

# EUROASPIRE IV :

## *RETURN-TO-WORK, PSYCHOSOCIAL WELL-BEING*

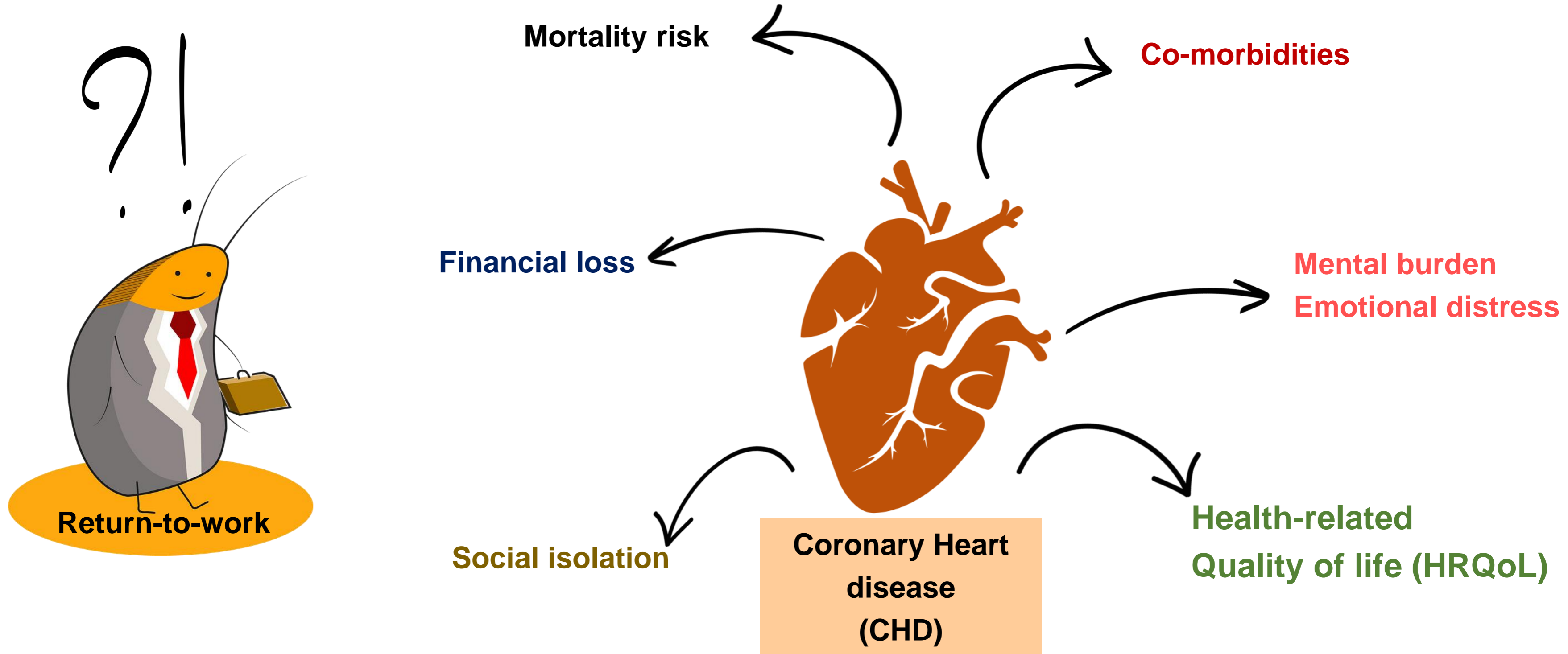
## *AND QUALITY OF LIFE*

Joy Van de Cauter, Dirk De Bacquer, Els Clays, Delphine De Smedt,  
Lutgart Braeckman

# BACKGROUND

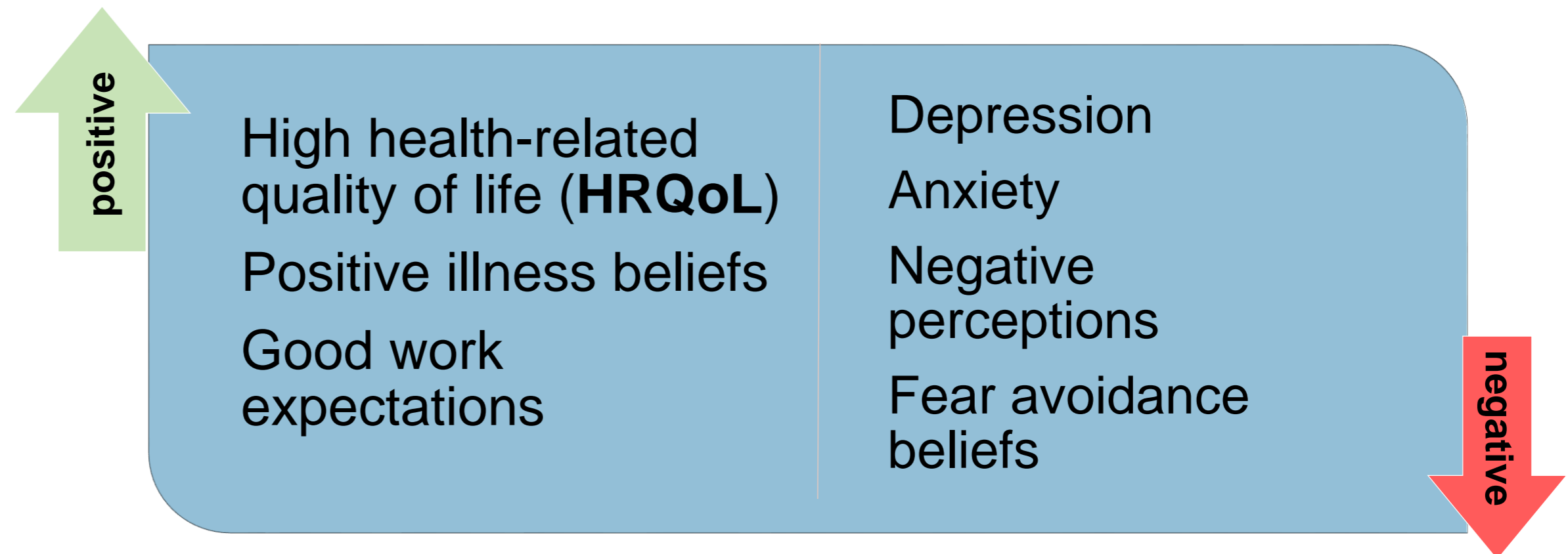
---

# LIVING WITH CORONARY HEART DISEASE



# WHAT IS KNOWN ?

- RTW rate variation (overall) : 60-90%  
(study populations, work definitions, follow-up duration)
- Indicator of functional rehabilitation
- The mind and RTW :



# AIMS & METHODS

# WHAT WE WANT TO KNOW ?



- European Action on Secondary Prevention through Intervention to Reduce Events (**EUROASPIRE IV**):  
4th wave in 2012-2013 in 24 countries (78 centers)



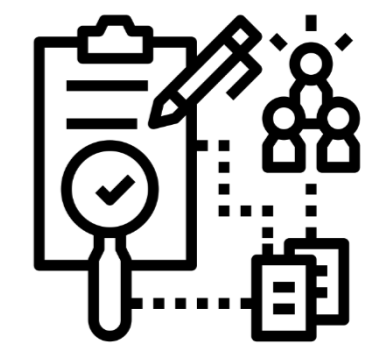
**Who returns to work?**

**What factors play a role in the RTW process?**



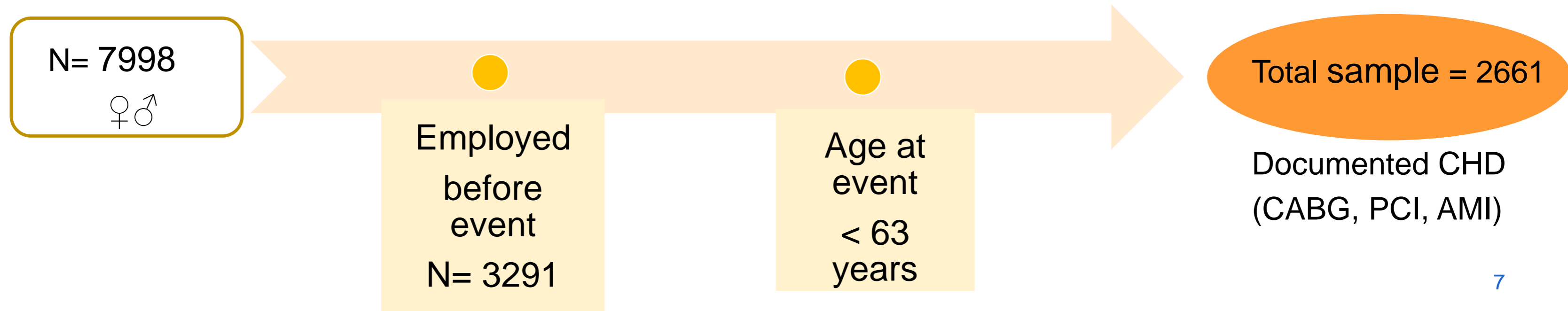
**Is RTW associated with the appearance of emotional distress and health-related quality of life (HRQoL)?**

