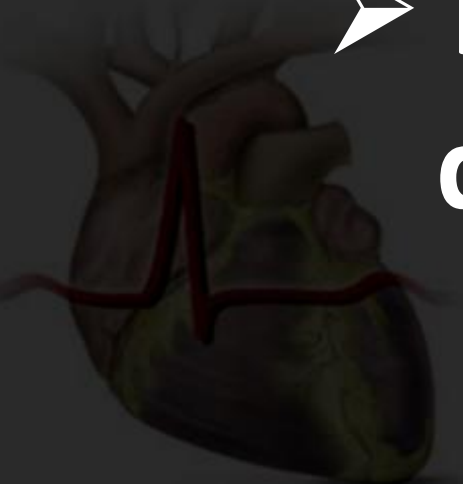
QOL AND MORTALITY IN HEART FAILURE PATIENTS

D. Zdrenghea, D.Gaita(RO)

Relationship QoL-Mortality

- It is complex
- There are at least few questions to answer



Does decreased mortality also mean increased QoL ?

YES:

- **L**ife itself means **QUALITY OF LIFE**

NO:

- Increased survival through treatment may be associated with POOR **QoL** because of lost of professional and social role, because of the economic state or because of the drugs used to increase survival
- Beta-blockers decrease initially exercise capacity
- Decreasing of sexual performance, etc

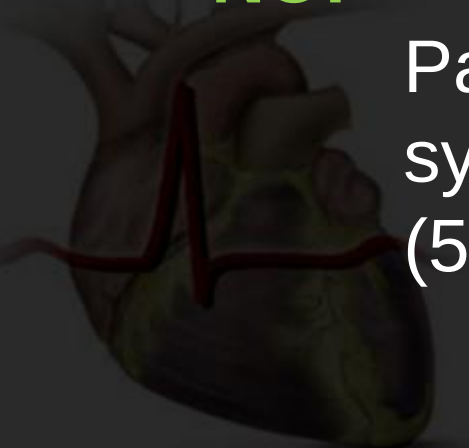
Does increased QoL also mean decreased mortality?

YES:

Increase **QoL** is usually the result of a good evolution under treatment which will also increase survival

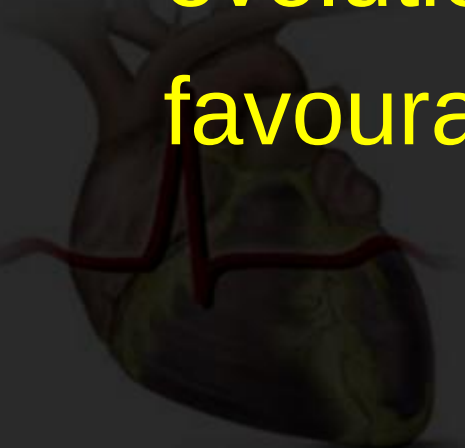
NO:

Patients with good **QoL** and controlled symptoms can die suddenly
(50% of deaths in HF patients)



Can mortality and QoL be used to evaluate the outcome?

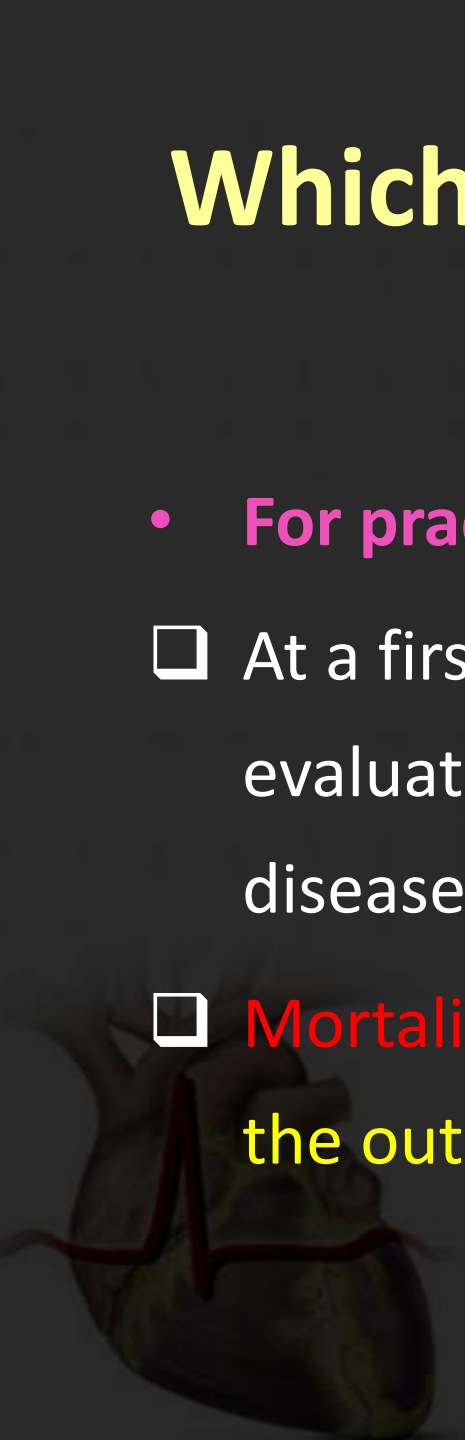
YES, because increased QoL and decreased mortality signify a good evolution of the disease and favourable outcome



Which one is better to evaluate the outcome ?

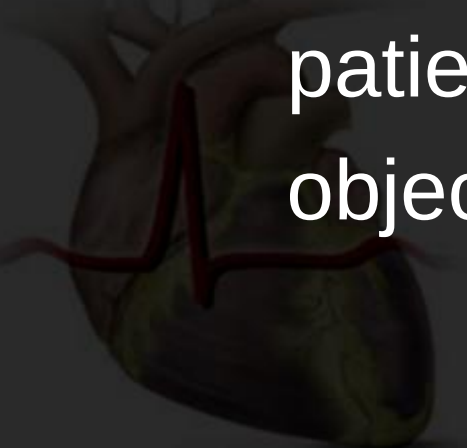
- **For practical reasons :**

- ❑ At a first view **QoL** is more important because it evaluates both treatment efficacy and the impact of disease upon patient's life
- ❑ Mortality offers only a retrospective evaluation of the outcome in individual patients



For an accurate evaluation of the outcome:

- **Mortality** is more objective and offers global evaluation of the treatment results
- **QoL** is subjective and variable from patient to patient, together with the same objective result of the treatment



MORTALITY

European Heart Journal
doi:10.1093/eurheartj/ehn309

ESC GUIDELINES

ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2008

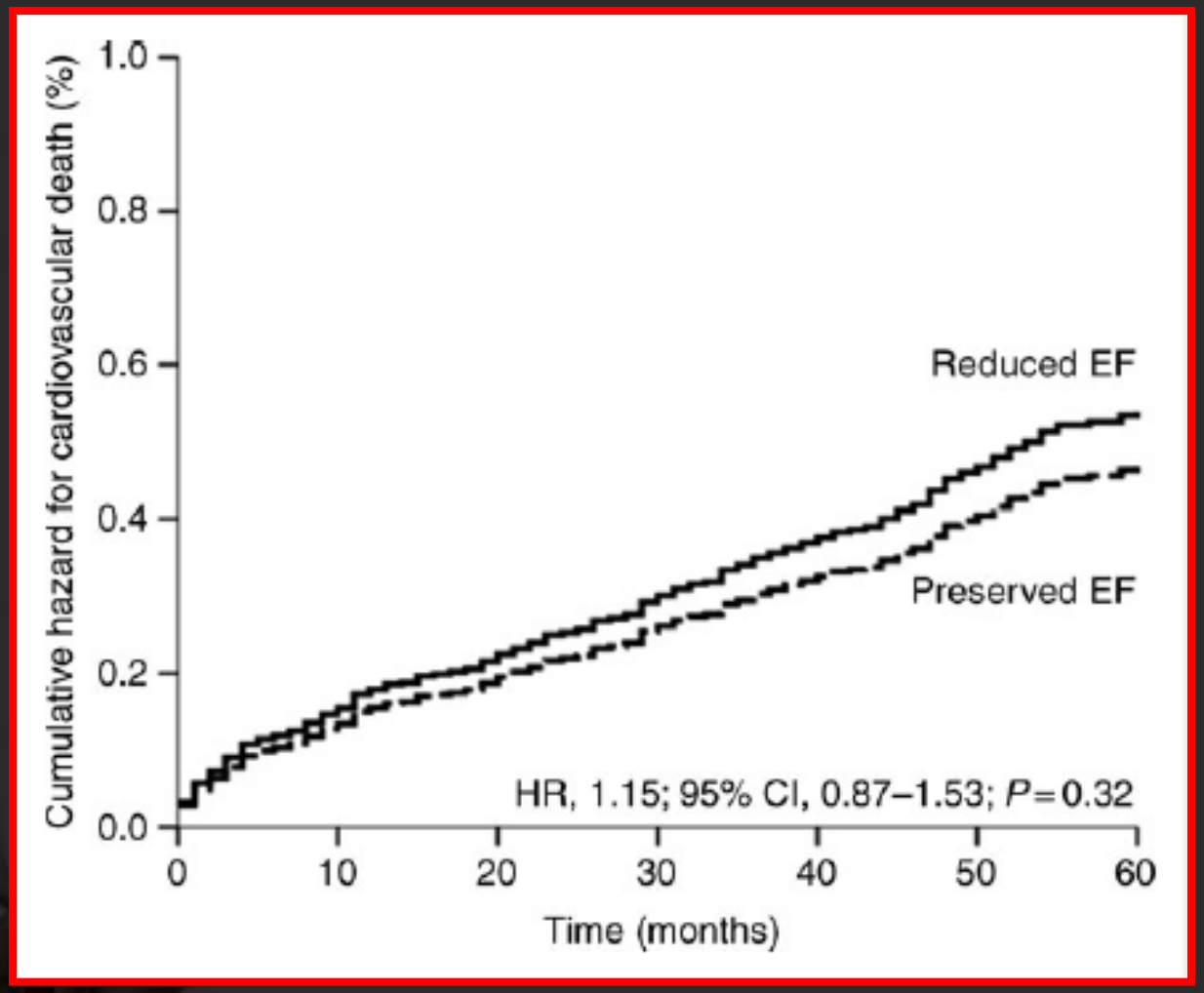
The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2008 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association of the ESC (HFA) and endorsed by the European Society of Intensive Care Medicine (ESICM)

Eur Heart J 2008

The outlook is, in general, gloomy, although some patients can live for many years.[23,29,34,35] Overall **50% of patients are dead at 4 years. 40% of patients admitted to hospital with HF are dead or readmitted within 1 year**.

