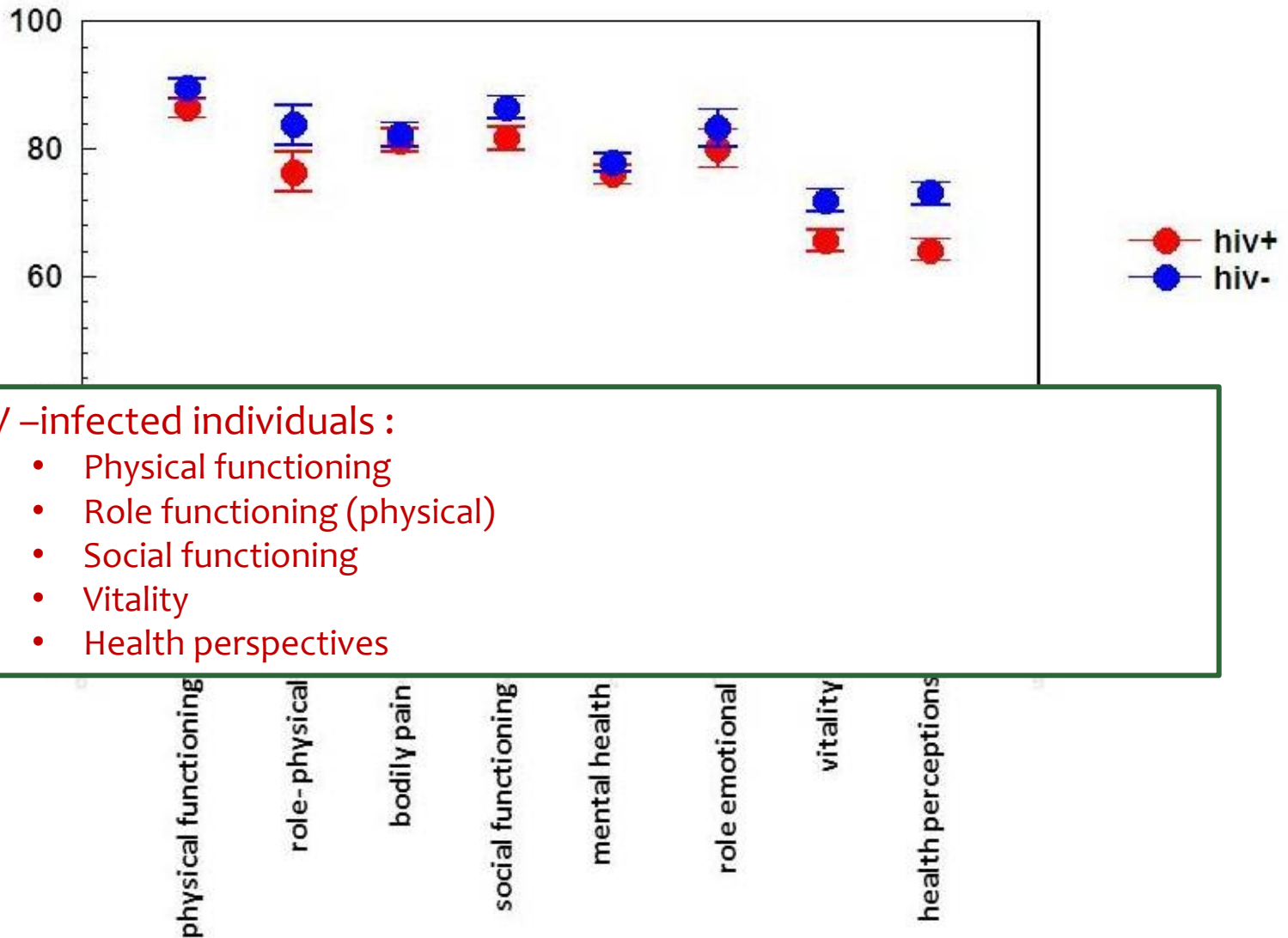
	HIV-uninfected participants (n=524)	HIV-infected participants (n=540)	P Value
Age, y	52.1 (47.9-58.3)	52.9 (48.3-59.6)	.200
Male sex	85.1%	88.1%	.146
Dutch origin	81.3%	72.2%	<.001
MSM	69.7%	73.9%	.125
Number of AANCCs, median (IQR)	1 (0-1)	1 (0-2)	<0.001
Number of AANCCs, mean (SD)	0.95 (0.96)	1.27 (1.15)	<0.001
On cART		95.7%	
Plasma viral load >200 c/ml, among participants on cART		1.5%	
CD4 count, median (IQR)		565 (435-745)	