# DATA COLLECTION



- Data collection in standardized way by trained research staff
- Baseline information + risk factors at discharge from medical records (retrospective)
- Interview / clinical examination 6 months to 3 year after event

→ Personal and demographic information  
Medical history, height, weight, blood CO  
Reported lifestyle changes and disease management  
Employment status (RTW vs. No RTW)  
Hospital Anxiety and Depression Scale (HADS) ← outcomes  
HRQoL : HeartQoL ← outcomes



# HOSPITAL ANXIETY AND DEPRESSION SCALE

HADS :

- $< 8$  = normal
- $8 - 10$  = mild symptoms
- $\geq 11-21$  = moderate to severe symptoms
- Validated

<p><b>I feel tense or 'wound up':</b></p> <p><input type="checkbox"/>3 Most of the time</p> <p><input type="checkbox"/>2 A lot of the time</p> <p><input type="checkbox"/>1 Time to time, occasionally</p> <p><input type="checkbox"/>0 Not at all</p>	<p><b>I feel as if I am slowed down:</b></p> <p><input type="checkbox"/>3 Nearly all of the time</p> <p><input type="checkbox"/>2 Very often</p> <p><input type="checkbox"/>1 Sometimes</p> <p><input type="checkbox"/>0 Not at all</p>
<p><b>I still enjoy the things I used to enjoy:</b></p> <p><input type="checkbox"/>0 Definitely as much</p> <p><input type="checkbox"/>1 Not quite so much</p> <p><input type="checkbox"/>2 Only a little</p> <p><input type="checkbox"/>3 Not at all</p>	<p><b>I get a sort of frightened feeling like 'butterflies in the stomach':</b></p> <p><input type="checkbox"/>0 Not at all</p> <p><input type="checkbox"/>1 Occasionally</p> <p><input type="checkbox"/>2 Quite often</p> <p><input type="checkbox"/>3 Very often</p>
<p><b>I get a sort of frightened feeling like something awful is about to happen:</b></p> <p><input type="checkbox"/>3 Very definitely and quite badly</p> <p><input type="checkbox"/>2 Yes, but not too badly</p> <p><input type="checkbox"/>1 A little, but it doesn't worry me</p> <p><input type="checkbox"/>0 Not at all</p>	<p><b>I have lost interest in my appearance:</b></p> <p><input type="checkbox"/>3 Definitely</p> <p><input type="checkbox"/>2 I don't take as much care as I should</p> <p><input type="checkbox"/>1 I may not take quite as much care</p> <p><input type="checkbox"/>0 I take just as much care as ever</p>
<p><b>I can laugh and see the funny side of things:</b></p> <p><input type="checkbox"/>0 As much as I always could</p> <p><input type="checkbox"/>1 Not quite so much now</p> <p><input type="checkbox"/>2 Definitely not so much now</p> <p><input type="checkbox"/>3 Not at all</p>	<p><b>I feel restless as if I have to be on the move:</b></p> <p><input type="checkbox"/>3 Very much indeed</p> <p><input type="checkbox"/>2 Quite a lot</p> <p><input type="checkbox"/>1 Not very much</p> <p><input type="checkbox"/>0 Not at all</p>
<p><b>Worrying thoughts go through my mind:</b></p> <p><input type="checkbox"/>3 A great deal of the time</p> <p><input type="checkbox"/>2 A lot of the time</p> <p><input type="checkbox"/>1 From time to time but not too often</p> <p><input type="checkbox"/>0 Only occasionally</p>	<p><b>I look forward to things with enjoyment:</b></p> <p><input type="checkbox"/>0 As much as I ever did</p> <p><input type="checkbox"/>1 Rather less than I used to</p> <p><input type="checkbox"/>2 Definitely less than I used to</p> <p><input type="checkbox"/>3 Hardly at all</p>
<p><b>I feel cheerful:</b></p> <p><input type="checkbox"/>3 Not at all</p> <p><input type="checkbox"/>2 Not often</p> <p><input type="checkbox"/>1 Sometimes</p> <p><input type="checkbox"/>0 Most of the time</p>	<p><b>I get sudden feelings of panic:</b></p> <p><input type="checkbox"/>3 Very often indeed</p> <p><input type="checkbox"/>2 Quite often</p> <p><input type="checkbox"/>1 Not very often</p> <p><input type="checkbox"/>0 Not at all</p>
<p><b>I can sit at ease and feel relaxed:</b></p> <p><input type="checkbox"/>0 Definitely</p> <p><input type="checkbox"/>1 Usually</p> <p><input type="checkbox"/>2 Not often</p> <p><input type="checkbox"/>3 Not at all</p>	<p><b>I can enjoy a good book or radio or TV programme:</b></p> <p><input type="checkbox"/>0 Often</p> <p><input type="checkbox"/>1 Sometimes</p> <p><input type="checkbox"/>2 Not often</p> <p><input type="checkbox"/>3 Very seldom</p>



# HEARTQoL : A DISEASE SPECIFIC TOOL VOOR HRQoL

*Thank you for addressing these questions that will give us an understanding of how your heart problem has affected you.*

HeartQoL < 3 domains : global, physical, emotional

- consists of 14 items

→ 10 items focus on physical well-being

→ 4 items on emotional well-being

- ranging : 0 (worst HRQoL) 3 (best HRQoL)

- Validated

We would like to know how your heart problem has bothered you and how you have been feeling **DURING THE LAST 4 WEEKS.**

Please circle one number

First, in the last 4 weeks, have you been bothered by having to:	No	A little	Some	A lot
1. Walk indoors on level ground?	3	2	1	0
2. Garden, vacuum, or carry groceries?	3	2	1	0
3. Climb a hill or a flight of stairs without stopping?	3	2	1	0
4. Walk more than 100 yards at a brisk pace?	3	2	1	0
5. Lift or move heavy objects?	3	2	1	0

Now, in the last 4 weeks, have you been bothered by:	No	A little	Some	A lot
6. Feeling short of breath?	3	2	1	0
7. Being physically restricted?	3	2	1	0
8. Feeling tired, fatigued, low on energy?	3	2	1	0
9. Not feeling relaxed and free of tension?	3	2	1	0
10. Feeling depressed?	3	2	1	0
11. Being frustrated?	3	2	1	0
12. Being worried?	3	2	1	0
13. Being limited in doing sports or exercise?	3	2	1	0
14. Working around the house or yard?	3	2	1	0

# RESULTS

# RETURN-TO-WORK ?

Mean age 53,0 yrs (SD 6,64)

