

Introduction to Patient-Reported Outcomes (PROs)

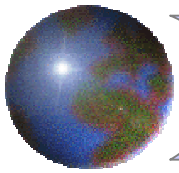
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Why use PROs ? The relation to clinical outcomes

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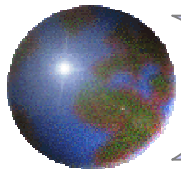
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Why should we measure the perception of patients ?

- Changes in the therapeutic targets in the growing context of chronic diseases and palliative treatment in a rising old population
 - Nowadays, therapeutic benefits :
 - rarely curative, or prolonging survival,
 - but improving symptoms and functional status, and thus preserving or restoring HRQL
 - Availability of PRO questionnaires correctly validated and translated for many diseases
- cancer
 - AIDS
 - heart failure
 - Parkinson's disease
 - Alzheimer's disease
 - asthma
 - COPD
 - osteoarthritis
 - diabetes ...



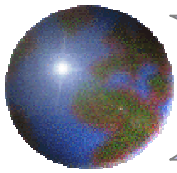
What is the Added Value of HRQL ?

- Improvements in the medical treatments (treatment and prophylaxis of respiratory infections), in the development of long term oxygen therapy and non invasive mechanical ventilatory assistance, in the physiotherapy have increased survival and quality of life
- Median survival of patients is of 30 years and, in France, more than one third of patients are adults
- The discomfort and time patients have to spend on daily treatments requires regular monitoring, to improve compliance and to improve their quality of life

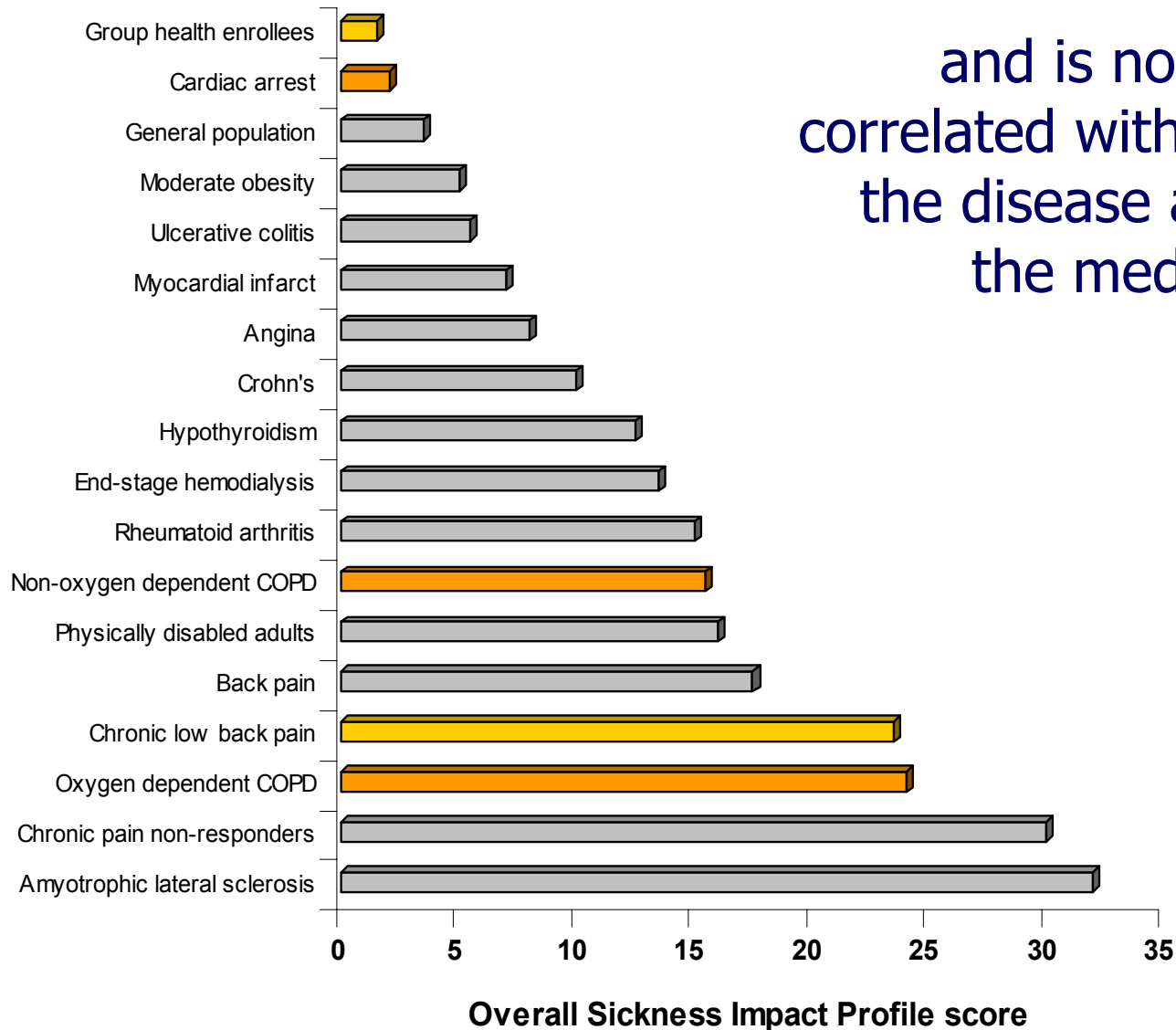
Cystic fibrosis. Brennan AL, Geddes DM. Curr Opin Infect Dis 2002