Studies show that the accuracy of diagnosis of HF by clinical means alone is often inadequate, particularly in women, the elderly, and the obese. [36,37] HFPEF (EF > 45-50%) is present in half the patients with HF. The prognosis in more recent studies has been shown to be essentially similar to that of systolic HF.[38,39]

Eur Heart J 2008



Cumulative hazard functions plots for cardiovascular death in patients with preserved and reduced EF

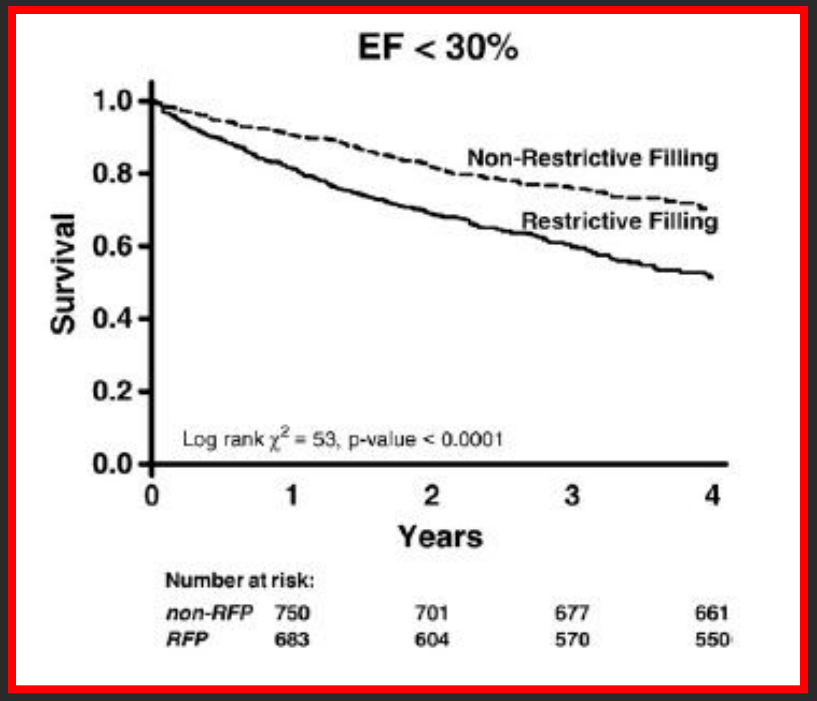
Tribouilloy C. et al European Heart Journal 2008;29:339-347

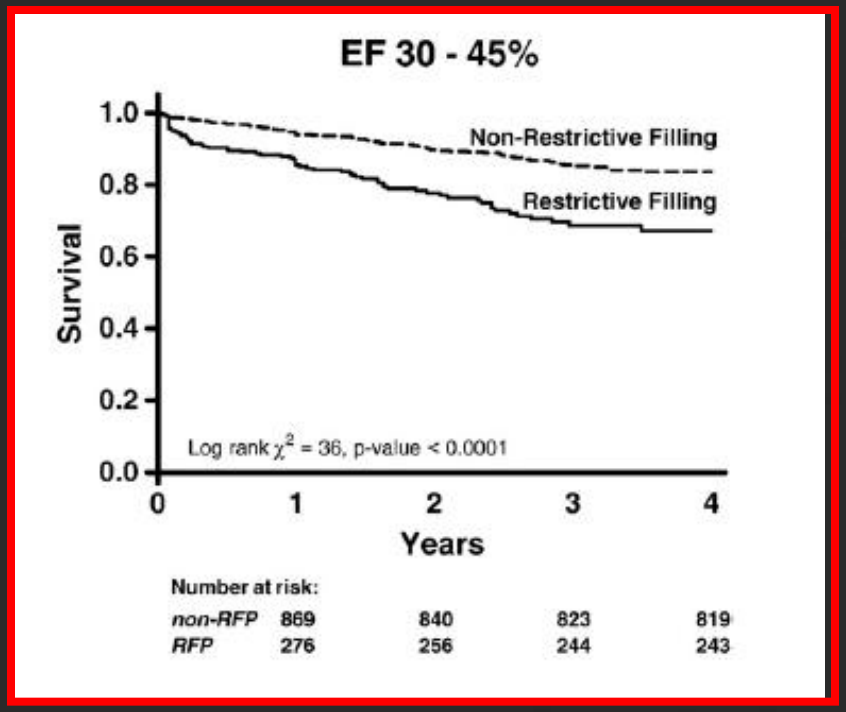
Independence of restrictive filling pattern and LV ejection fraction with mortality in heart failure: An individual patient meta-analysis

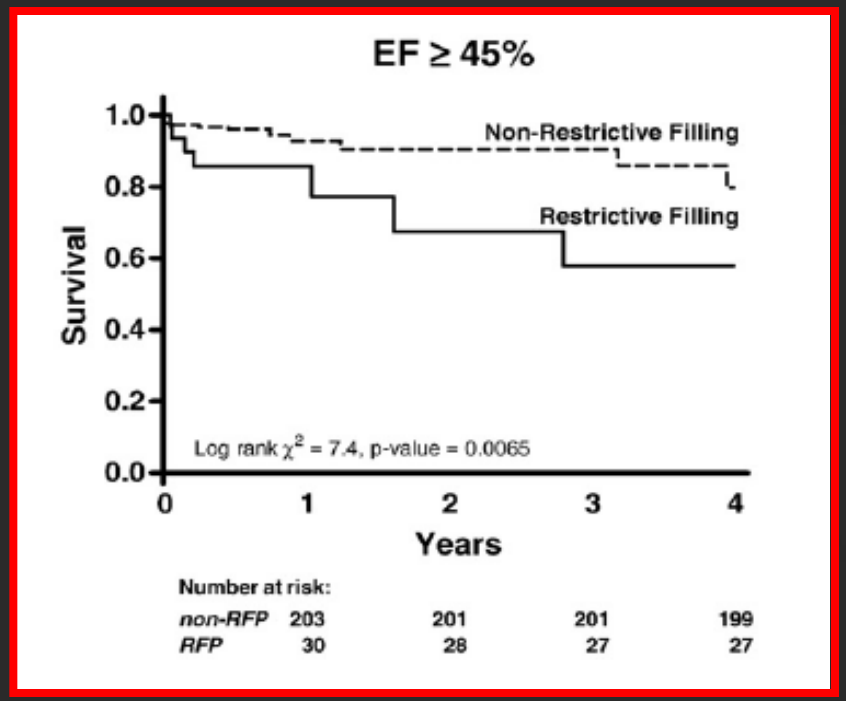
Meta-analisys Research Group in Echocardiography (MeRGE)
Heart Failure Collaborators*

"The restrictive mitral filling pattern is a powerful predictor of mortality, independent of LVEF and age, in patients with HF. Doppler-derived LV filling patterns are an accessible marker from echocardiography that can readily be incorporated in risk stratification of all patients with HF."

MeRGE Heart Failure Collaborators .Eur J of Heart Fail 2008;10:786-792







Kaplan-Meier survival curves for patients with heart failure with restrictive filling pattern versus non-restrictive filling pattern by group of LV ejection fraction.

MeRGE Heart Failure Collaborators. Eur J of Heart Fail 2008;10:786-792

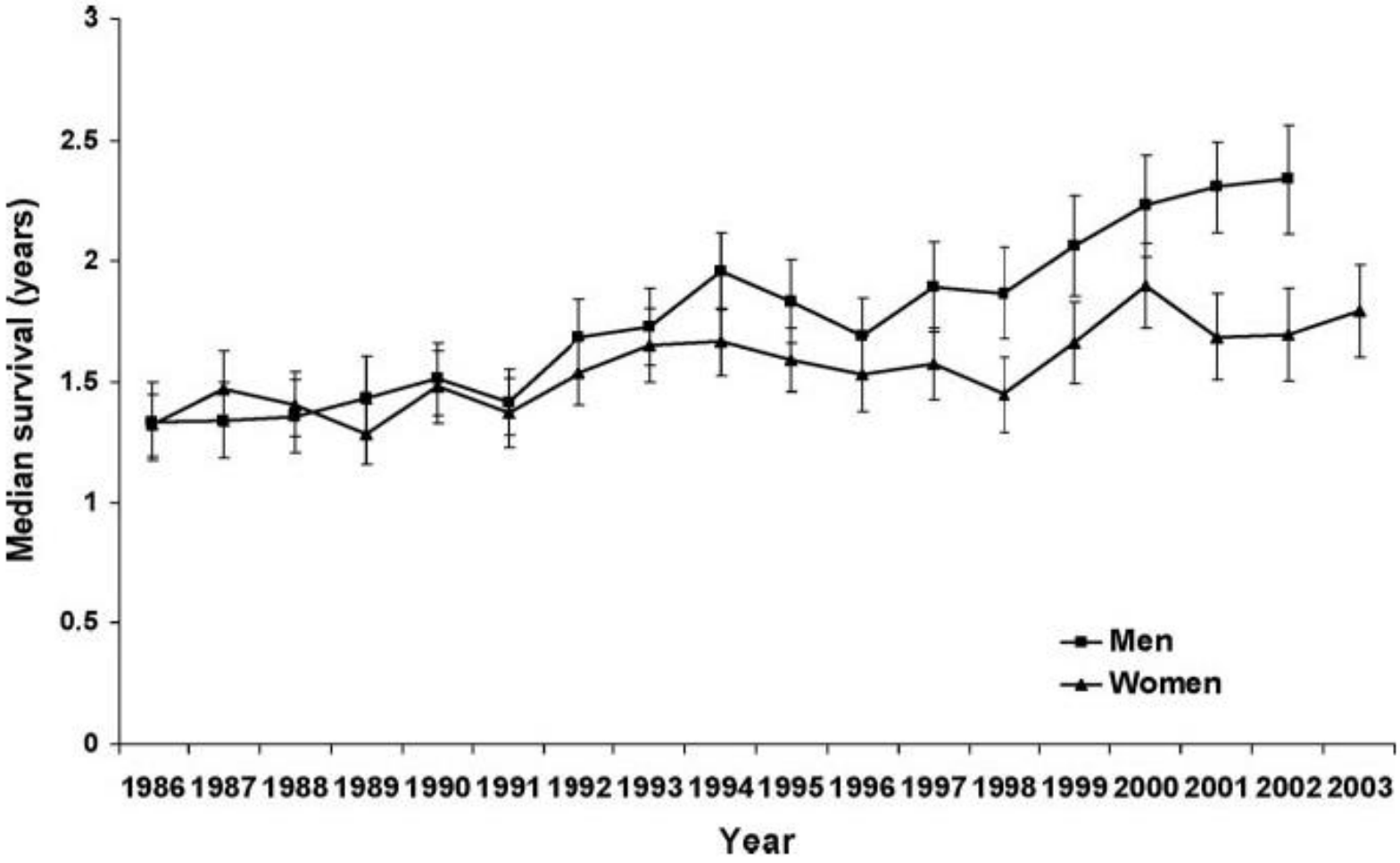
Long-Term Trends in First Hospitalization for Heart Failure and Subsequent Survival Between 1986 and 2003