# Quality of Life study population versus general population



- HIV -
- HIV +

# Quality of Life HIV-positive and HIV-negative individuals

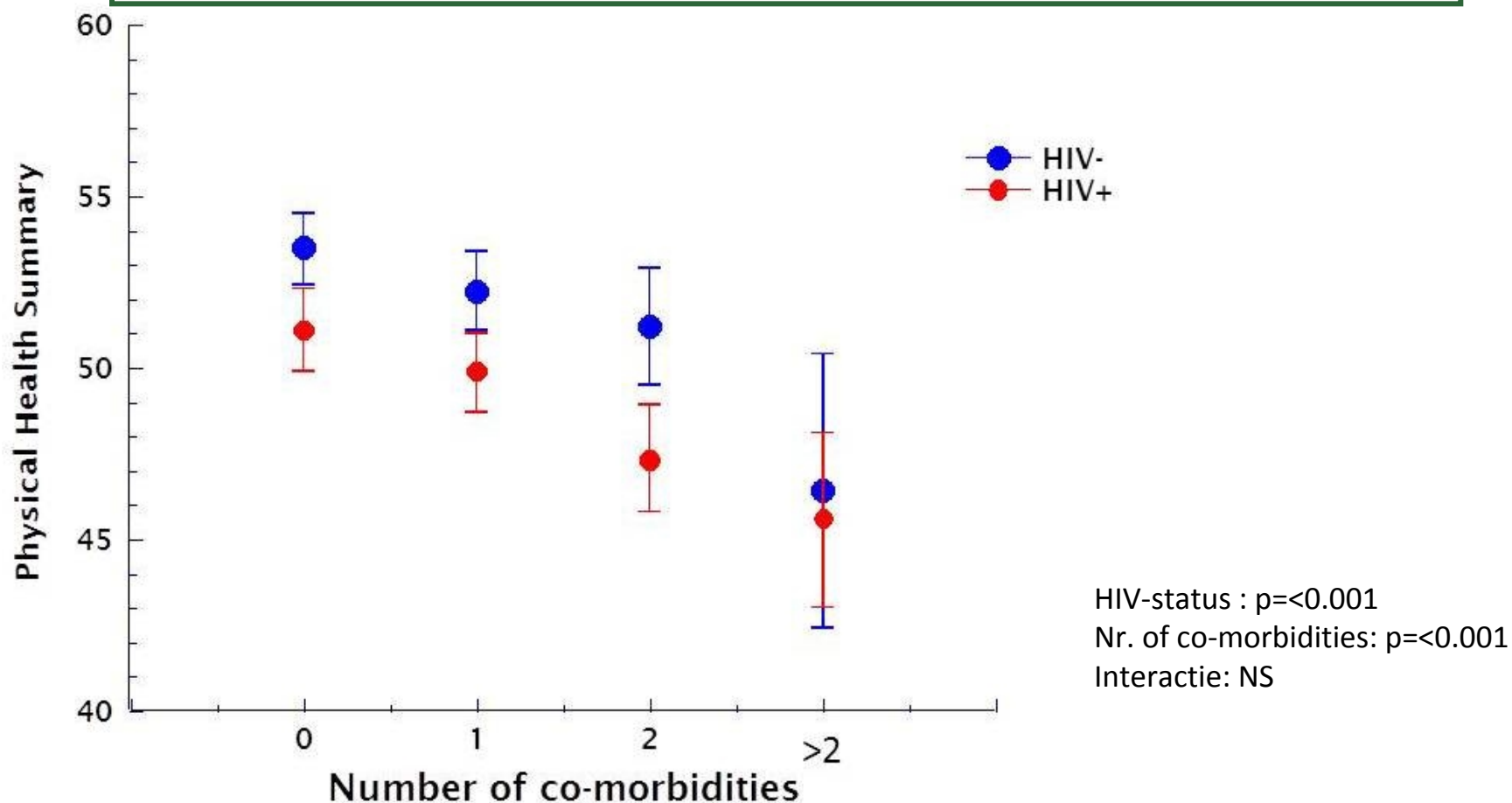


## HIV –infected individuals :

- Physical functioning
- Role functioning (physical)
- Social functioning
- Vitality
- Health perspectives