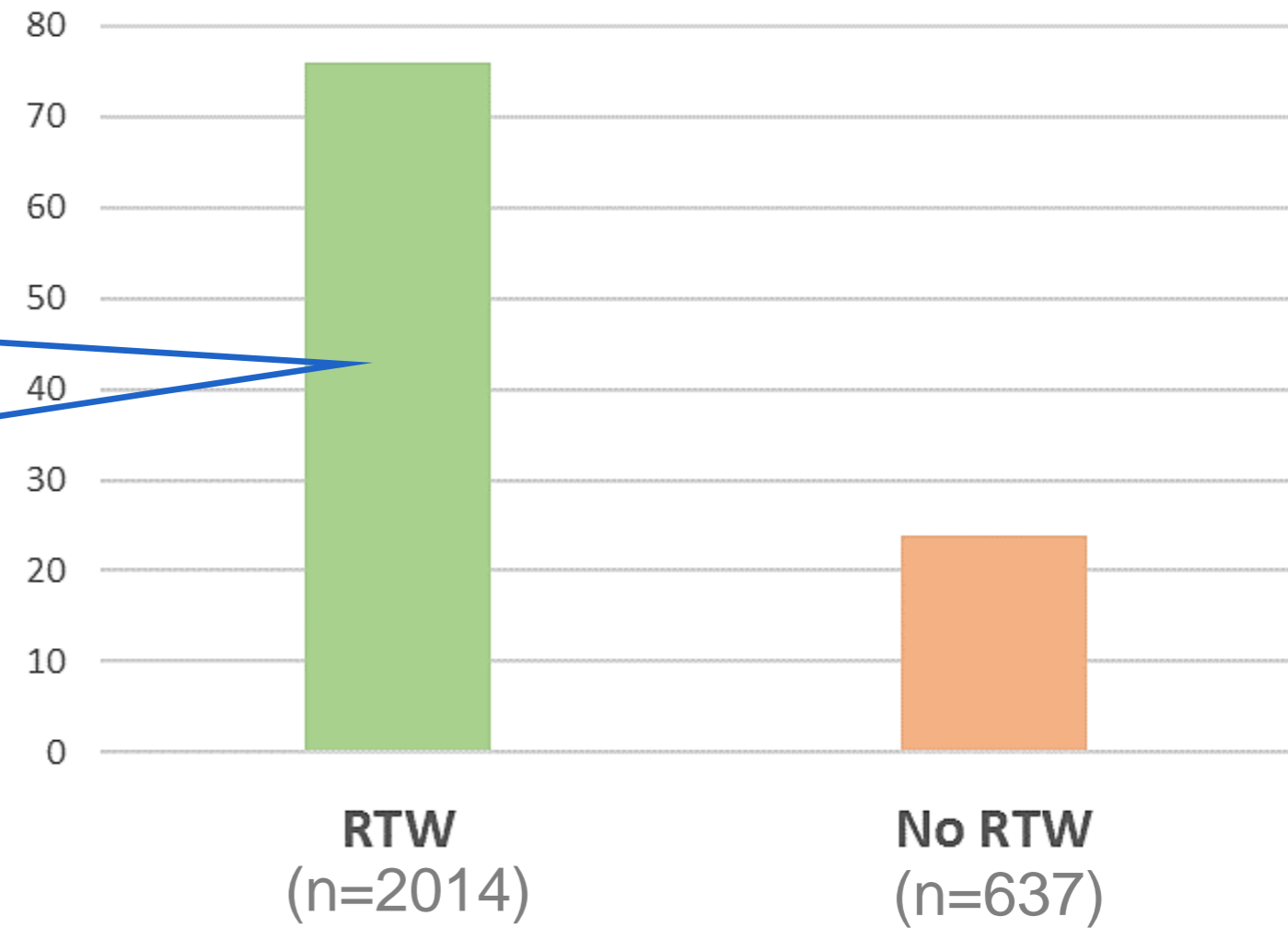


14,4 % (n =291)

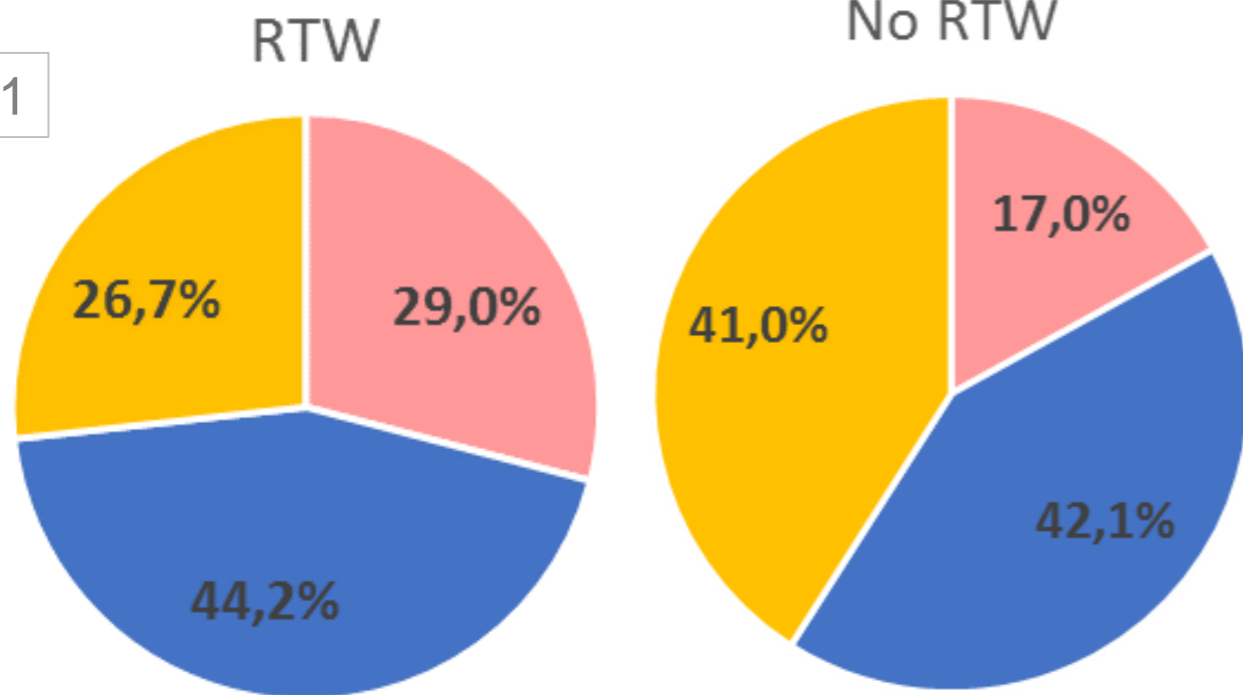


85,6 % (n=1723)