A Population Study of 5.1 Million People

Pardeep S. Jhund, MBChB, MSc; Kate MacIntyre, MPH, MD; Colin R. Simpson, PhD; James D. Lewsey, PhD; Simon Stewart, PhD; Adam Redpath, MPhil, MSc; James W.T. Chalmers, MBChB, MSc; Simon Capewell, MD, DSc; John J.V. McMurray, MD

"Median survival increased from 1.33 to 2.34 years in men and from 1.32 to 1.79 years in women. Age-adjusted prescribing rates for angiotensin-converting enzyme inhibitors, -blockers, and spironolactone increased from 1997 to 2003 (all *P*0.0001 for trend)."

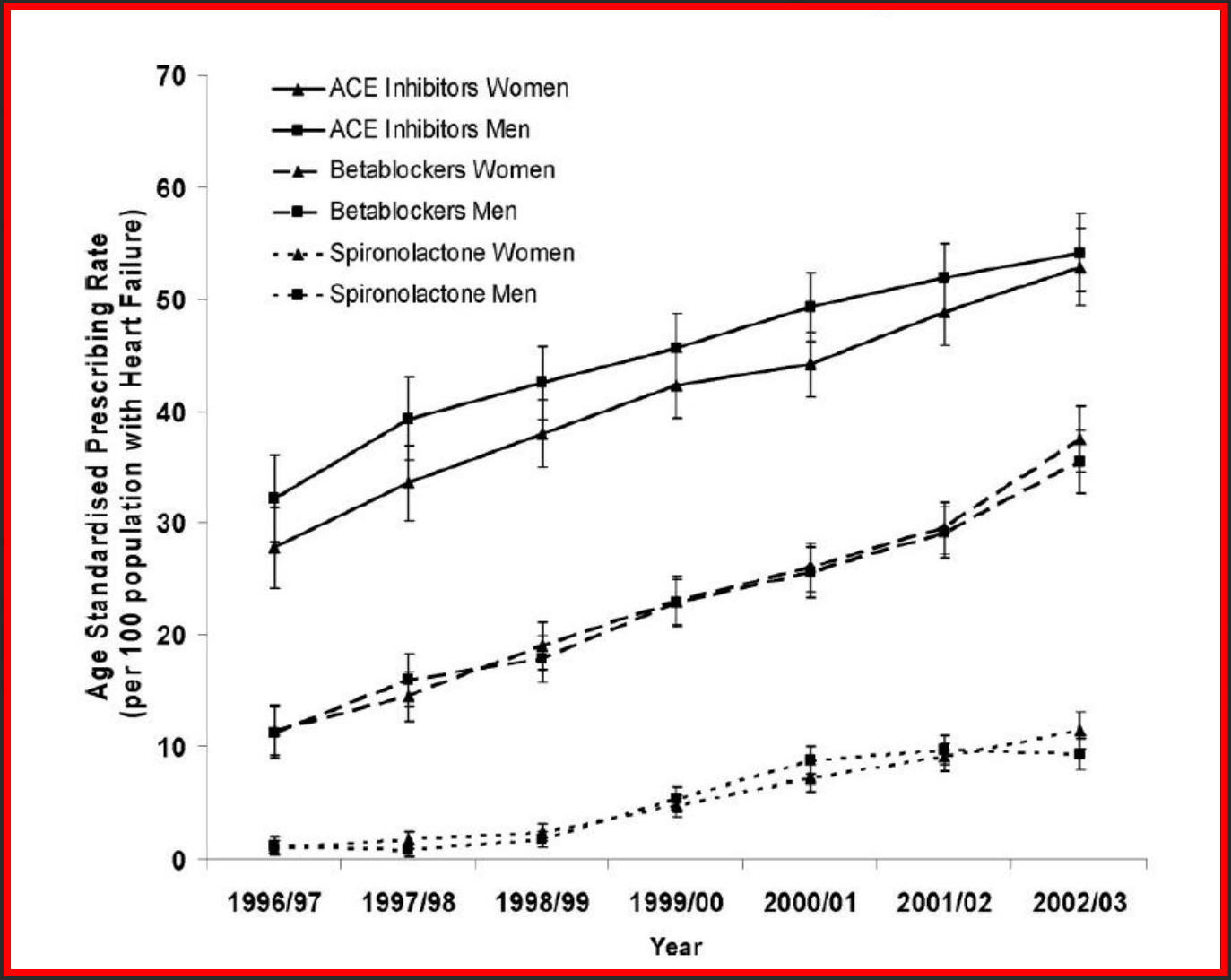
Jhund P S et al.Circulation. 2009;119:515-523



Trends in median survival (excluding deaths within 30 days) according to sex and year of admission. Error bars represent 95% CIs.

Jhund P S et al.Circulation. 2009;119:515-523

Age-adjusted trends in prescribing rates for ACE inhibitors, -blockers, and spironolactone in patients with HF in primary care. Error bars represent 95% CIs.



Jhund P S et al.Circulation. 2009;119:515-523

Predictors of mortality

Major criteria predicting outcome in HF:

- measures of heart structure (heart size or ejection fraction in those with enlarged hearts, systolic heart failure)
- measures of cardiovascular performance (such as maximal exercise capacity or the 6-min walk test
- measures of the body response (the simplest are renal function and the plasma sodium)

Poole Wilson P.A. JACC 2008;52(20):1649-51

*Predictors of **short term mortality** in heart failure - Insights from the Euro Heart Failure survey*
Velavan P et al Int J Cardiol 2010;138:63-69

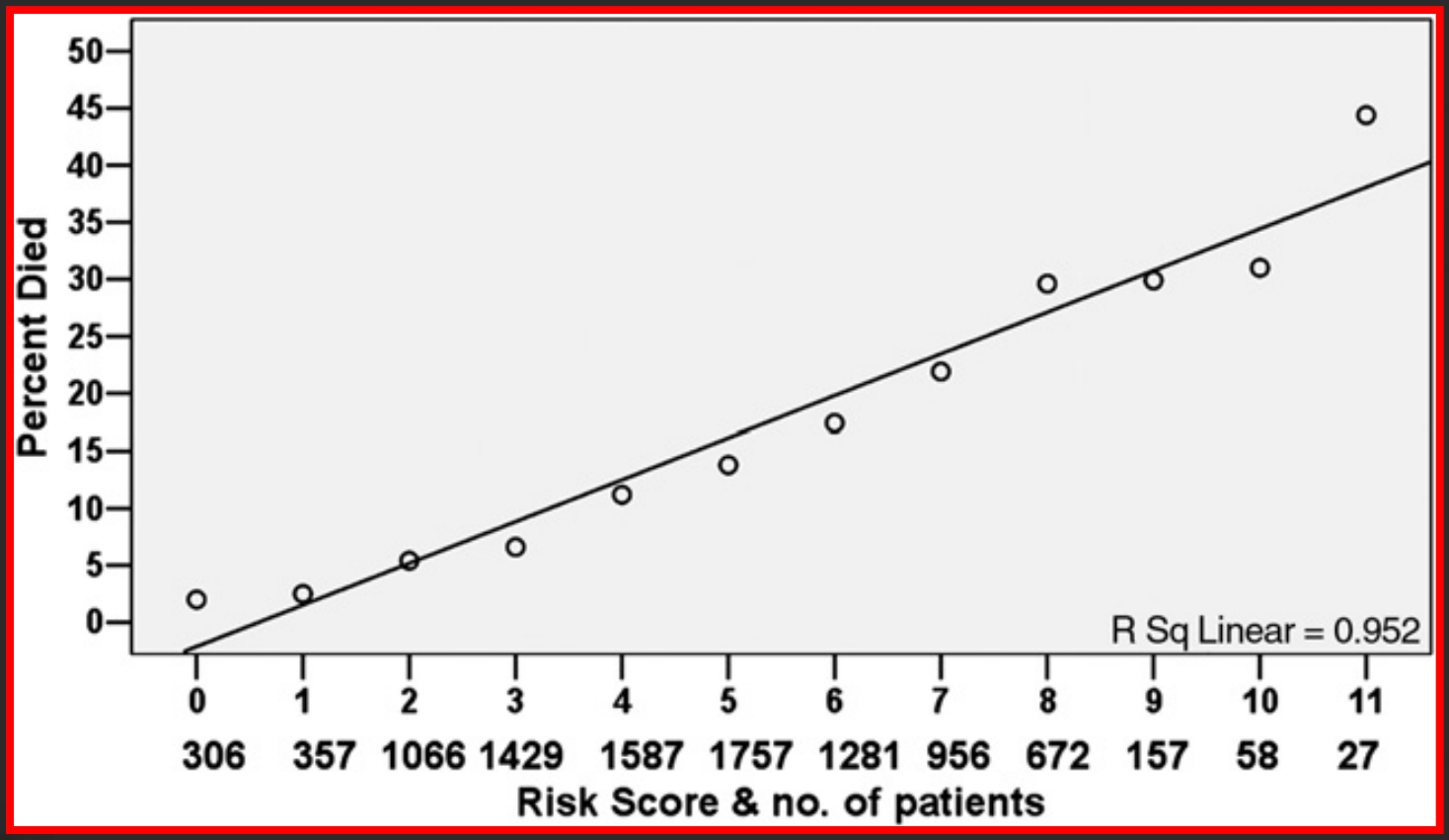
Table 2

Multivariable analysis by binary stepwise logistic regression predicting mortality within 12 weeks of admission with heart failure.