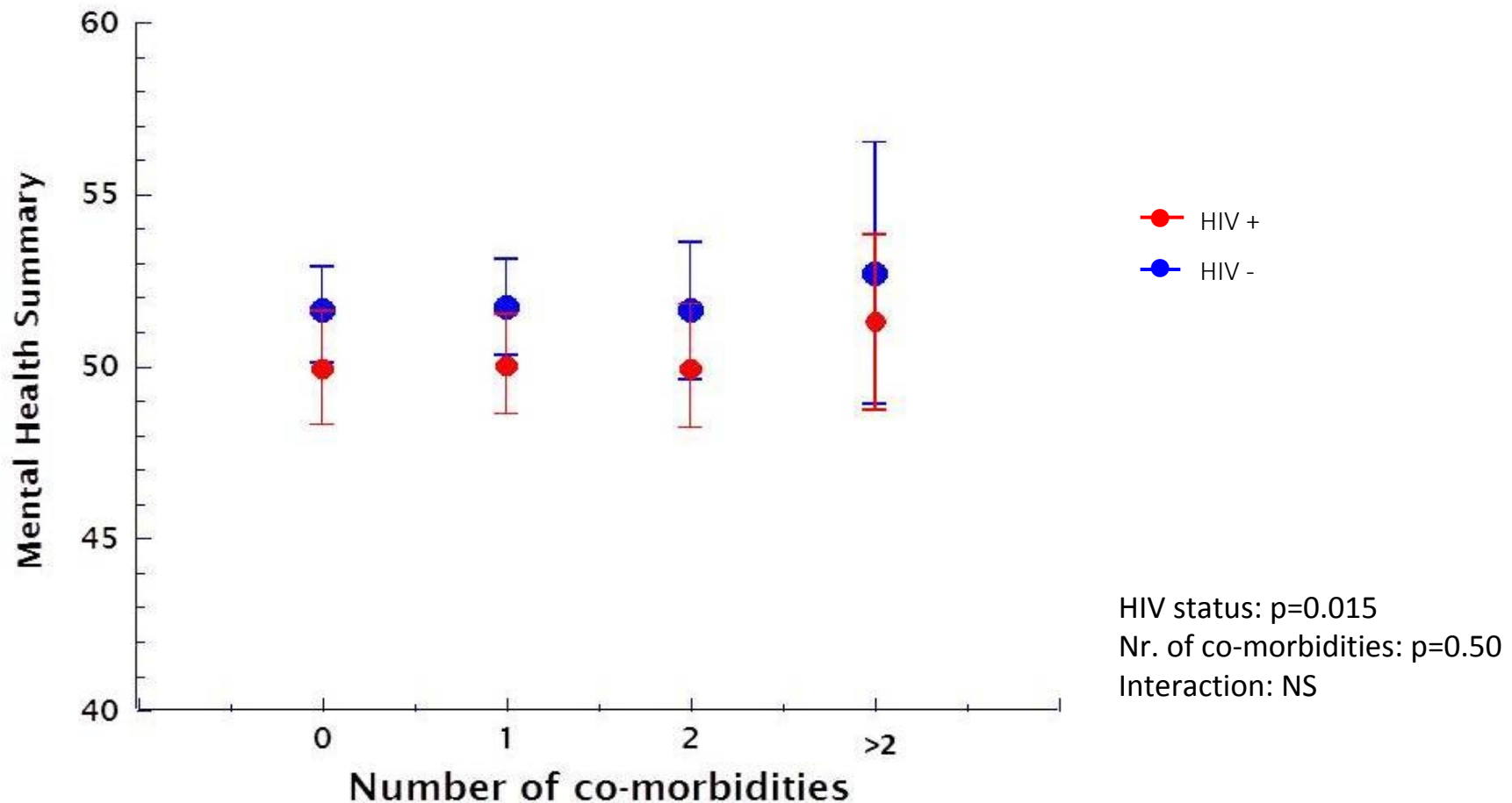
# Physical Health and co-morbidities

- Physical health decrease with the increase of the number of co-morbidities
- HIV positive scores worse on physical health