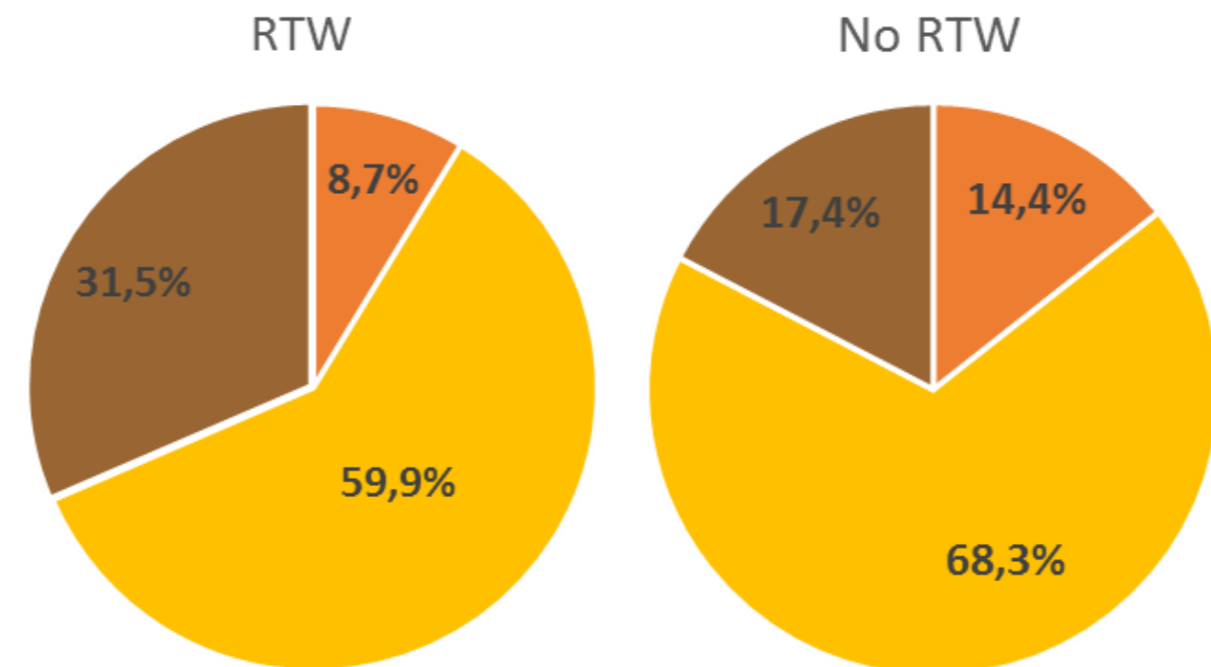
p = 0,12



p <0,001



■ < 50 yrs     ■ ≥ 50 - <58 yrs  
■ ≥58 - <63 yrs

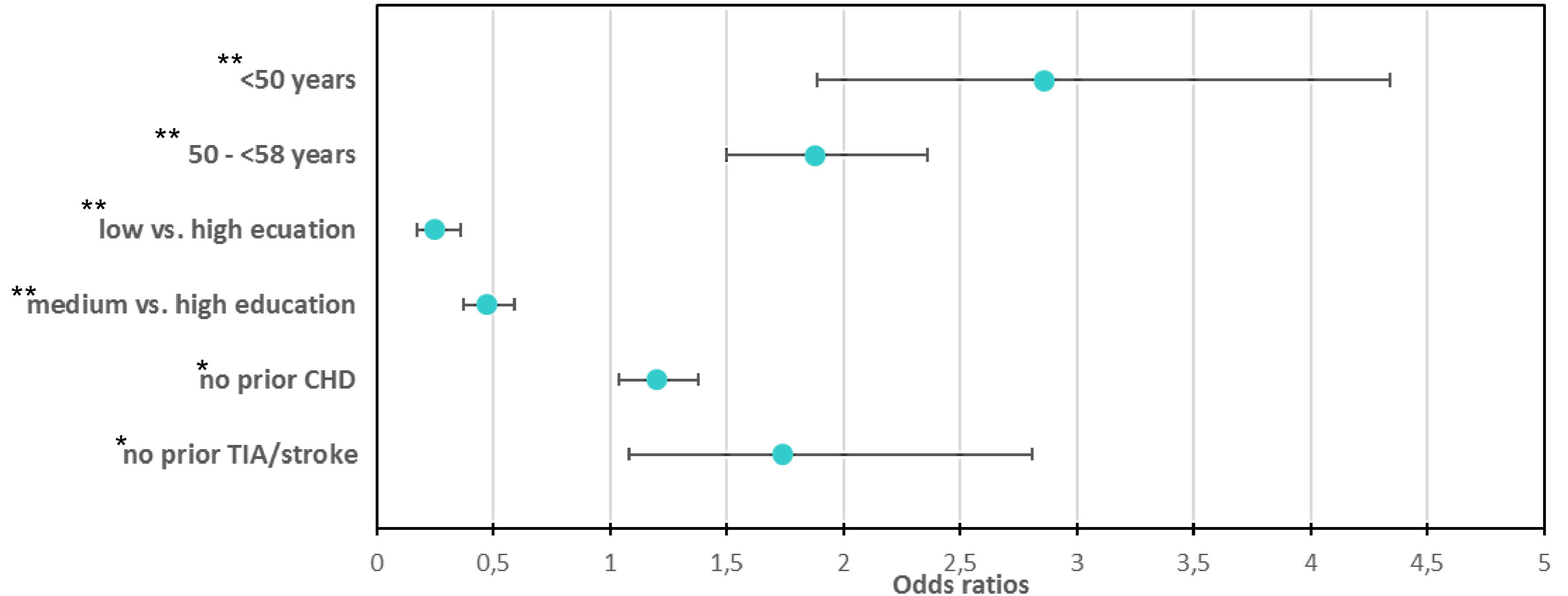


p <0,001

■ low education     ■ medium education     ■ high education

# RTW ONLY FOR THE YOUNG, EDUCATED, NO PRIOR CVD ?!

## Full adjusted model for RTW



adjusted for

- sociodemographics
- recruiting event
- recurrent CAD

- self-reported BP/cholesterol/DM
- cardiac rehabilitation
- lifestyle  
(BMI, smoking, physical activity)

\* : p < 0,05  
\*\* : p < 0,001

# Difficult hypertension management in older patients?!



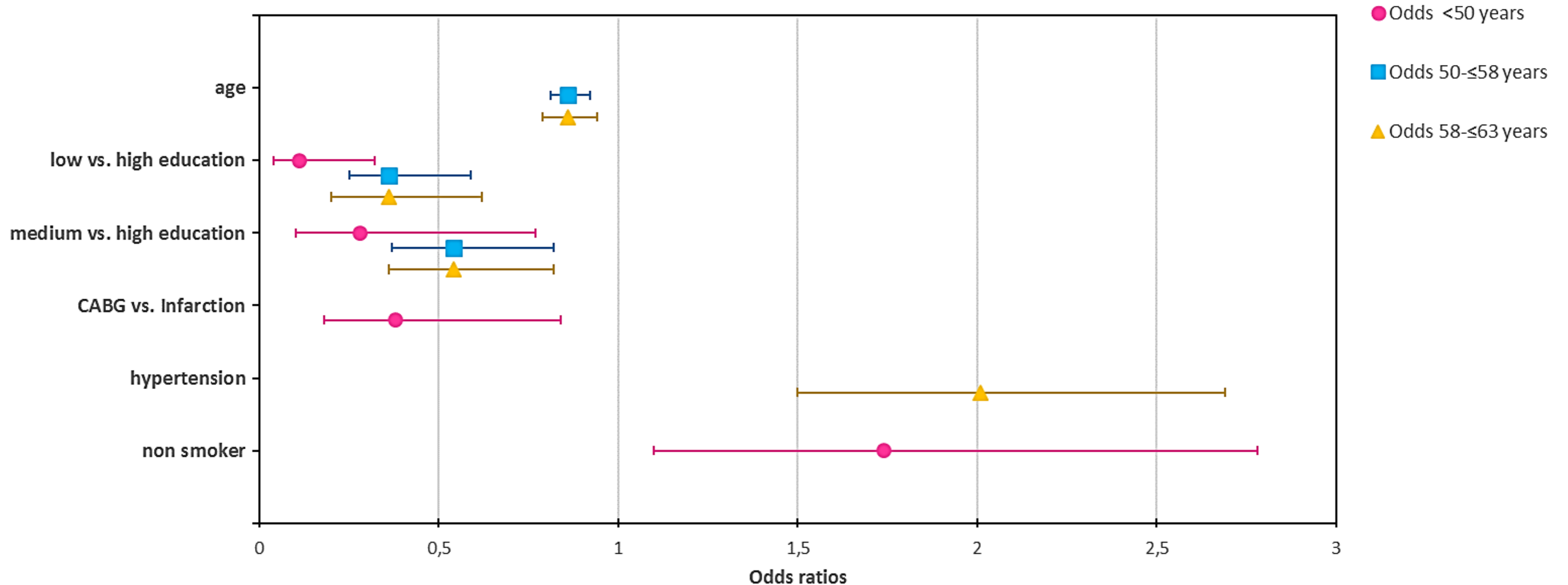
# Younger ≠ most invasive treatment



# Another reason to stop smoking !



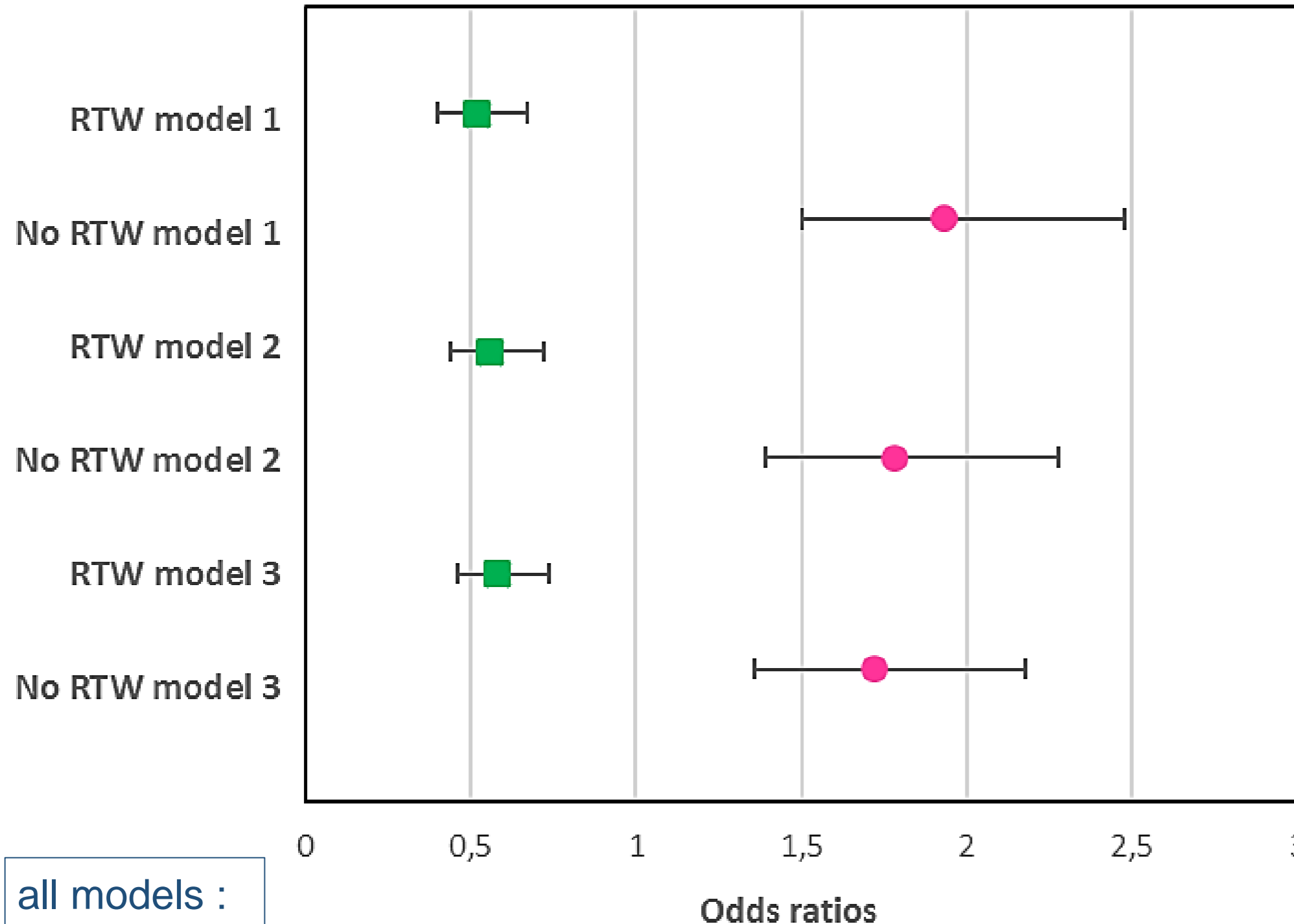
Age-stratified adjusted odds ratios (95%CI) for RTW