Chronic respiratory failure in children. Evaluation and management. Fauroux B. Rev Mal Respir 2001

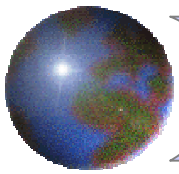
Mucoviscidosis in adults. Stern M, Picard C, Grenet D. Presse Med 2002



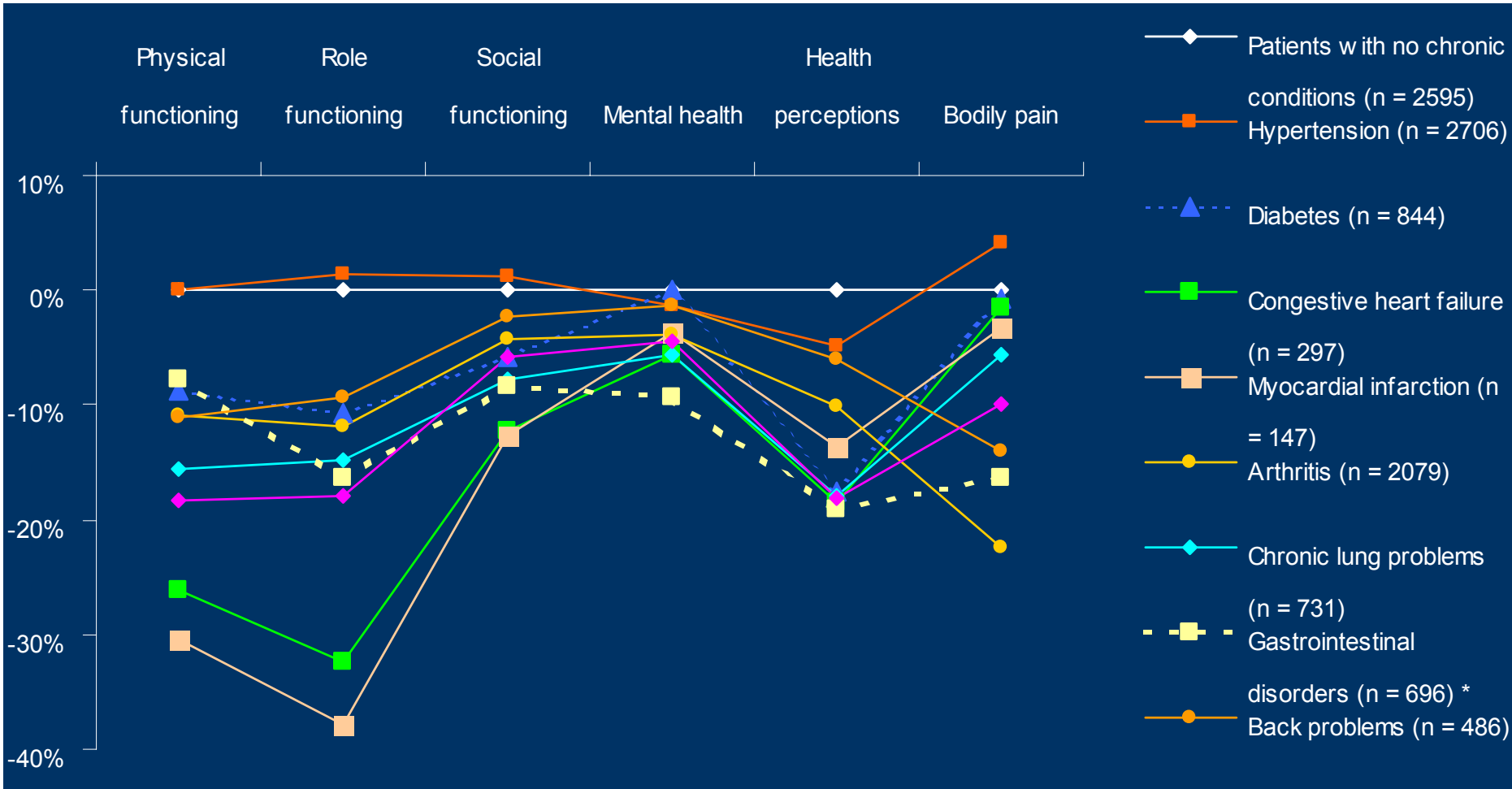
The impact on HRQL is not always foreseeable