Variable	*P*	Odds ratio	95% CI	Bootstrapp (97.5%)
Age* (SD = 13 years)	<0.001	1.5	1.4-1.6	<0.001
Haemoglobin* (SD = 2.2 g/dl)	<0.001	0.9	0.8-0.9	0.003
Creatinine* (SD = 103 µmol/l)	<0.001	1.2	1.2-1.3	<0.001
Sodium* (SD = 5 mmol/l)	<0.001	0.9	0.8-0.9	0.035
Severe LVSD (20% of all patients)	<0.001	1.8	1.5-2.1	<0.001
Atrial fibrillation (15%)	0.001	1.3	1.1-1.6	0.205
ACEI therapy (62%)	<0.001	0.5	0.5-0.6	<0.001
ARB therapy (5%)	0.001	0.5	0.4-0.8	0.073
Beta-blocker therapy (37%)	<0.001	0.7	0.6-0.8	0.006
Calcium channel blocker therapy (21%)	<0.001	0.7	0.6-0.8	0.018
Lipid lowering therapy (20%)	<0.001	0.6	0.5-0.7	0.001
Aspirin and anti-platelet drugs (53%)	<0.001	0.6	0.5-0.6	<0.001
Warfarin (23%)	<0.001	0.5	0.4-0.6	<0.001
Heparin (25%)	<0.001	1.7	1.4-1.9	<0.001
Need for IV inotropic agents (7%)	<0.001	5.5	4.6-6.6	<0.001

*Odds ratios given for a change of ± 1 SD for continuous variables and odds ratios obtained by comparing Yes vs. No for categorical variables.

Relation between risk score and death within 12 weeks of admission

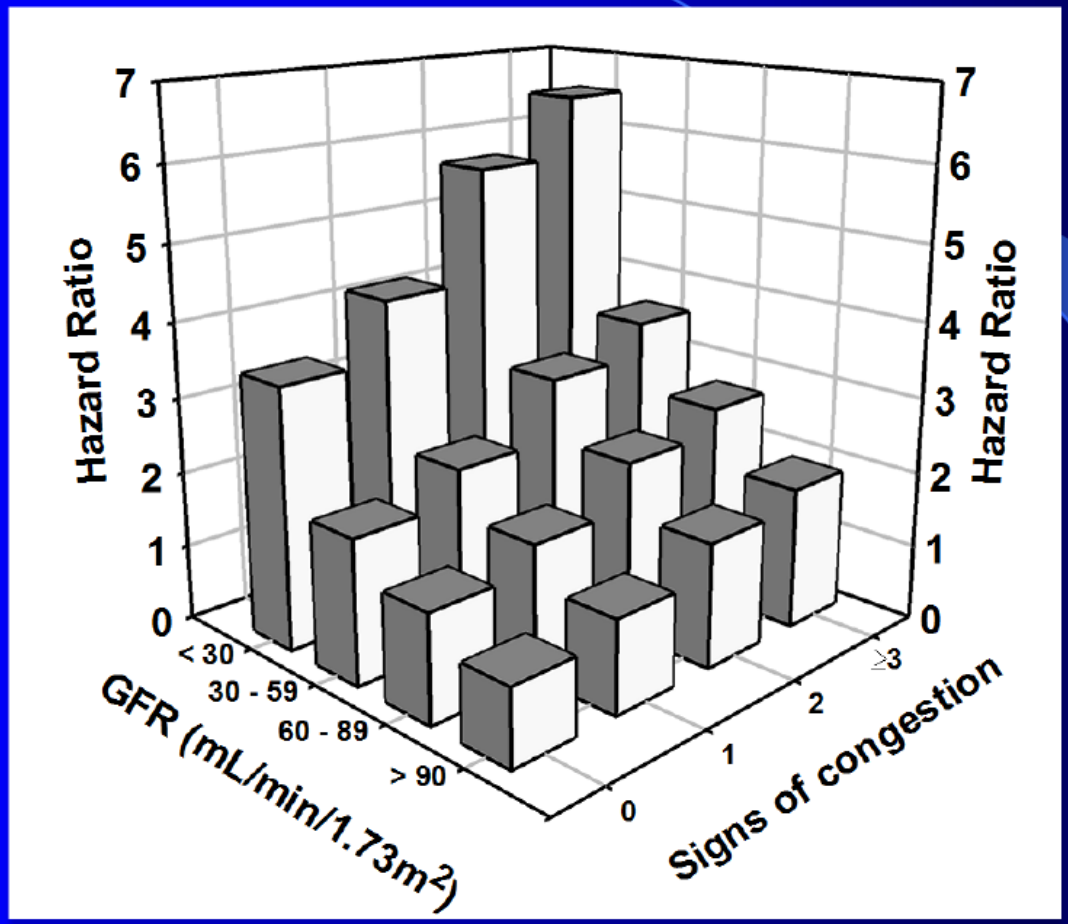


Predictors of short term mortality in heart failure - Insights from the Euro Heart Failure survey

Velavan P et al

Int J Cardiol 2010;138:63-69

eGFR x Congestion



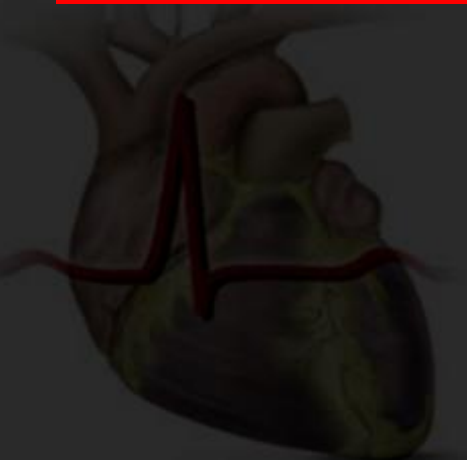
Combined endpoint (CV death and CV hospitalisations)

Damman K. ESC, 2007

The relationship between systolic blood pressure on admission and mortality in older patients with heart failure

María T. Vidán[1]*, Héctor Bueno[2], Yongfei Wang[5], Geoffrey Schreiner[8,9], Joseph S. Ross[3,4], Jersey Chen[5], and Harlan M. Krumholz[5,6,7,8,9]

[1]Department of Geriatric Medicine, Hospital General Universitario 'Gregorio Marañón', Dr Esquerdo 46, Madrid 28007, Spain; [2]Department of Cardiology, Hospital General Universitario 'Gregorio Marañón', Madrid, Spain; [3]Department of Geriatrics and Adult Development and Medicine, Mount Sinai School of Medicine, New York, NY, USA; [4]HSR&D Targeted Research Enhancement Program and Geriatrics Research, Education, and Clinical Center, James J. Peters Veterans Administration Medical Center, Bronx, NY, USA; [5]Section of Cardiovascular Medicine, Yale University School of Medicine, New Haven, CT, USA; [6]Department of Robert Wood Johnson Clinical Scholars Program, Yale University School of Medicine, New Haven, CT, USA; [7]Department of Medicine, and the Section of Health Policy and Administration, School of Public Health, Yale University School of Medicine, New Haven, CT, USA; [8]Yale University School of Medicine, New Haven, CT, USA; and [9]Center for Outcomes Research and Evaluation, Yale-New Haven Hospital, New Haven, CT, USA



Vidan T M et al. Eur J Heart Fail. 2010 Feb;12(2):148-55

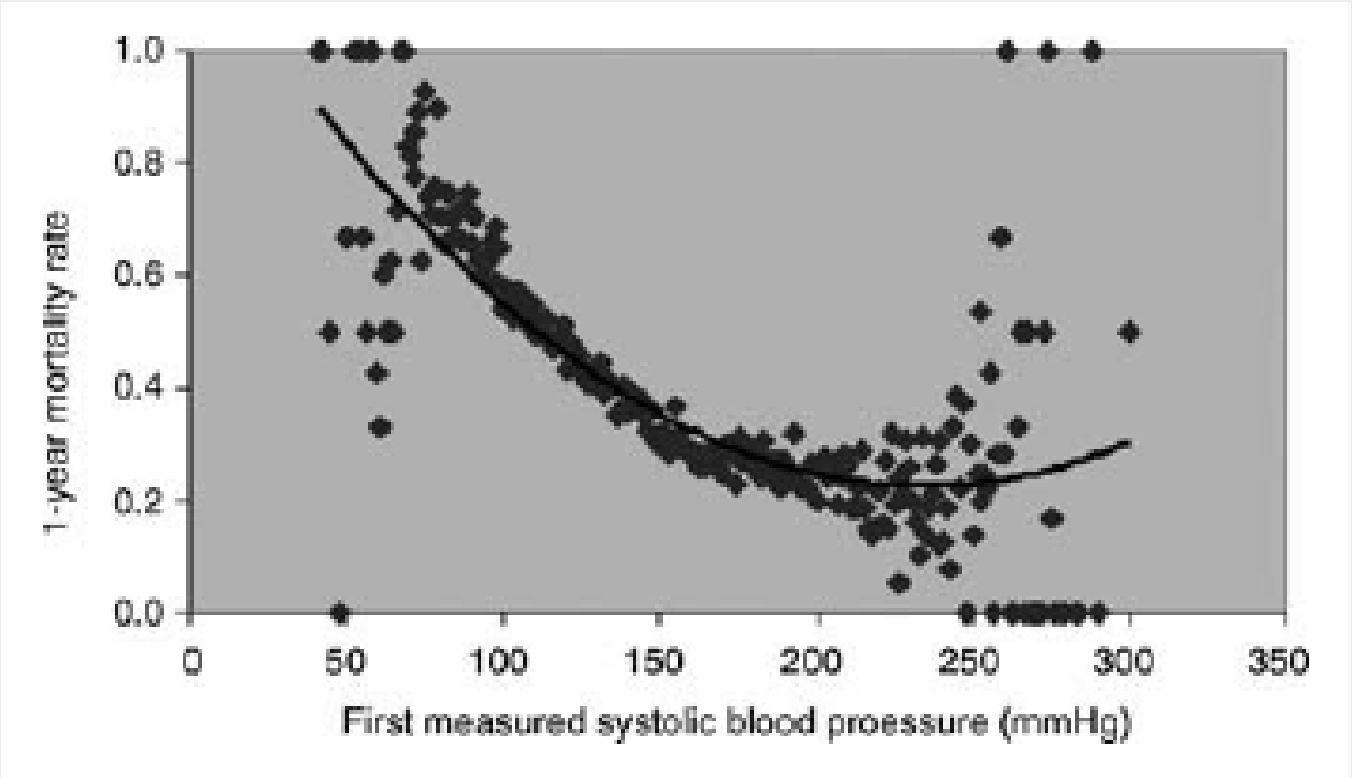
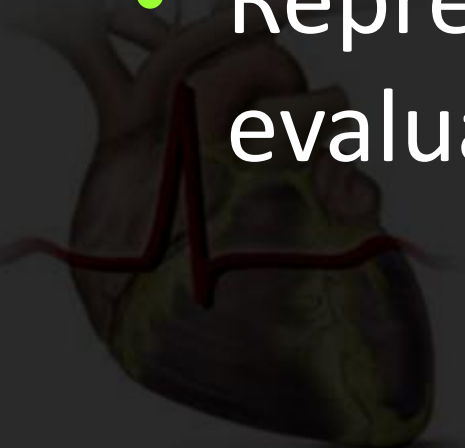


Figure 1 Systolic blood pressure and 1-year mortality rates.