# RTW TO PREVENT FEELING BLUE?!



Crude and Adjusted odds ratios (95%CI) for HADS-D $\geq$ 8



Model 1: crude

Model 2 : adjusted for

- age
- sex
- educational level
- recruiting event (CABG,PCI,AMI)

Model 3: adjusted for

- sociodemographics
- recruiting event
- recurrent CAD
- self-reported BP/cholesterol/DM
- cardiac rehabilitation
- lifestyle (BMI, smoking,physical activity)

all models :  
 $p < 0,001$

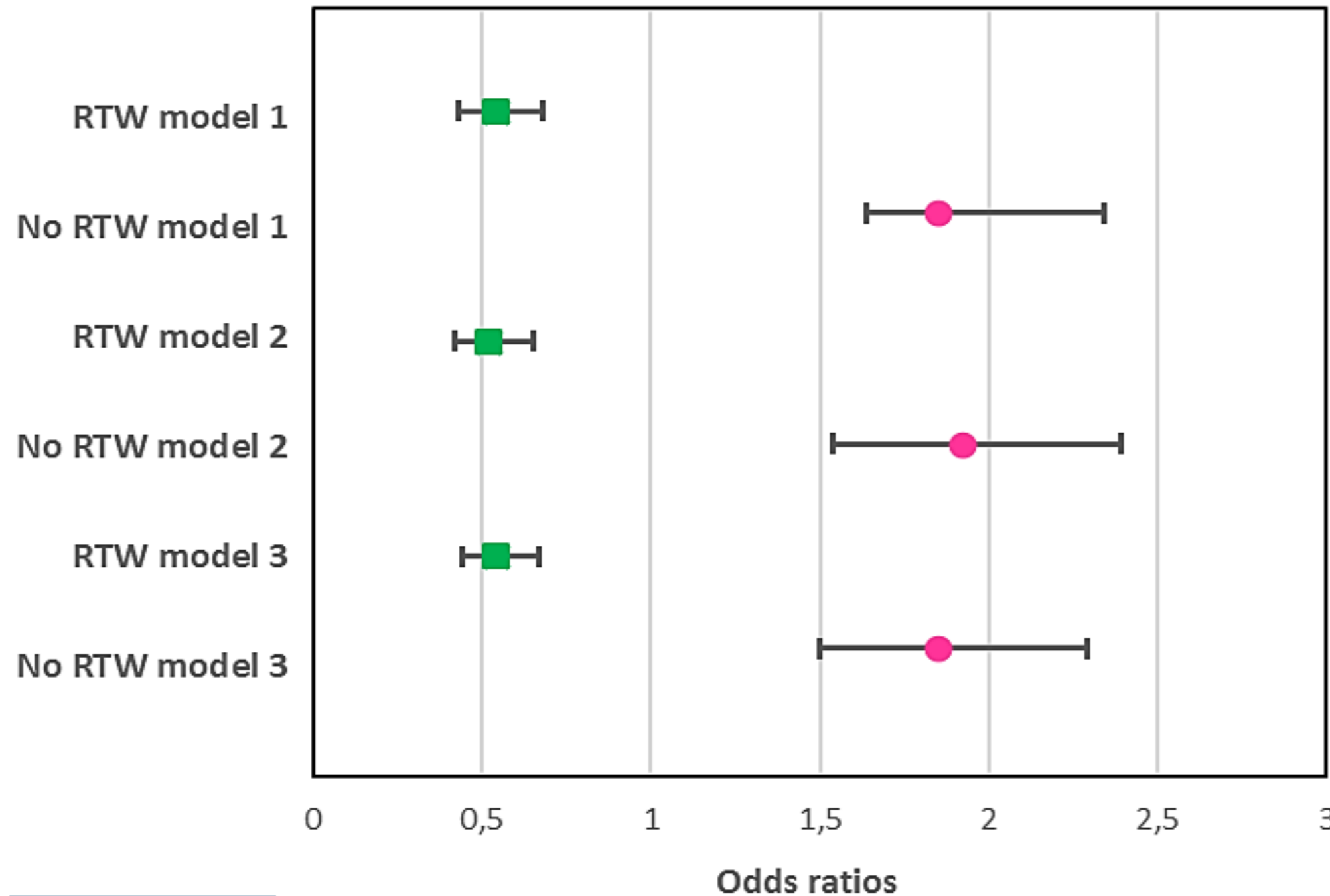
■ RTW

● No RTW

# RTW = AN ALLY AGAINST ANXIETY?!



Crude and Adjusted odds ratios (95%CI) for HADS-A $\geq$ 8



Model 1: crude

Model 2 : adjusted for

- age
- sex
- educational level
- recruiting event (CABG,PCI,AMI)

Model 3: adjusted for

- sociodemographics
- recruiting event
- recurrent CAD
- self-reported BP/cholesterol/DM
- cardiac rehabilitation
- lifestyle (BMI, smoking,physical activity)