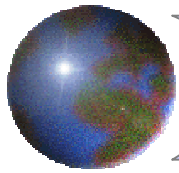
and is not systematically correlated with the severity of the disease as perceived by the medical community



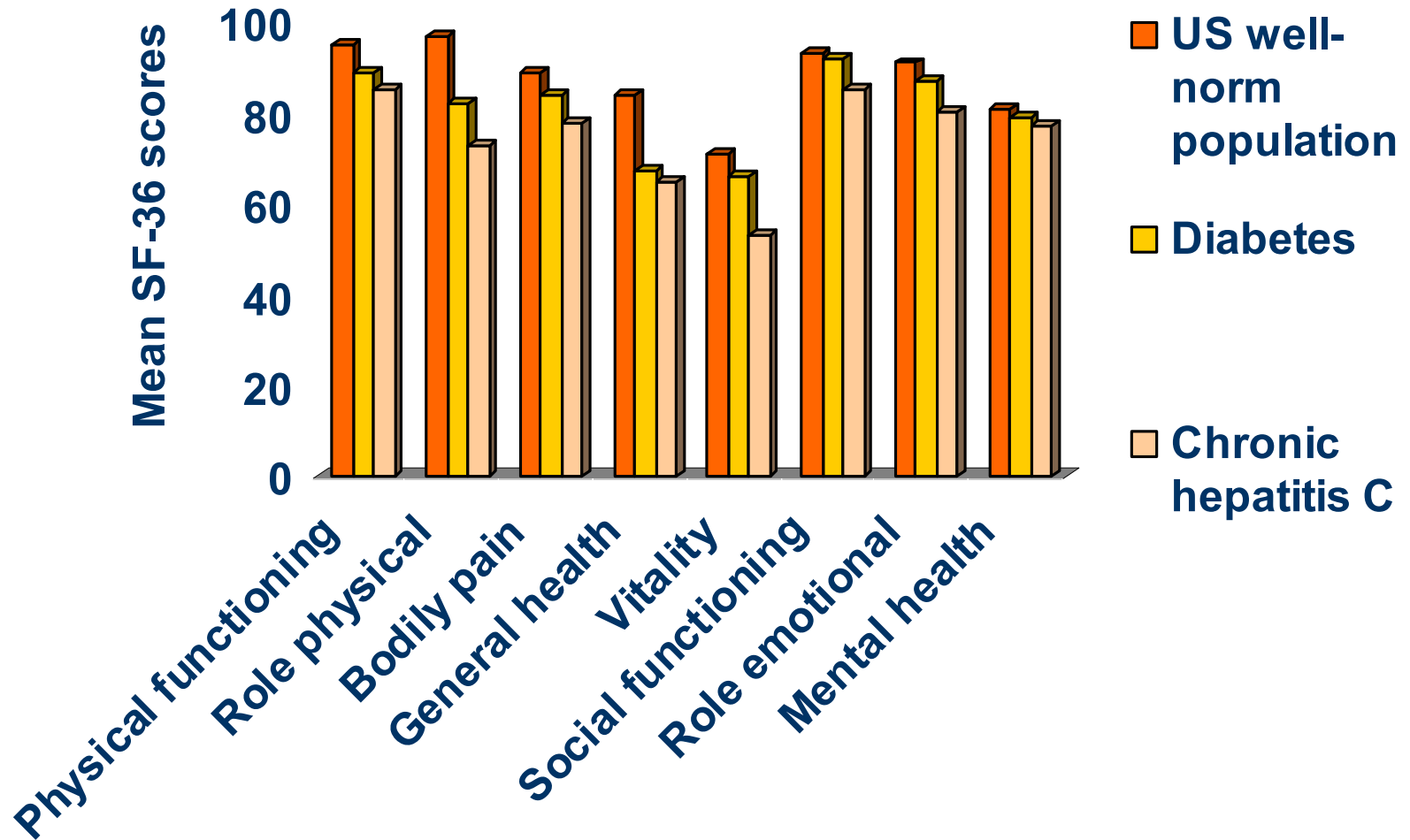
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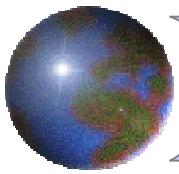