Vidan T M et al. Eur J Heart Fail. 2010 Feb;12(2):148-55

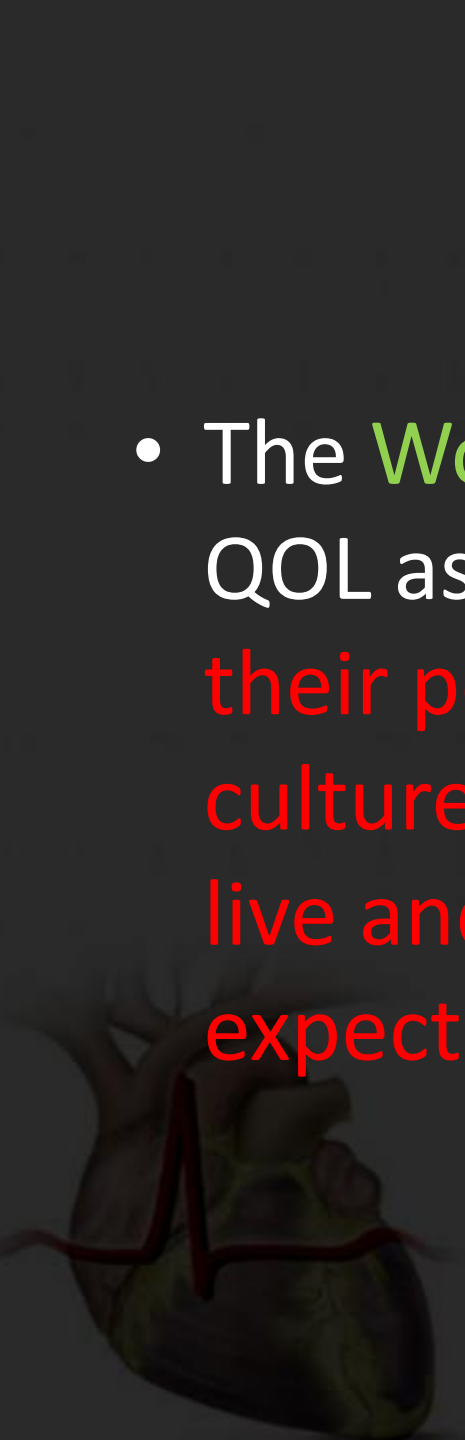
- In fact **mortality** is still very high in all clinical forms of heart failure.
- It can be estimated using some predictors including simple, clinical ones
- Represents an important tool to evaluate the outcome



QoL

QoL definition

- The World Health Organization defines QOL as "an individual's perception of their position in life, in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns"

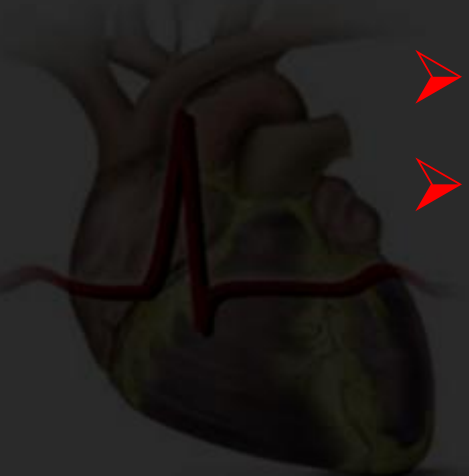


Broffman P.R.S. - Arq Bras Cardiol 2009;93(2):149-156

QoL estimation

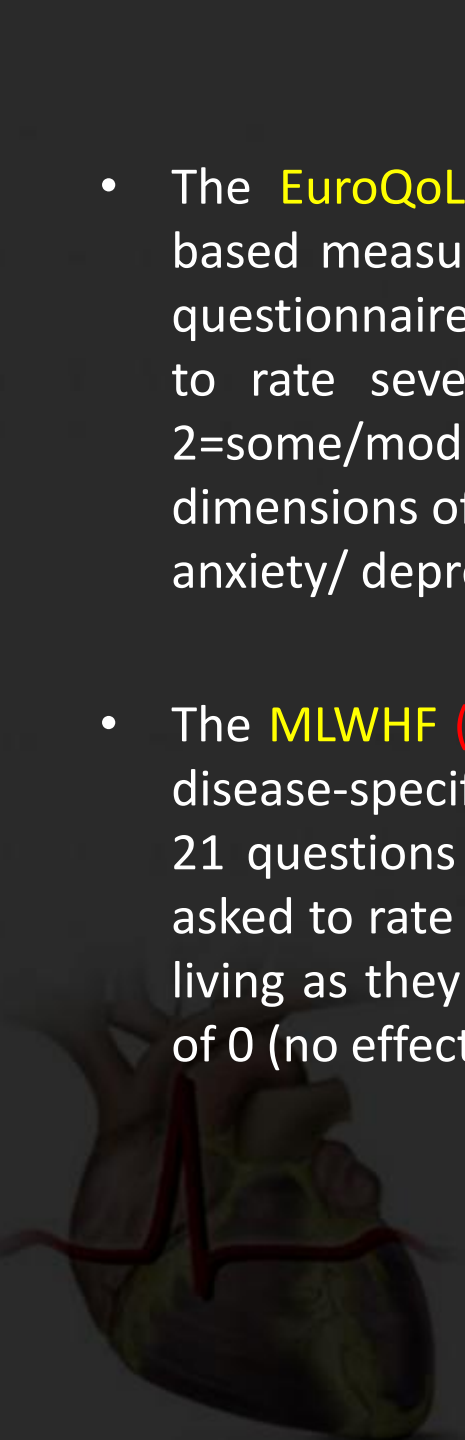
Measurement of quality of life

- **Techniques to assess quality of life**
  - self-administered questionnaire
  - interview
    - face-to-face
    - telephone query
- **Scales of measurement**
  - Generic vs disease specific
  - Single question vs multiple items/scales



- The EuroQoL EQ-5D is a self-administered, validated, generic preference-based measure of health status that comprises a 5-question multi-attribute questionnaire and a visual analogue self-rating scale .Respondents are asked to rate severity of their current problems (level 1=no problems, level 2=some/moderate problems, level 3=severe/ extreme problems) for five dimensions of health: mobility, self-care, usual activities, pain/discomfort, and anxiety/ depression.

- The MLWHF (Minnesota Living with Heart Failure Questionnaire) a validated, disease-specific, selfadministered questionnaire. This instrument consists of 21 questions focussing on the impact of heart failure on QoL. Patients are asked to rate the extent to which their heart failure has prevented them from living as they wanted during the last month using questions rated on a scale of 0 (no effect) to 5 (very much).