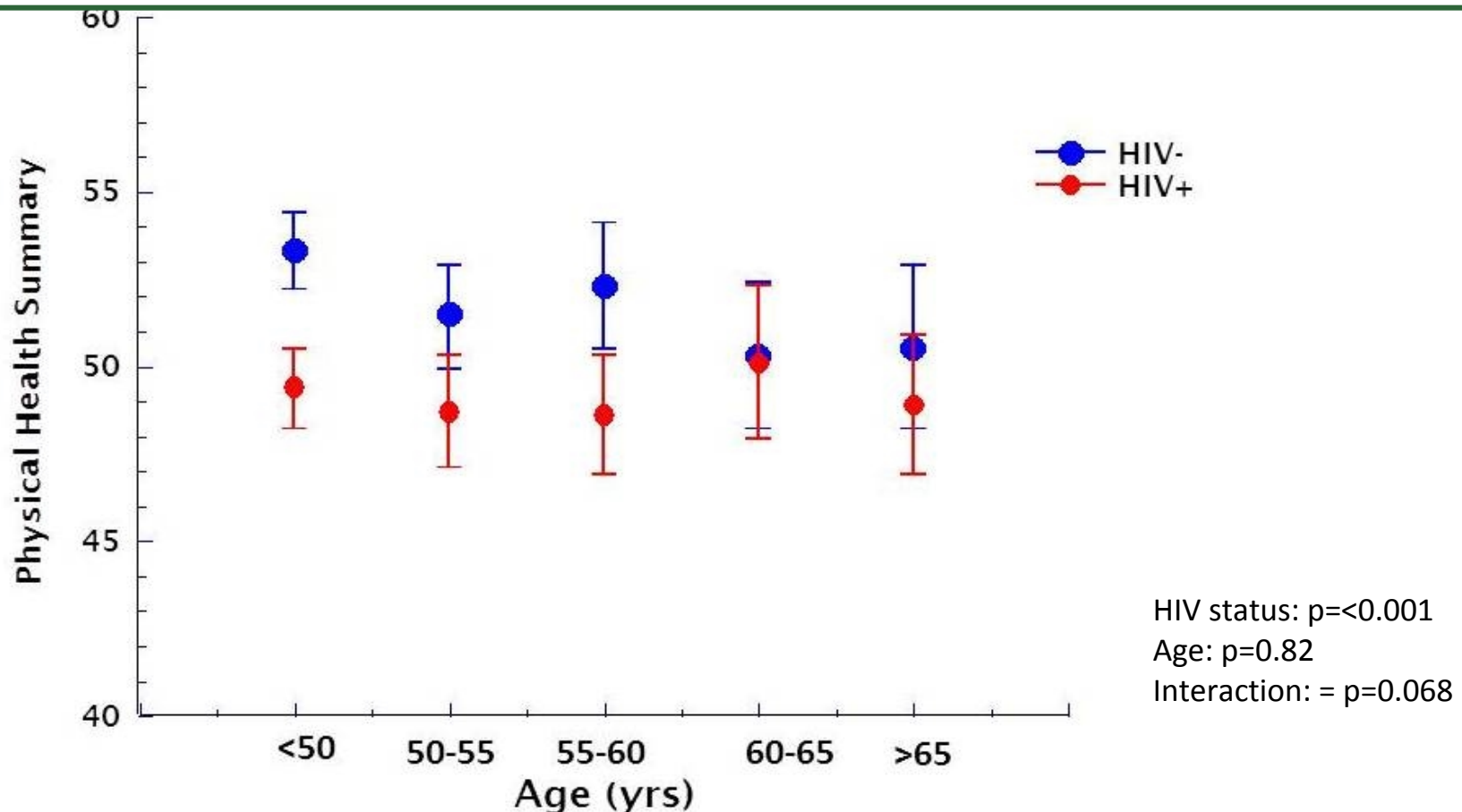
# Mental Health and co-morbidities

- HIV positive have worse mental health
- Number of co-morbidities not associated with mental quality of life