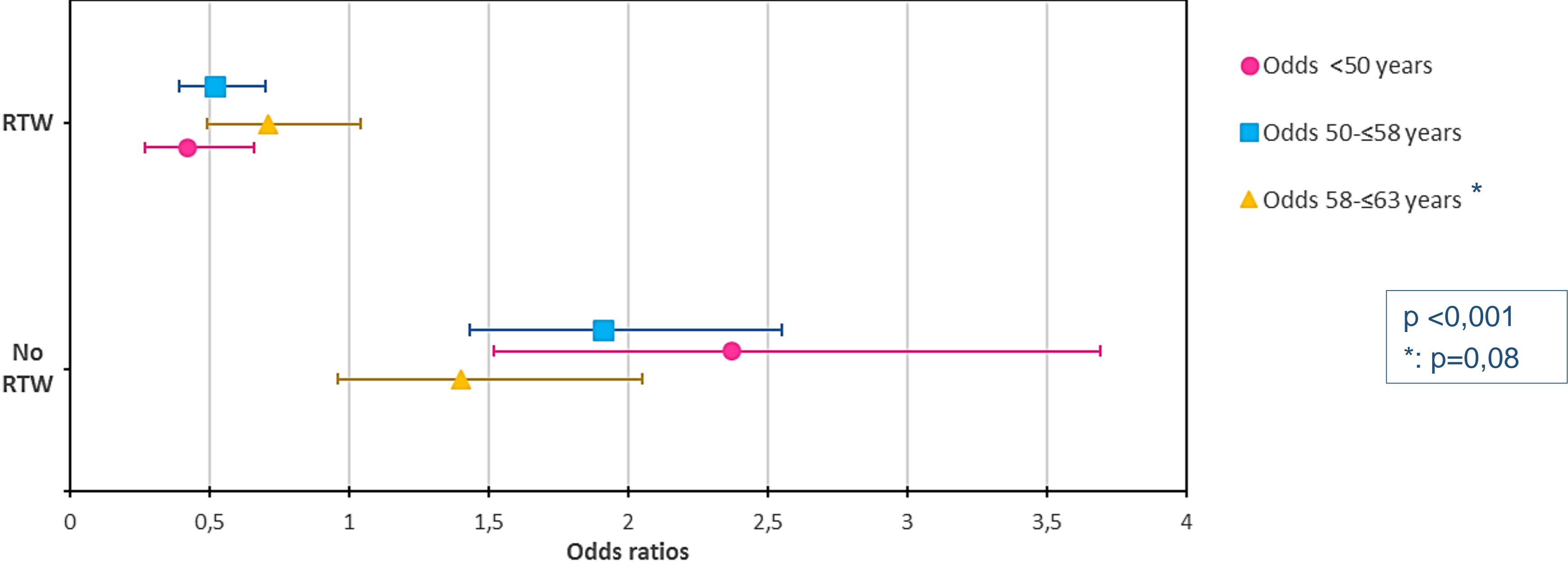
all models :  
 $p < 0,001$

■ RTW

● No RTW

# RTW ABOVE ALL IMPORTANT IN YOUNGER PATIENTS TO COUNTER ANXIETY !

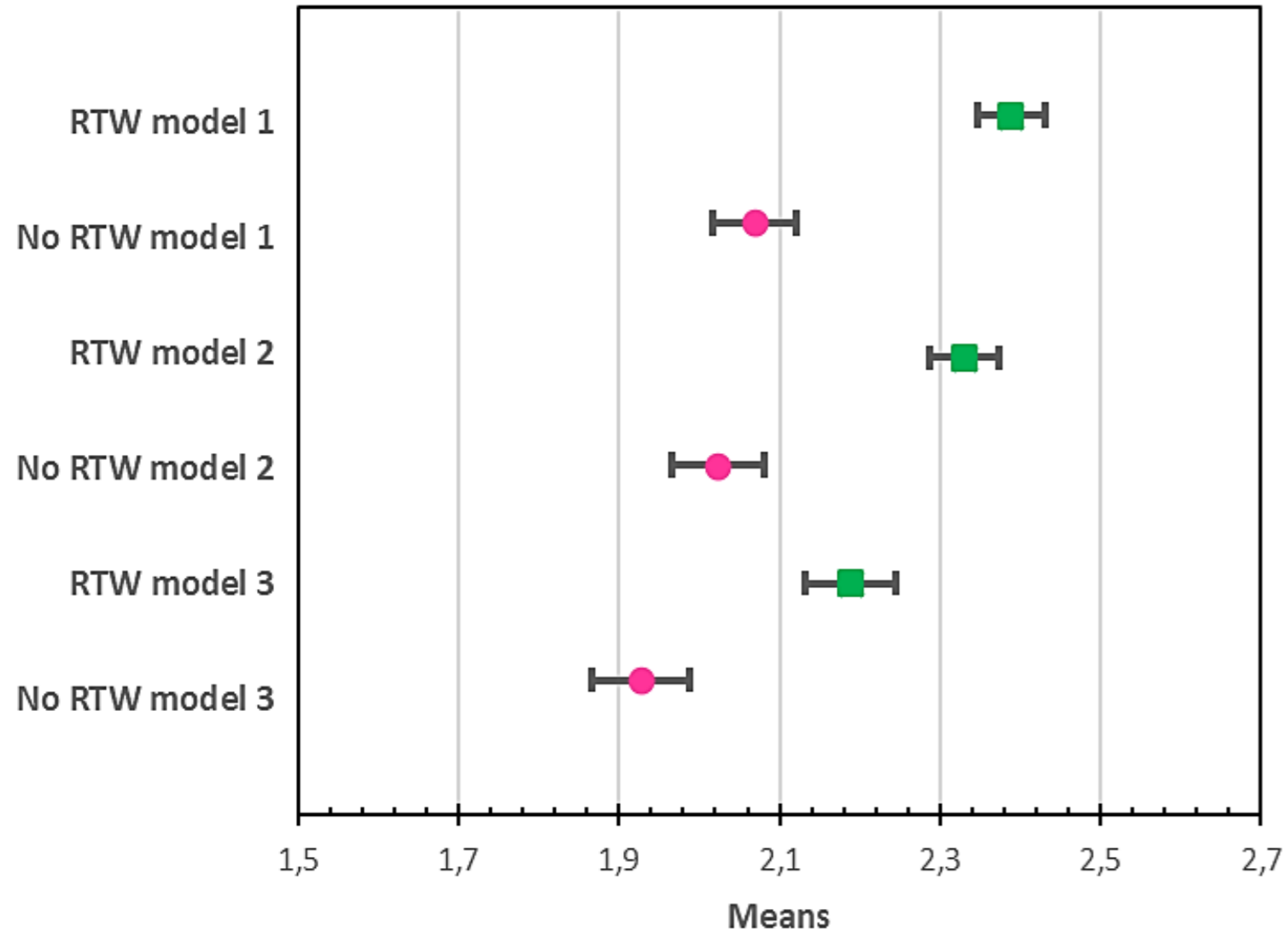
Age-stratified adjusted odds ratios (95%CI) for HADS-A $\geq$ 8



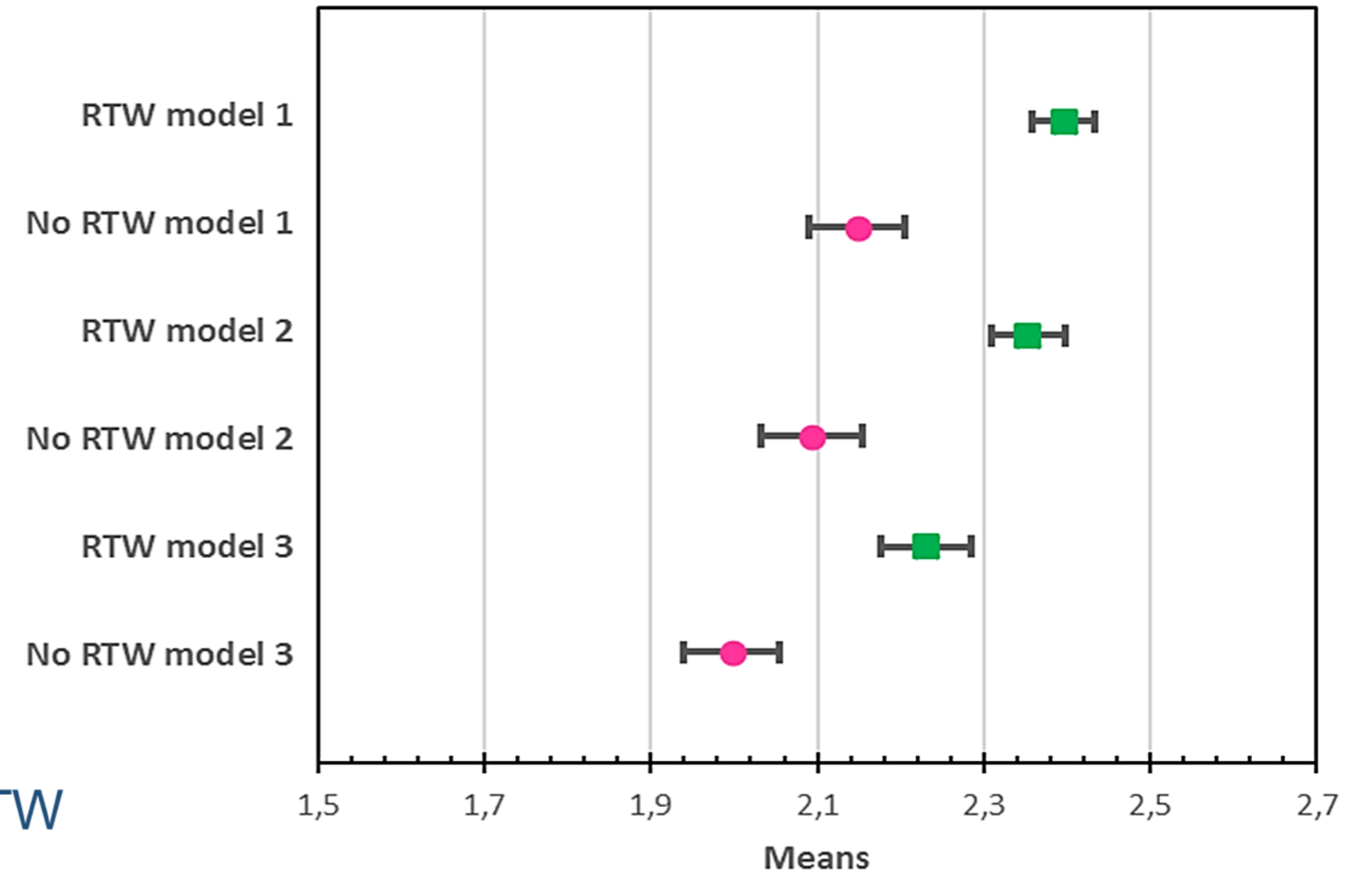


# THE RETIRED LIFE IS NOT ALWAYS THE BETTER LIFE !

Crude and Adjusted means (SE) for HeartQoL<sub>physical</sub>



Crude and Adjusted means (SE) for HeartQoL<sub>emotional</sub>



■ RTW  
● No RTW

Model 1: crude

Model 2 : adjusted for

- age
- sex
- educational level
- recruiting event (CABG,PCI,AMI)