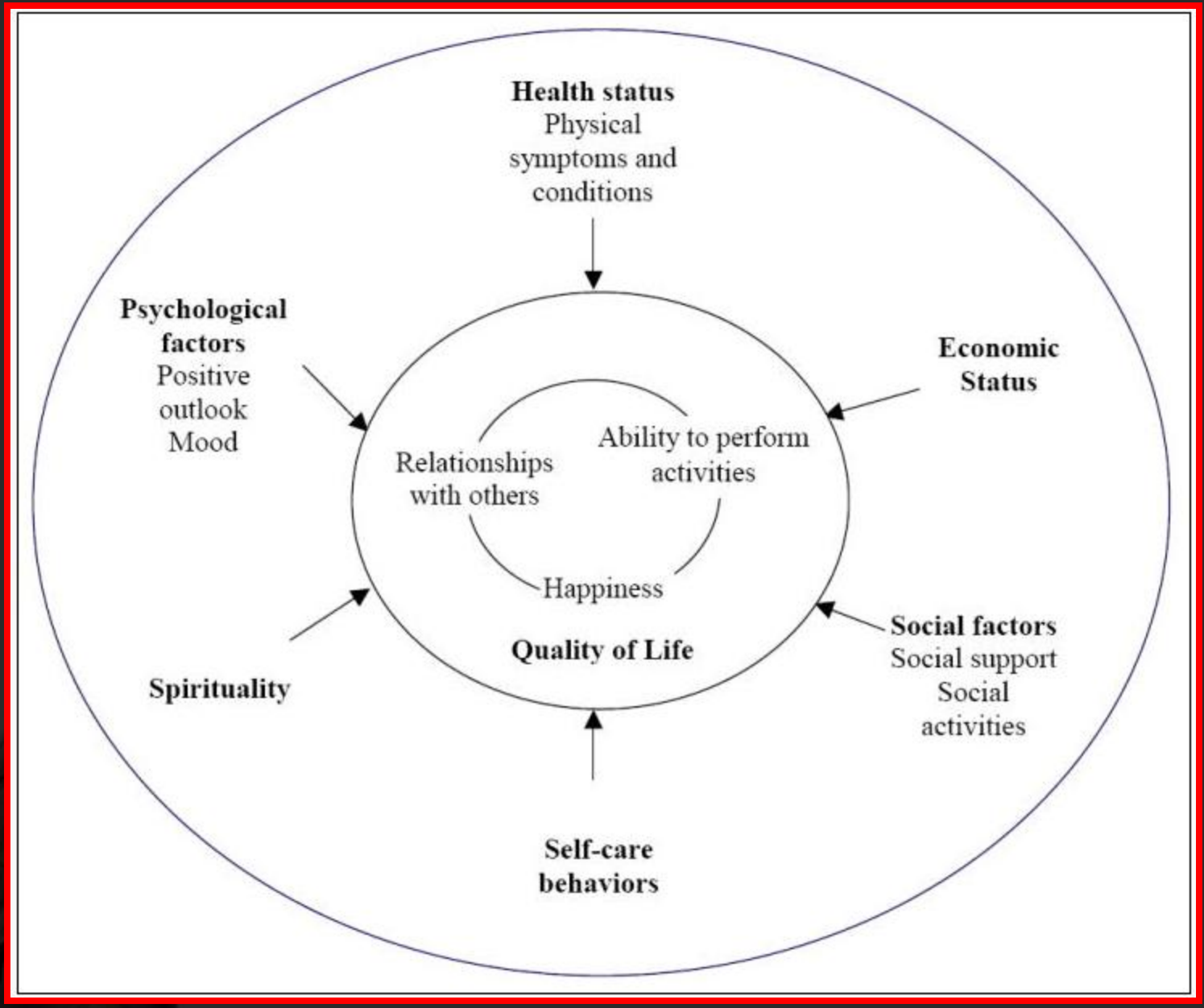


Calvert M J et al. Eur J Heart Fail 2005;7:243-251

Patients' Definition of Quality of Life

- three components:
  1) ability to perform physical and social activities
  2) maintaining happiness
  3) engaging in fulfilling relationships

Heo S. et al. Heart Lung. 2009;38(2):100-108



Heo S. et al. Heart Lung. 2009;38(2):100-108

QoL in HF patients

It is known that:

- **QoL** is extremely poor in persons with heart failure (HF)
- **QoL** is an important predictor of outcomes
- It is not yet figured out how to influence HF quality of life

Barbara Riegel – ESC Congress 2007

- **QoL in HF is worse than QoL of ...**
  - the general population
  - patients with other chronic diseases
  - patients with other cardiac diseases (e.g., myocardial infarction)

Chin&Goldman, 1998; Dracup et al, 1992, Dixon et al, 2002; Heo et al, 2007; van Jaarsveld, et al, 2001

ELSEVIER

The European Journal of Heart Failure 7 (2005) 243–251

The European Journal of Heart Failure

www.elsevier.com/locate/heafai

The impact of chronic heart failure on health-related quality of life data acquired in the baseline phase of the CARE-HF study

Melanie J. Calvert[a,*], Nick Freemantle[a], John G.F. Cleland[b]

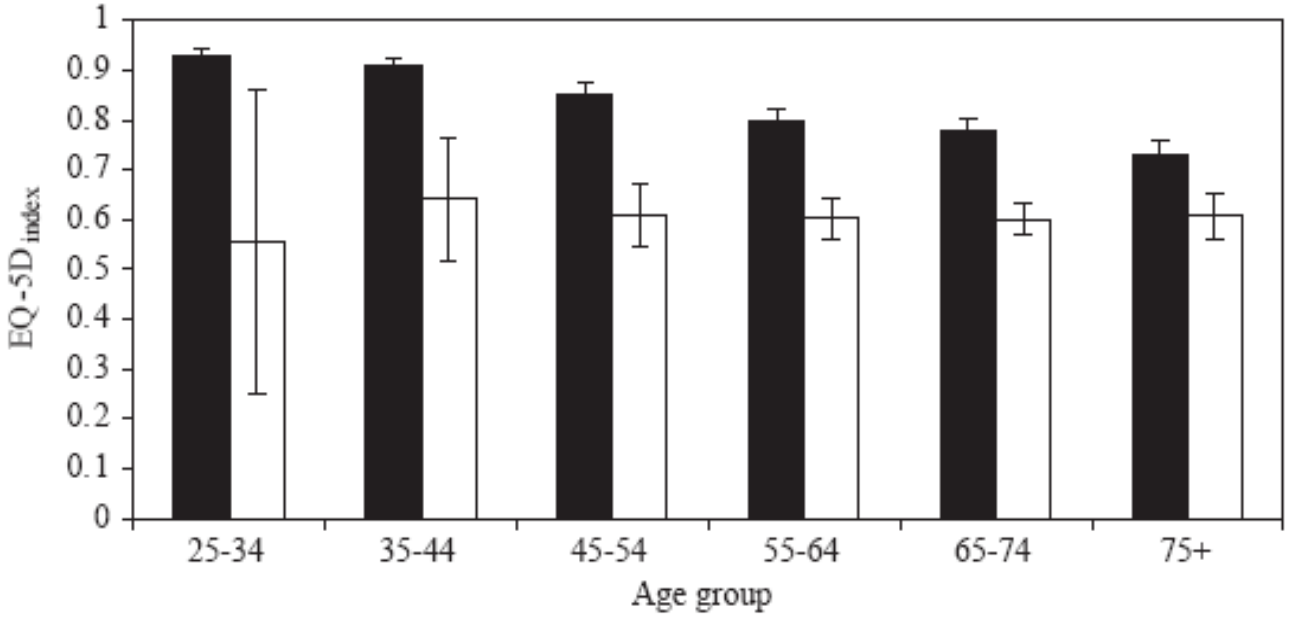


Fig. 2. A comparison of UK general population (■) and CARE-HF baseline (□) EQ-5D$_{index}$ scores by age (95% CI are indicated).

Calvert M J et al. Eur J Heart Fail 2005;7:243-251

ELSEVIER

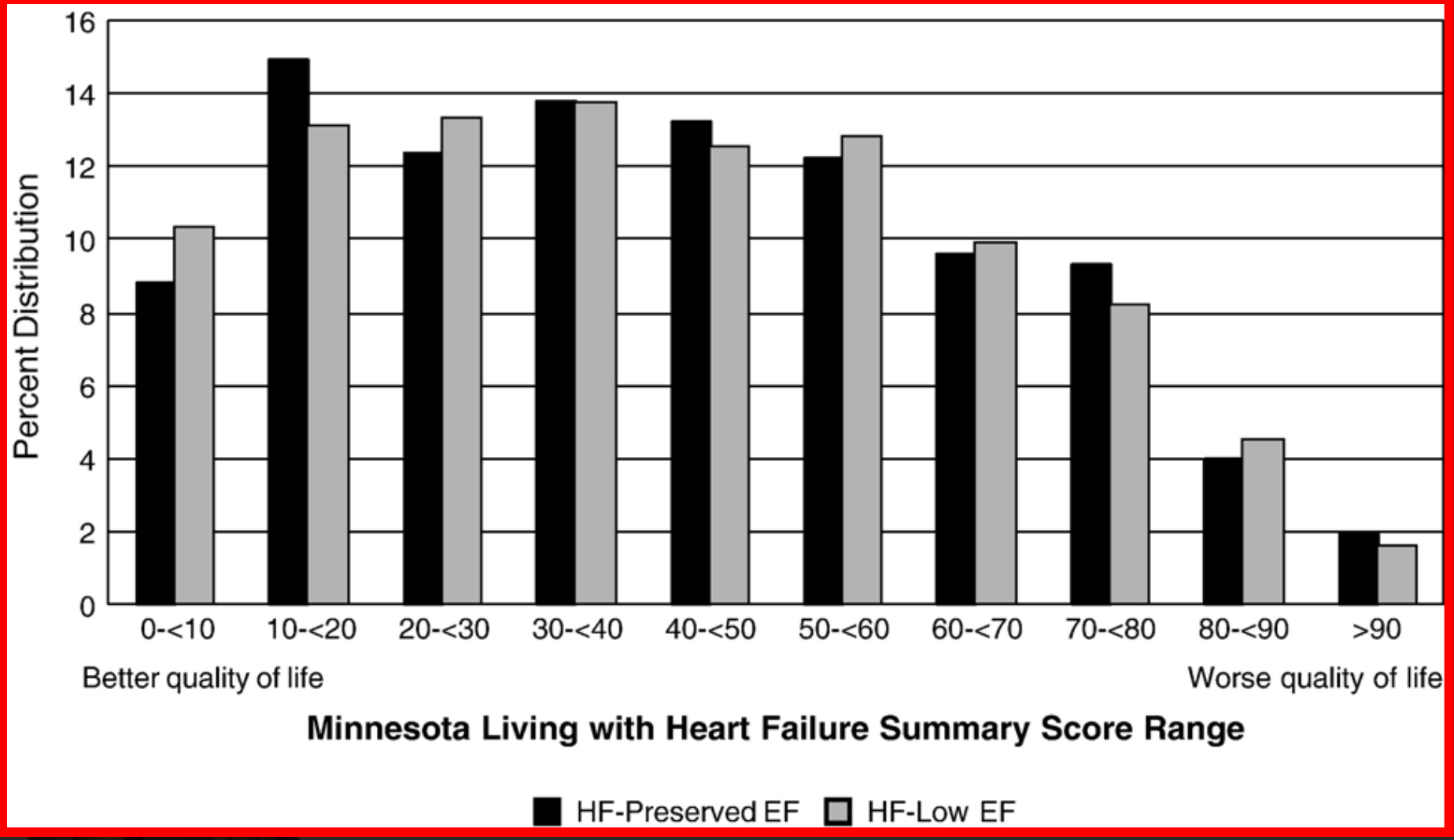
European Journal of Heart Failure 9 (2007) 83–91

The European Journal of Heart Failure

www.elsevier.com/locate/ejheart

Characterization of health-related quality of life in heart failure patients with preserved versus low ejection fraction in CHARM

Eldrin F. Lewis [a,*], Gervasio A. Lamas [b], Eileen O' Meara [c], Christopher B. Granger [d], Mark E. Dunlap [e], Robert S. McKelvie [f], Jeffrey L. Probstfield [g], James B. Young [h], Eric L. Michelson [i], Katarina Halling [j], Jonas Carlsson [j], Bertil Olofsson [j], John J.V. McMurray [k], Salim Yusuf [l], Karl Swedberg [m], Marc A. Pfeffer [a]
for the CHARM Investigators