Stewart AL et al. Functional status and well-being of patients with chronic conditions. Results from the Medical Outcomes Study. JAMA 1989; 262: 907-913.

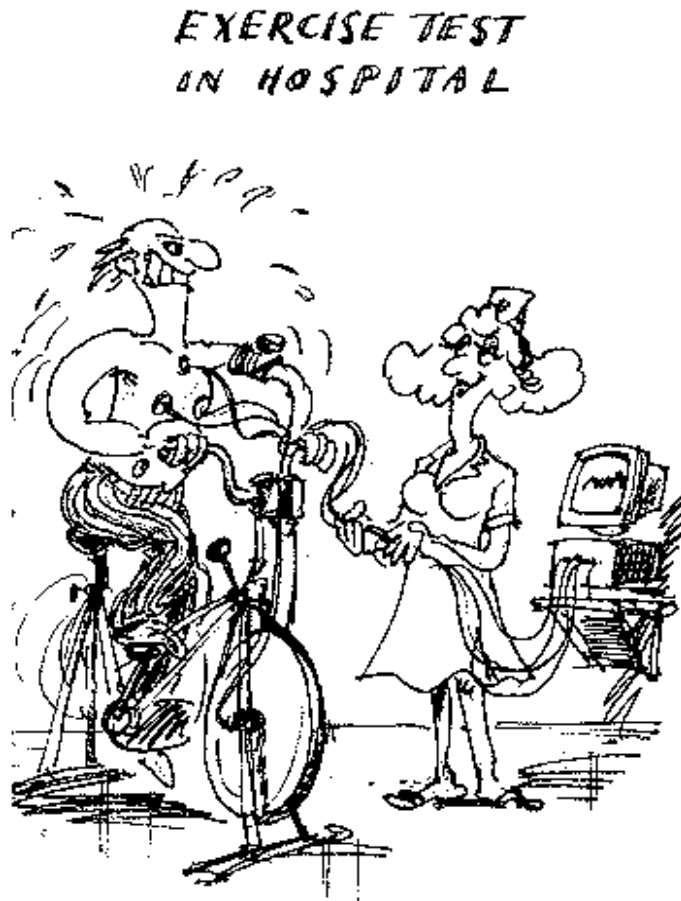


The impact on HRQL is not always foreseeable





Which are the arguments in favour of HRQL ?

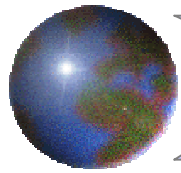


"Objective" measure



"Subjective" measure

Exercise test versus physical functioning, $r = 0.40$

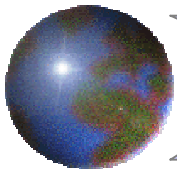


Weak correlation between Patient-Reported Outcomes and physiological endpoints

<i>(n = 96)</i>	<i>r</i>	<i>BPQ</i>	<i>CRQ</i>
6-min walk test		0.17	0.07
Pre SaO ₂		0.14	0.17

Symptoms BPQ : Breathing Problems Questionnaire
HRQL CRQ : Chronic Respiratory Disease Questionnaire

→ Variability in exercise capacity contributed to only 3% of the variability in BPQ score

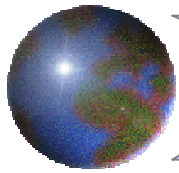


Low correlation between patients & spirometry

N = 161 patients
FEV1 % predicted :
86%

<i>AQLQ scale</i>	<i>FEV1 %</i>	<i>ADSS</i>
<i>Activity limitation</i>	0.08	- 0.43
<i>Symptoms</i>	0.21	- 0.64
<i>Emotional function</i>	0.11	- 0.52
<i>Environmental exposure</i>	0.12	- 0.51
<i>Overall score</i>	0.15	- 0.59