Model 3: also adjusted for

- recurrent CAD
- self-reported BP/cholesterol/DM
- cardiac rehabilitation
- lifestyle (BMI, smoking,physical activity)

all models :  
p <0,001

# DISCUSSION & CONCLUSION

# FINDINGS RTW

- Majority of CHD patients (76%) resume work  $\approx$  most studies<sup>[16-23]</sup> of last 15 years (RTW: 70-80%)  
 $\neq$  some studies<sup>[1,2,3,4,5,6]</sup> higher rate (! heterogeneity)

- RTW related to younger age  
high education  
no prior CVD  $\approx$  previous research<sup>[3,4,7-11]</sup>

*Could 'Health Literacy' be a mediator between vulnerable groups and RTW ?!*

- RTW<sub>adjusted</sub> not related to :
  - gender (!)  $\approx$  Virgo study<sup>[4]</sup> but  $\neq$  general review<sup>[14]</sup> of RTW with  $\downarrow$  rates in ♀
  - CR  $\neq$  literature<sup>[1,4,15]</sup>
  - self-employment  $\approx$  conflicting studies<sup>[3,5]</sup>

*but underrepresentation of ♀ and self-employed*

- Differences in age groups : RTW  $\downarrow$

- < 50 years : CABG, smoking
- $\geq$  63 years : hypertension !

*Management of multi-morbidities and combination with work place is often challenging*

# FINDINGS PSYCHOSOCIAL WELL-BEING AND HRQoL

- Work resumption leads to better odds for depression or anxiety  
≈ previous research<sup>[24-27]</sup>
- General HRQoL improves with RTW ≈ Warraich et al., 2018
- Especially emotional QoL (in younger patients) benefits from RTW
  - 📌 common mental disorders are a prominent reason of absenteeism<sup>[28]</sup>  
in Belgian population < 40 years old
  - 📌 mental health barriers for the unemployed & the labour market<sup>[29]</sup>

# BUT...

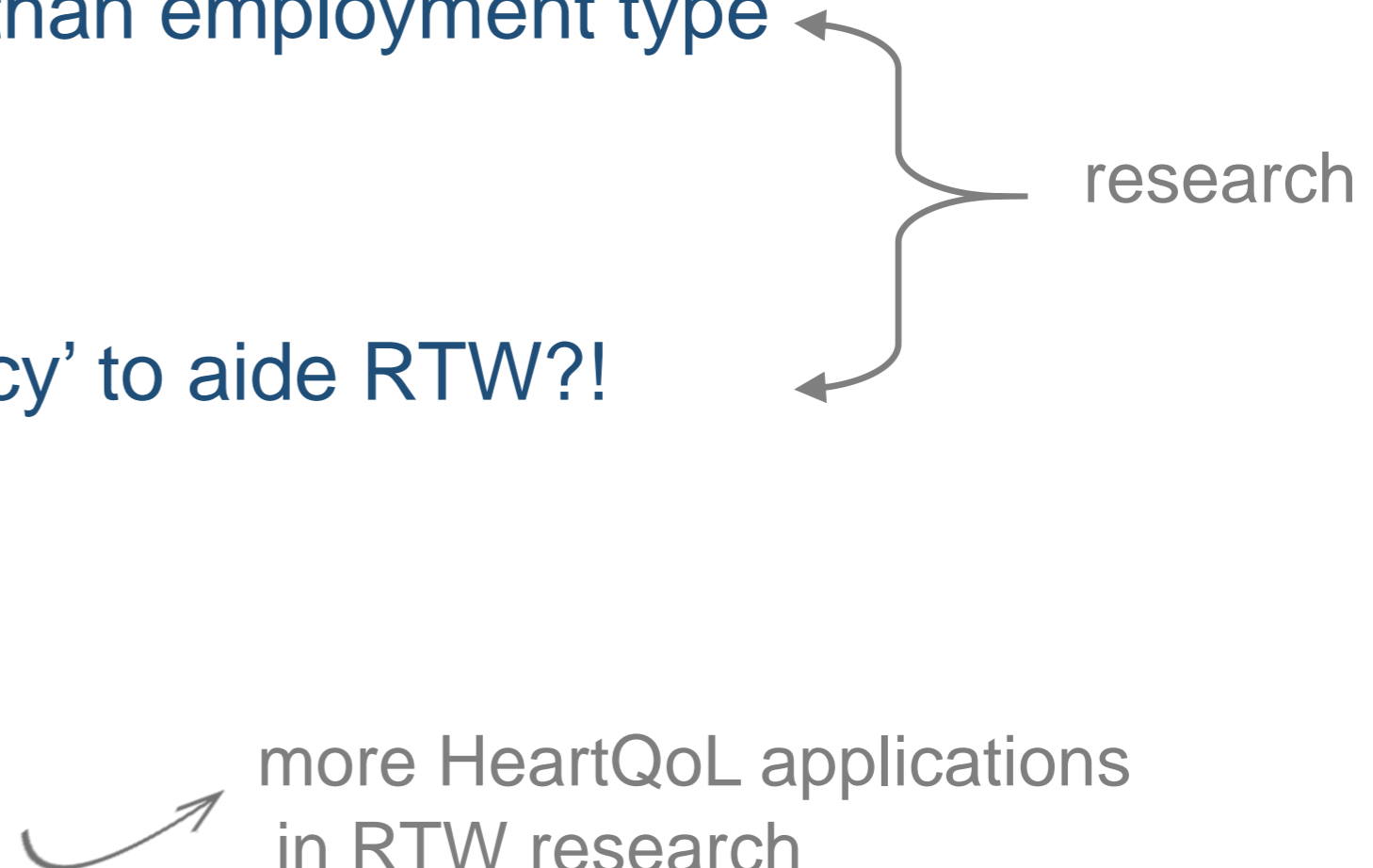
## STRENGTHS

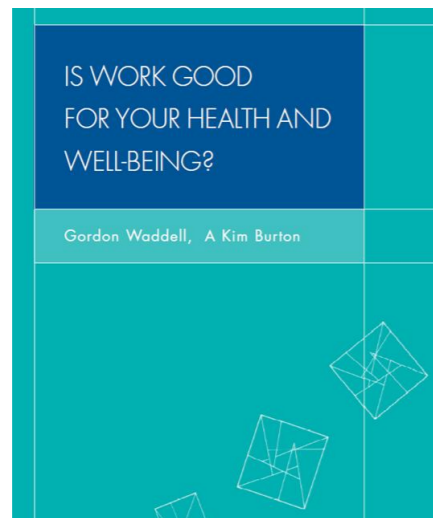
- Major source of data
- Multicenter & international
- Realistic age restriction
- Selection of employed CHD patient pre-event
- Wide index event
- Different tools for mental well-being
- First study to use HeartQoL for RTW

## LIMITATIONS

- Cross-sectional design
- Not a RTW study
  - no occupational characteristics
- RTW attempts or time to RTW unknown
- Single measurement of HADS/HeartQoL
- First study to use HeartQoL for RTW

# WHAT'S NEXT?!

- Tailored (age) disease management of CHD to optimize RTW
  - Lifestyle should be the target for health professionals & society ( ! workplace !)
  - Personal/occupational traits more important than employment type
  - Occupational focus in cardiac rehabilitation
  - Patient empowerment through 'Health Literacy' to aide RTW?!
  - RTW protective against emotional distress
  - Reciprocal relationship between RTW – QoL
- more HeartQoL applications  
in RTW research
- research
- 