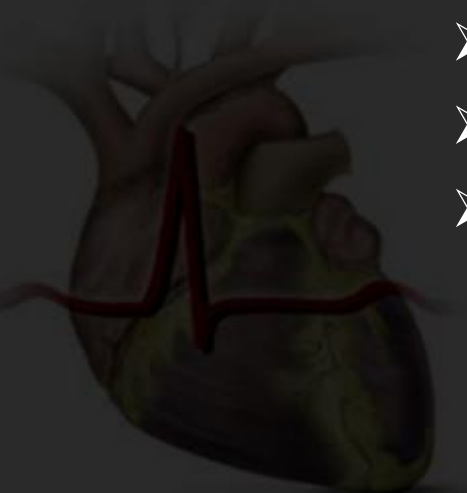


Lewis EF et al. Eur J Heart Fail 2007;9:83-91

Predictors of QoL

Factors associated with poor QoL

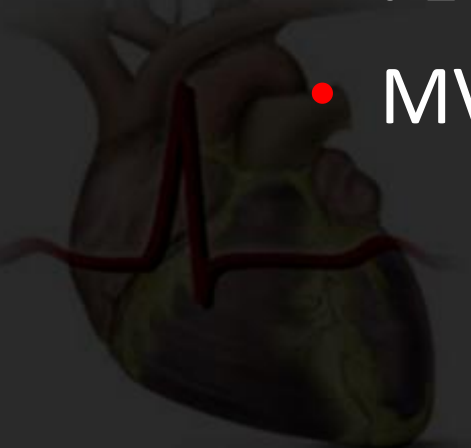
- Health status
- Negative health beliefs
- Poor health perceptions
- Lack of social support
- Poor communication with provider
- Psychological distress
- Impaired functional status
- Younger age
- Low income
- Low education
- Women > men ?



Clark et al, 2003; DeJong et al, 2005; Hou et al, 2005; Lenzen et al, 2005; Luttik et al, 2006; Masoudi et al, 2004

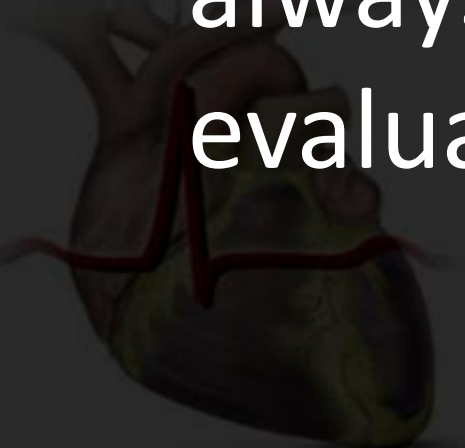
- Gender
- Ethnicity
- LVSD
- Cr
- FVC
- FEV1
- MVV

together they are responsible for about 60% of the QOL



Santos JJA et al . Arq Bras Cardiol 2009; 93(2):149-156

- In fact,the impact of **QoL** upon outcome is wider than that of mortality including not only health related predictors and it is always recommended to be evaluated



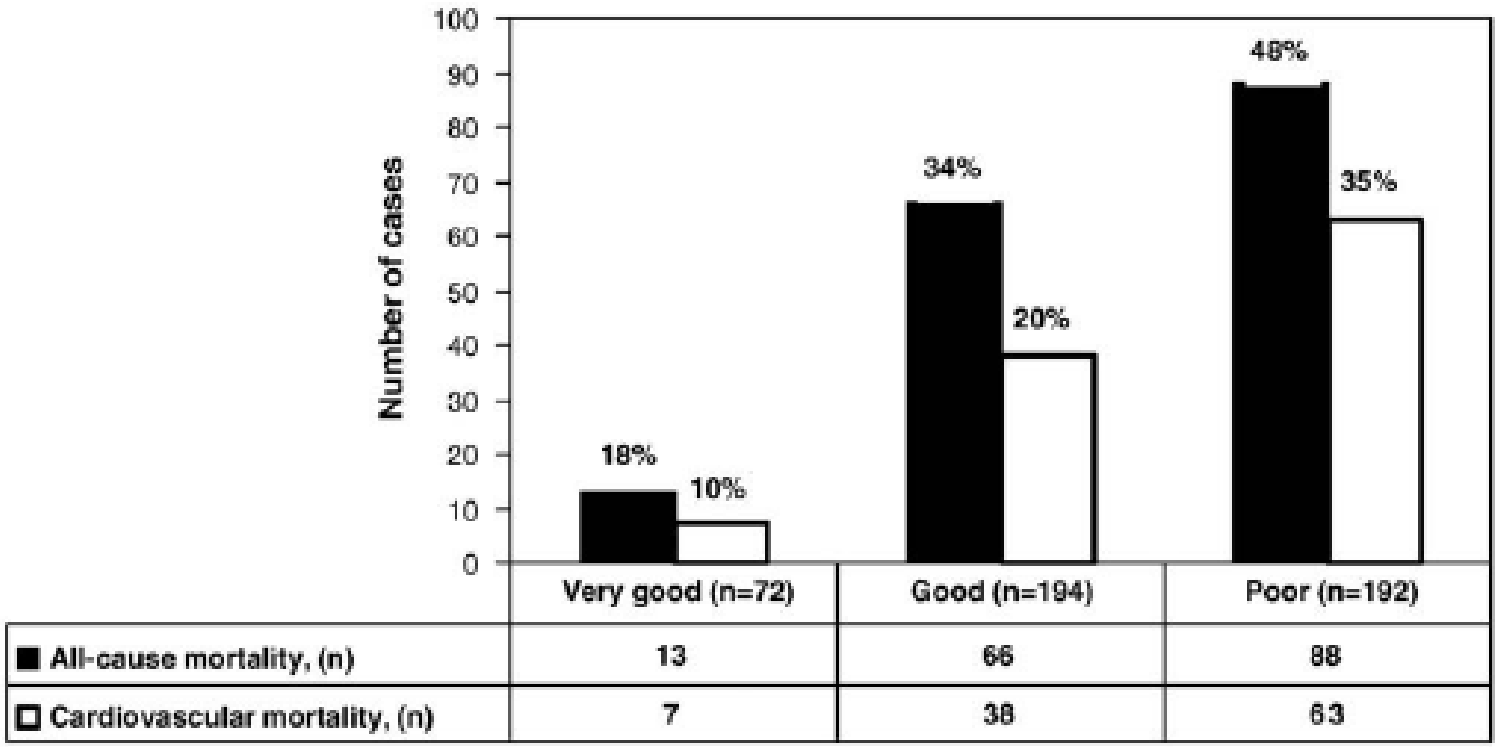
Relationship between self rated health (QoL) and mortality

Global perceived health and ten-year cardiovascular mortality in elderly primary care patients with possible heart failure

Peter Johansson [a,b*], Anders Broström [b,c], Ulf Dahlström [a,b], Urban Alehagen [a,b]

[a] *Department of Cardiology, Linköping University Hospital, S-58185 Linköping, Sweden*
[b] *Department of Medicine and Care, Faculty of Health Sciences Linköping University, S-58185 Linköping, Sweden*
[c] *Division of Clinical Neuro[hysiology, Linköping University Hospital, S-58185 Linköping, Sweden*

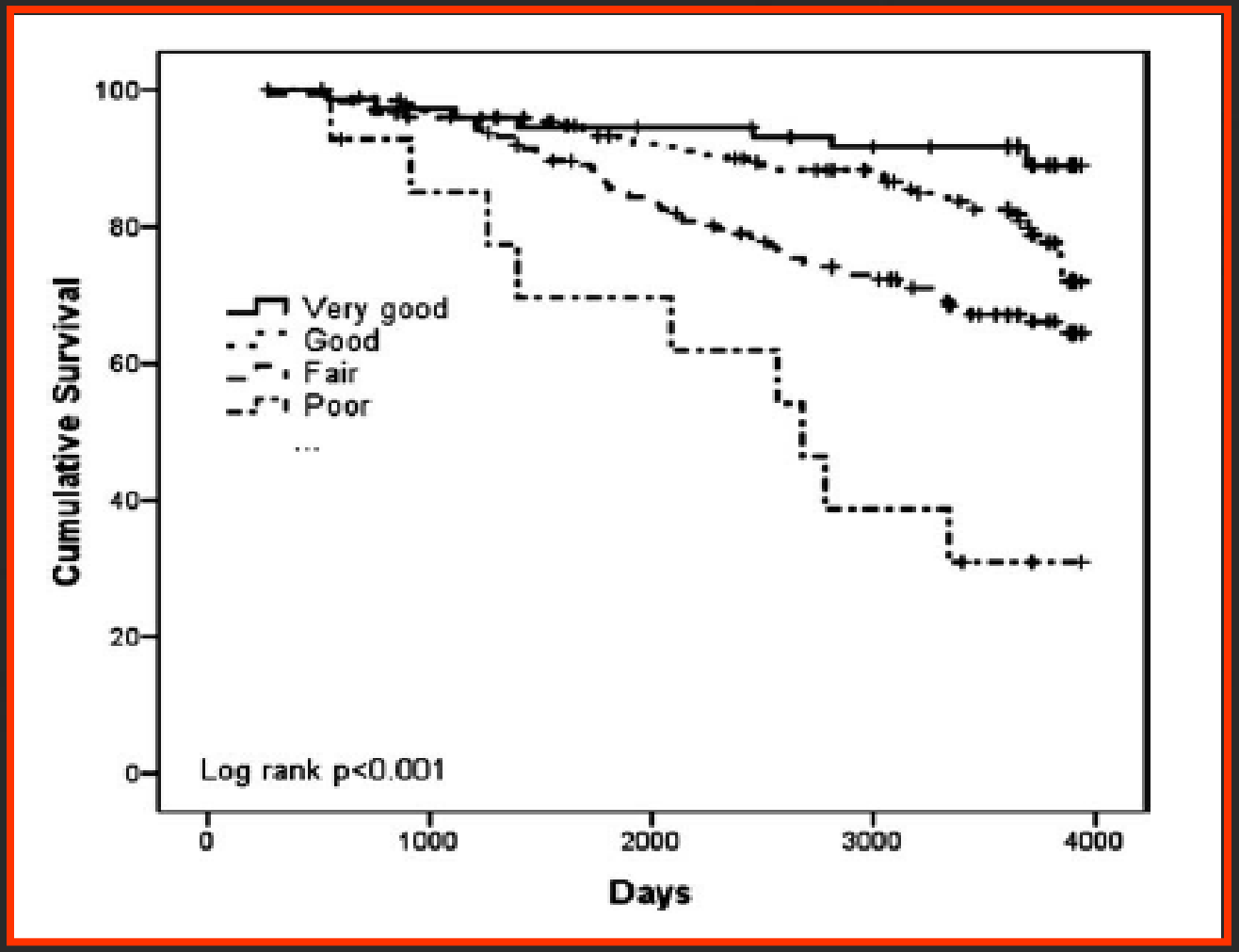
Johansson P et al. Eur J of Heart Fail 2008;10:1040-1047



All-cause and cardiovascular mortality in relation to global perceived health (GPH) defined as very good, good or poor. The numbers in the table represent the number of cases, and the numbers above the bars represent the percentages of all-cause and cardiovascular mortality.