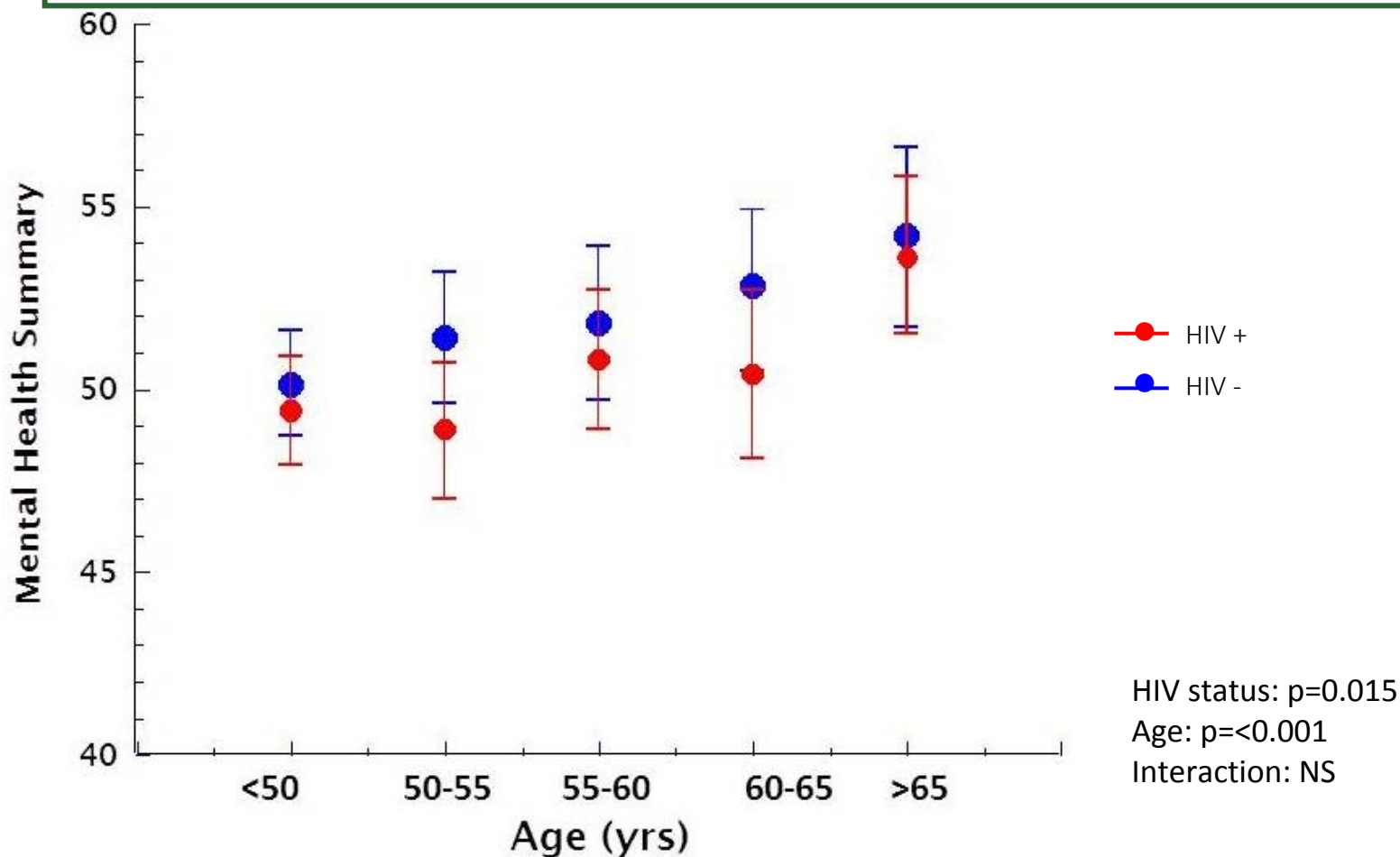
# Physical Health by age

- Physical health not significantly associated with age
- HIV infected individuals significantly lower physical health than HIV-uninfected individuals
- Tendency that difference become smaller with increasing age



# Mental Health by age

- HIV positive associated with worse mental health than HIV negatives
- Younger age and HIV positive were significantly associated with a worse mental health.
- Female gender, living alone, heavy daily drinking and current smoker significantly associated with lower levels of mental health



**Differences between HIV-infected  
and HIV-uninfected participants in  
HRQL and depression**



	HIV-infected participants (n=541)	HIV-uninfected participants (n=524)	Effect size, Model 1	Effect size, Model 2	Effect size, Model 3	Effect size, Model 4	Effect size, Model 5	Effect size, Model 6
HRQL (SF-36), mean (SD) <sup>1</sup>								
Physical functioning	85 (20)	90 (16)	0.27**	0.20**	0.20*	0.20**	0.10	0.08
Role functional-physical	75 (38)	84 (32)	0.25**	0.20**	0.20**	0.24**	0.19*	0.17*