***(Return-to-)Work is good for your health  
and well-being !***

**Thank you !  
Questions?**

Joy Van de Cauter  
*Occupational physician*

Department of Public health and Primary care



E joy.vandecauter@ugent.be  
T +32 9 332 83 62  
www.ugent.be



# REFERENCES



# REFERENCES

- Vector images obtained from <https://thenounproject.com/>
- Oldridge N, Hofer S, McGee H, Conroy R, Doyle F, Saner H. The HeartQoL: Part I. Development of a new core health-related quality of life questionnaire for patients with ischemic heart disease. *Eur J Prev Cardiol.* 2014;21(1):90-7.
- Oldridge N, Hofer S, McGee H, Conroy R, Doyle F, Saner H. The HeartQoL: part II. Validation of a new core health-related quality of life questionnaire for patients with ischemic heart disease. *Eur J Prev Cardiol.* 2014;21(1):98-106.
- De Smedt D, Clays E, Hofer S, Oldridge N, Kotseva K, Maggioni AP, et al. The use of HeartQoL in patients with coronary heart disease: Association with risk factors and European reference values. The EUROASPIRE IV study of the European Society of Cardiology. *Eur J Prev Cardiol.* 2016;23(11):1174-86.
- De Smedt D, Clays E, Hofer S, Oldridge N, Kotseva K, Maggioni AP, et al. Validity and reliability of the HeartQoL questionnaire in a large sample of stable coronary patients: The EUROASPIRE IV Study of the European Society of Cardiology. *Eur J Prev Cardiol.* 2016;23(7):714-21.
- Fiabane, E., et al., Psychological and Work Stress Assessment of Patients following Angioplasty or Heart Surgery: Results of 1-year Follow-up Study. *Stress Health*, 2015. 31(5): p. 393-402.
- Scafa F, Calsamiglia G, Tonini S, Lumelli D, Lanfranco A, Gentile E, et al. Return to work after coronary angioplasty or heart surgery: a 5-year experience with the "CardioWork" protocol. *J Occup Environ Med.* 2012;54(12):1545-9.
- Maznyczka AM, Howard JP, Banning AS, Gershlick AH. A propensity matched comparison of return to work and quality of life after stenting or coronary artery bypass surgery. *Open Heart.* 2016;3(1):e000322.
- Dreyer RP, Xu X, Zhang W, Du X, Strait KM, Bierlein M, et al. Return to Work After Acute Myocardial Infarction: Comparison Between Young Women and Men. *Circ Cardiovasc Qual Outcomes.* 2016;9(2 Suppl 1):S45-52.
- Latil F, Iliou MC, Boileau C, Pietri JX, Lechien C, Ha-Vinh P, et al. [Returning to work after an acute coronary syndrome: When waiting is wasting]. *Ann Cardiol Angeiol (Paris).* 2017;66(2):81-6.
- Miglioretti M, Gragnano A, Baiardo G, Savioli G, Corsiglia L, Griffo R. Quality of work experience after angioplasty or heart surgery: a monocentric cohort study. *Int Arch Occup Environ Health.* 2018;91(3):337-48.
- Gragnano A, Negrini A, Miglioretti M, Corbiere M. Common Psychosocial Factors Predicting Return to Work After Common Mental Disorders, Cardiovascular Diseases, and Cancers: A Review of Reviews Supporting a Cross-Disease Approach. *J Occup Rehabil.* 2017.
- Söderman E, Lisspers J, Sundin O. Depression as a predictor of return to work in patients with coronary artery disease. *Social Science & Medicine.* 2003;56:193-202.
- O'Neil A, Sanderson K, Oldenburg B. Depression as a predictor of work resumption following myocardial infarction (MI): a review of recent research evidence. *Health and Quality of Life Outcomes* 2010;8(95):11.
- Butt JH, Rorth R, Kragholm K, Kristensen SL, Torp-Pedersen C, Gislason GH, et al. Return to the workforce following coronary artery bypass grafting: A Danish nationwide cohort study. *Int J Cardiol.* 2018;251:15-21.
- Catala Tella N, Serna Arnaiz C, Real Gatus J, Yuguero Torres O, Galvan Santiago L. Assessment of the length of sick leave in patients with ischemic heart disease. *BMC Cardiovasc Disord.* 2017;17(1):32.
- O'Brien L, Wallace S, Romero L. Effect of Psychosocial and Vocational Interventions on Return-to-Work Rates Post-Acute Myocardial Infarction: A SYSTEMATIC REVIEW. *J Cardiopulm Rehabil Prev.* 2017.
- Dettleur SI, Heerkens YF, Engels JA, van der Gulden JWJ, van Dijk FJH. Common prognostic factors of work disability among employees with a chronic somatic disease: a systematic review of cohort studies. *Scandinavian Journal of Work, Environment & Health.* 2009;35(4):261-81.

# REFERENCES (2)

- Cancelliere C, Donovan J, Stochkendahl MJ, Biscardi M, Ammendolia C, Myburgh C, et al. Factors affecting return to work after injury or illness: best evidence synthesis of systematic reviews. *Chiropr Man Therap*. 2016;24(1):32.
- Hare DL, Toukhsati SR, Johansson P, Jaarsma T. Depression and cardiovascular disease: a clinical review. *Eur Heart J*. 2014;35(21):1365-72.
- Abbas AE, Brodie B, Stone G, Cox D, Berman A, Brewington S, et al. Frequency of returning to work one and six months following percutaneous coronary intervention for acute myocardial infarction. *Am J Cardiol*. 2004;94(11):1403-5.
- Biering K, Lund T, Andersen JH, Hjollund NH. Effect of Psychosocial Work Environment on Sickness Absence Among Patients Treated for Ischemic Heart Disease. *J Occup Rehabil*. 2015;25(4):776-82.
- Biering K, Hjollund NH, Lund T. Methods in measuring return to work: a comparison of measures of return to work following treatment of coronary heart disease. *J Occup Rehabil*. 2013;23(3):400-5.
- Worcester MU, Elliott PC, Turner A, Pereira JJ, Murphy BM, Le Grande MR, et al. Resumption of work after acute coronary syndrome or coronary artery bypass graft surgery. *Heart Lung Circ*. 2014;23(5):444-53.
- Söderman E, Lisspers J, Sundin O. Depression as a predictor of return to work in patients with coronary artery disease. *Social Science & Medicine*. 2003;56:193-202.
- Brink, E. , Brändström, Y. , Cliffordsson, C. , Herlitz, J. and Karlson, B. W. (2008), Illness consequences after myocardial infarction: problems with physical functioning and return to work. *Journal of Advanced Nursing*, 64: 587-594. doi:10.1111/j.1365-2648.2008.04820.x
- Farkaš J, Cerne K, Lainščak M, Keber I (2008) Return to work after acute myocardial infarction—listen to your doctor! *Int J Cardiol*130:e14–e16. <https://doi.org/10.1016/j.ijcard.2007.07.041>
- Mital A, Desai A, Mital A. Return to Work After a Coronary Event. *Journal of Cardiopulmonary Rehabilitation and Prevention*. 2004;24(6):365-73.
- Warraich HJ, Kaltenbach LA, Fonarow GC, Peterson ED, Wang TY. Adverse Change in Employment Status After Acute Myocardial Infarction: Analysis From the TRANSLATE-ACS Study. *Circ Cardiovasc Qual Outcomes*. 2018;11(6):e004528.
- Smedegaard L, Numé AK, Charlot M, Kragholm K, Gislason G, Hansen PR. Return to Work and Risk of Subsequent Detachment From Employment After Myocardial Infarction: Insights From Danish Nationwide Registries. *Journal of the American Heart Association: Cardiovascular and Cerebrovascular Disease*. 2017;6(10):e006486.
- Norlund F, Lissaker C, Wallert J, Held C, Olsson EM. Factors associated with emotional distress in patients with myocardial infarction: Results from the SWEDEHEART registry. *Eur J Prev Cardiol*. 2018;25(9):910-20.
- Lovvik C, Overland S, Hysing M, Broadbent E, Reme SE. Association between illness perceptions and return-to-work expectations in workers with common mental health symptoms. *J Occup Rehabil*. 2014;24(1):160-70.
- Verlinden H. Absenteïsme in 2016 (white paper). Vooral jonge werknemers steeds meer langdurig ziek: meer bewegen helpt: Securex; 2017 [updated 2017 May. Available from: <http://www.securex.be/nl/detail-pagina/White-paper---Absenteesme-in-2016/>.
- Audhoe SS, Nieuwenhuijsen K, Hoving JL, Sluiter JK, Frings-Dresen MHW. Perspectives of unemployed workers with mental health problems: barriers to and solutions for return to work. *Disabil Rehabil*. 2018;40(1):28-34