Johansson P et al. Eur J of Heart Fail 2008;10:1040-1047

Kaplan-Meier survival curves for 10-year cardiovascular mortality according to global health perception score (GPH). In this additional analysis the classification of “poor GPH” was further divided into “fair” and “poor” GPH. The p value ($p<0.001$) is true for the association between poor GPH and cardiovascular mortality.



Johansson P et al. Eur J Heart Fail 2008;10:1040-1047

Self-rated health and mortality in patients with chronic heart failure

Jerneja Farkas[1], Samantha Nabb[2], Lijana Zaletel-Kragelj[1], John G.F. Cleland[2], and Mitja Lainscak[3,4,5*]

[1]Chair of Public Health, Faculty of Medicine, University of Ljubljana, Slovenia; [2]Department of Cardiology, University of Hull, Kingston upon Hull, UK; [3]Division of Cardiology, University Clinic of Respiratory and Allergic Diseases Golnik, Golnik 36, SI-4204 Golnik, Slovenia; [4]Department of Internal Medicine, General Hospital Murska Sobota, Murska Sobota, Slovenia; and [5]Division of Applied Cachexia Research, department of Cardiology, Campus Virchow Clinic, Charité-Universitätsmedizin Berlin, Germany

Farkas J et al. Eur J Heart Fail 2009;11:518-524

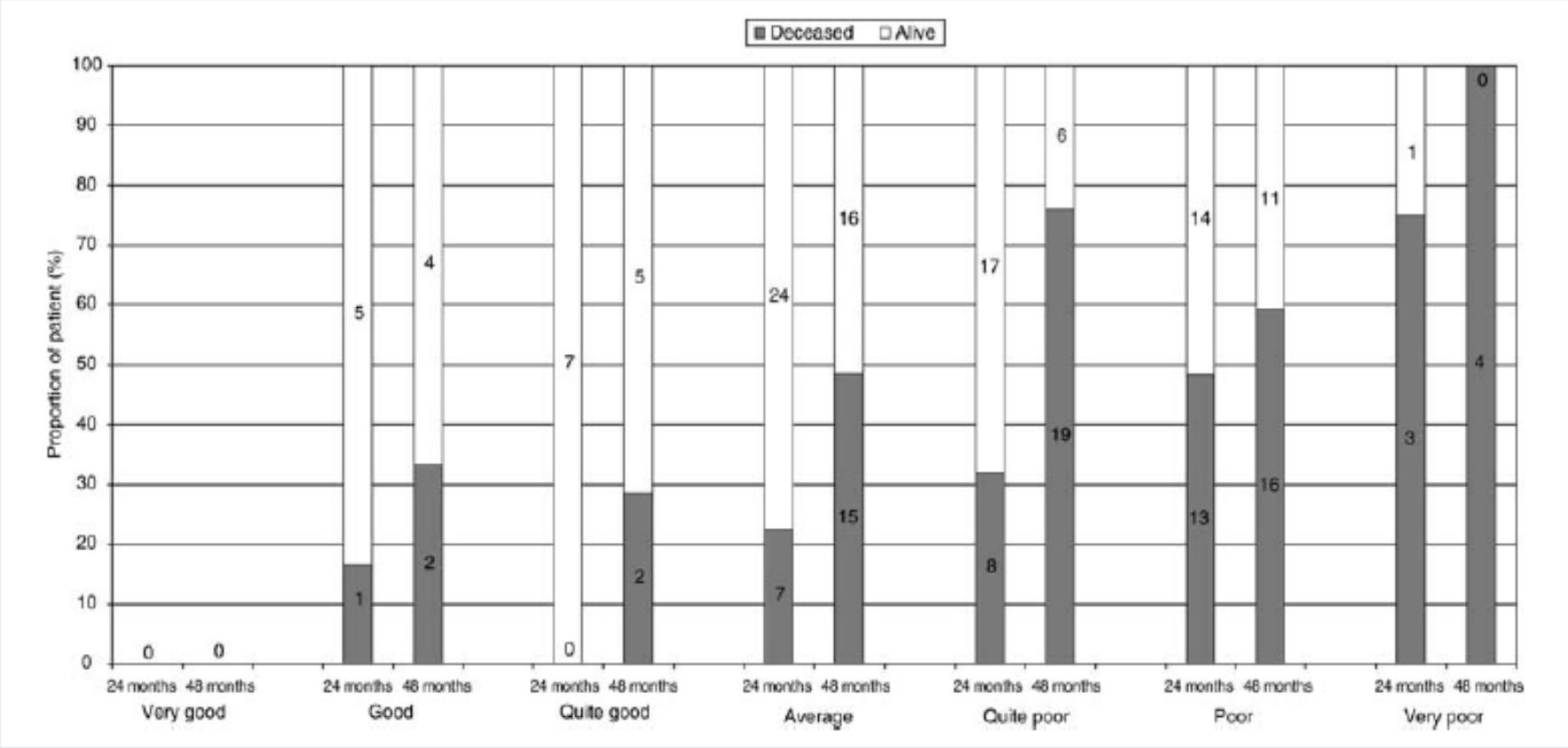


Figure 1 Self-rated health distribution in patients who survived or had died at 24 and 48 months. Numbers represent the number of patients.

Farkas J et al. Eur J Heart Fail 2009;11:518-524

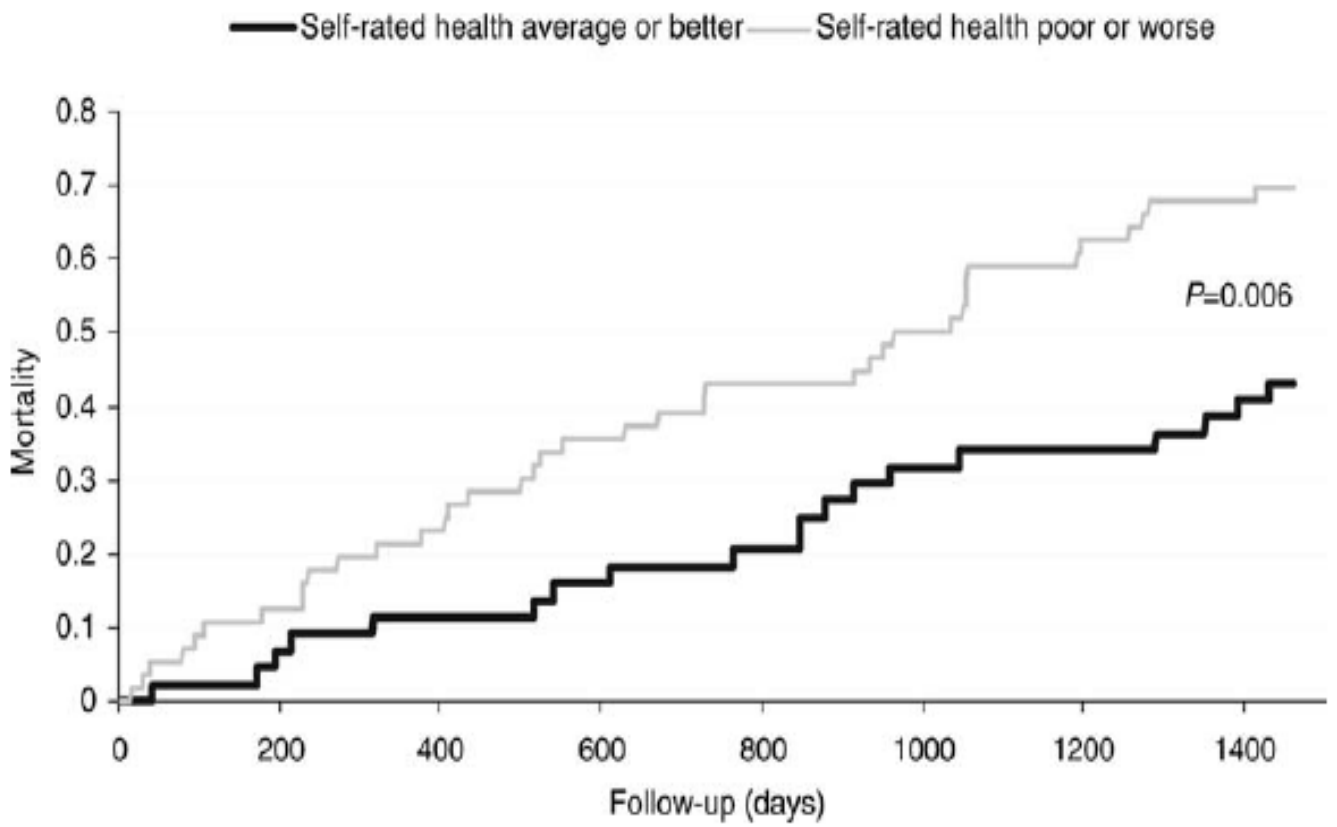


Figure 2 Cumulative mortality and self-rated health. Kaplan–Meier curves and log-rank test.

Farkas J et al. Eur J Heart Fail 2009;11:518-524

Take away messages

- **QOL** and mortality are both important predictors of outcome in heart failure patients
- The data offered by everyone are close but somewhat different
- Both parameters have to be used for an accurate evaluation of the heart failure patients' outcome