Bodily pain	80 (22)	82 (21)	0.12*	0.10	0.10	0.06	0.02	0.02
Social functioning	81 (22)	86 (19)	0.21**	0.19**	0.19**	0.23**	0.22**	0.20**
Mental health	75 (18)	77 (17)	0.11	0.10	0.09	0.11	0.16*	0.12
Role functioning-emotional	79 (35)	83 (32)	0.11	0.09	0.09	0.12	0.10	0.07
Vitality	65 (20)	72 (18)	0.31**	0.30**	0.30**	0.33**	0.36**	0.32**
Health perceptions	63 (21)	73 (18)	0.51**	0.45**	0.45**	0.47**	0.42**	0.40**
Physical health summary score	49 (9)	52 (8)	0.35**	0.29**	0.29**	0.29**	0.20**	0.18*
Mental health summary score	50 (10)	51 (10)	0.12*	0.12*	0.12	0.16*	0.21**	0.17*
Depression (PHQ-9 score ≥10), No (%) <sup>2</sup>	78 (14.5%)	42 (8.0%)	1.94**	1.85**	1.85**	2.08**	3.23**	2.90**

**\* p ≤ 0.05, \*\* p ≤ 0.01**

# Conclusie:

- HIV+ have worse physical and mental HRQL, and more depression than HIV-
- Difference in HRQL between HIV+ versus HIV- does not become greater with increasing age or increasing number of co-morbidities
- Even HIV+ without co-morbidities have significantly worse physical HRQoL than HIV-

# The AGE<sub>h</sub>IV study team

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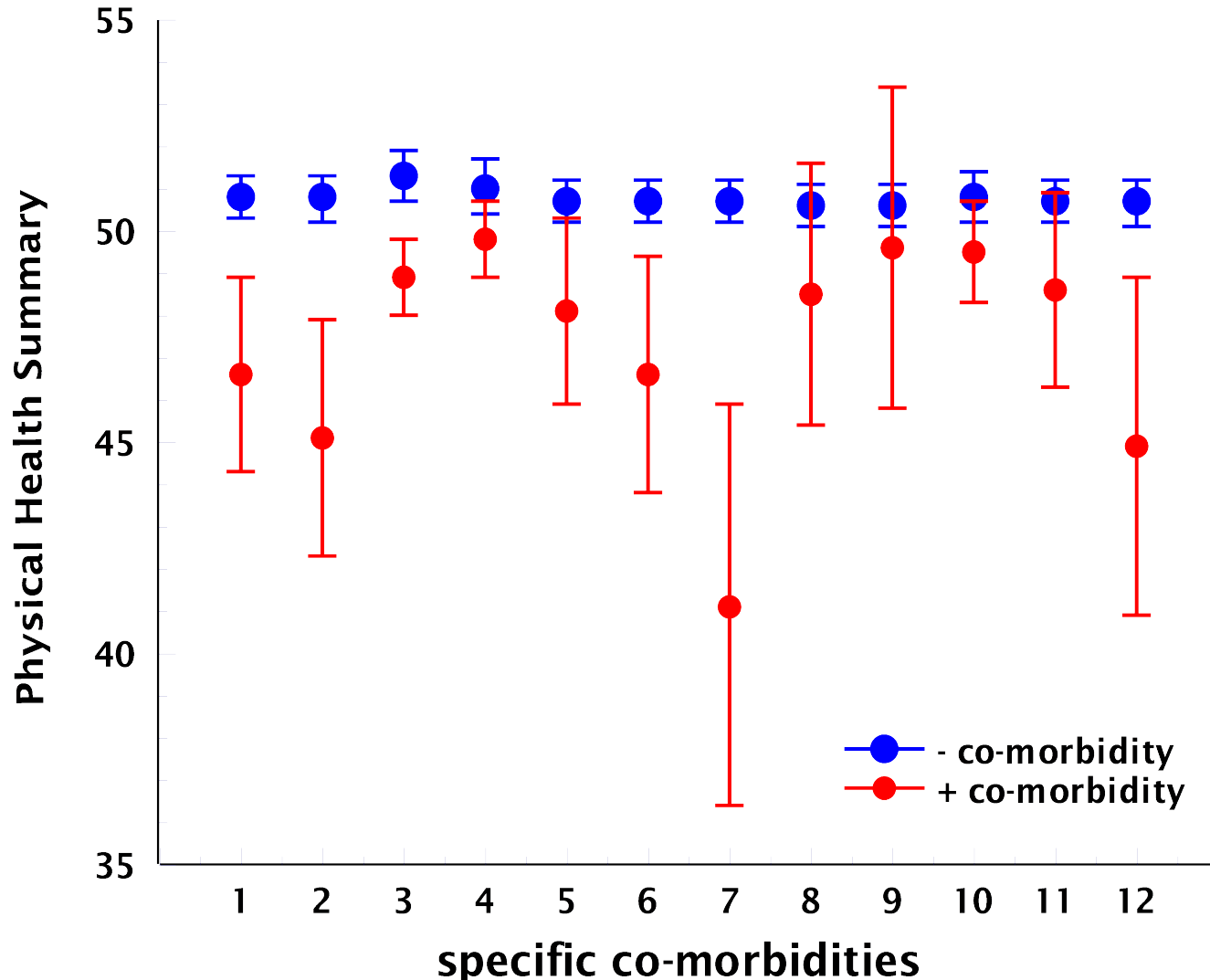
W.M.C. Mulder

**And of course many thanks to all study participants**





# Specific co-morbidities and physical health



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Angina Pectoris  
Hartfalen  
Hartinfarct

COPD



Nierziekten



Diabetes



Leverziekten



Kanker