ADSS : Asthma Control Scale, based on a composite of emergent care, spirometry and symptoms : emergency room visits during the previous 12 months, hospitalization during the previous 12 months, FEV1 % predicted less than 70%, chronic cough, chronic wheeze, chronic breathlessness and chronic night-time symptoms

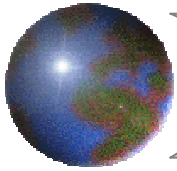


Correlation between glycemic control and perception of Quality of Life

DQOLY (Diabetes
Quality of Life for Youths)

Hb1Ac

Impact (23 items)	r = - 0.21
Worry (23 items)	r = - 0.28
Satisfaction (11 items)	r = - 0.04



Correlation between posturography and perception of Quality of Life in vertigo/dizziness

VADL (Vestibular Activities of Daily Life scale – 28 items)

Dynamic posturography

Functional (self-care and intimate activities)

r = - 0.48

Ambulation (walking and stair climbing)

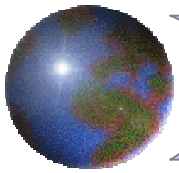
r = - 0.30

Instrumental (home management and leisure activities)

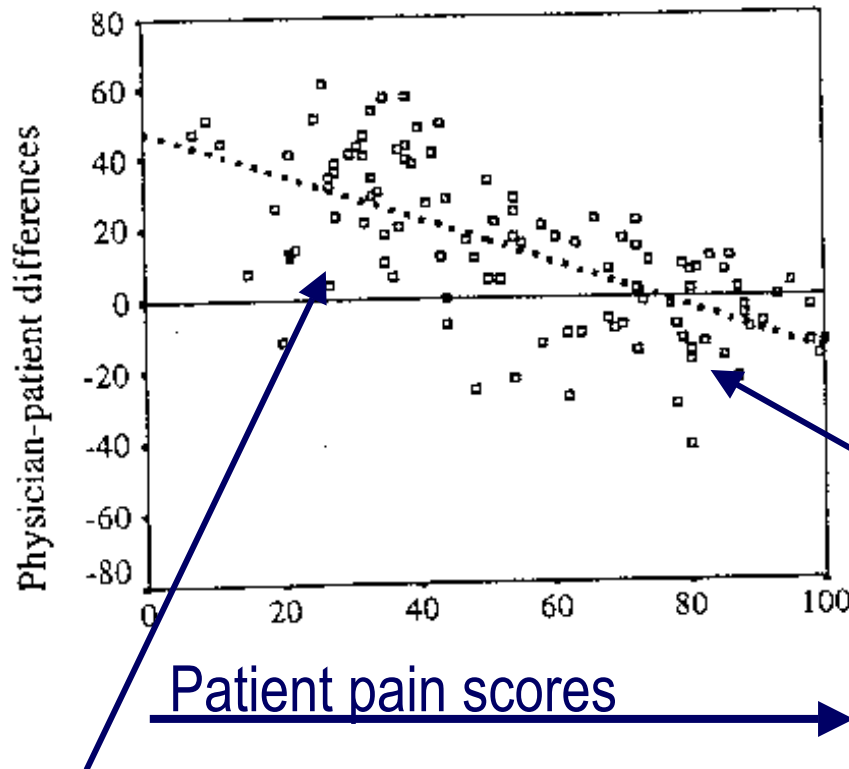
r = - 0.35

Global score

r = - 0.50



Weak correlation between patients & physicians

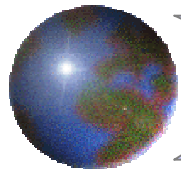


The physician is more disposed to bear the pain of his patient than the patient himself

Tendency of physician to overestimate the pain

Tendency of physician to underestimate the pain

Lack of congruence in the ratings of patients' health status by patients and their physicians. Suarez-Almazor ME et al. Med Dec Making 2001.



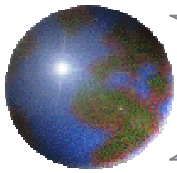
Perception of pain by patients and clinicians

Results of a survey in 3 chronic diseases

Pain perception is underestimated by clinicians in IBS and venous insufficiency and overestimated in peripheral arteriopathy

	Patients	Clinicians
IBS	3.9 ± 2.5	3.0 ± 2.1
Venous insufficiency	4.2 ± 2.5	3.0 ± 2.0
Arteriopathy	3.5 ± 2.0	4.3 ± 2.1

Pain : from 0 to 10 (worst pain), IBS : p < 0.0001



Moderate correlation between patients & physicians

IBS is a chronic disease, which impacts daily life by its repeated symptomatic flares over years

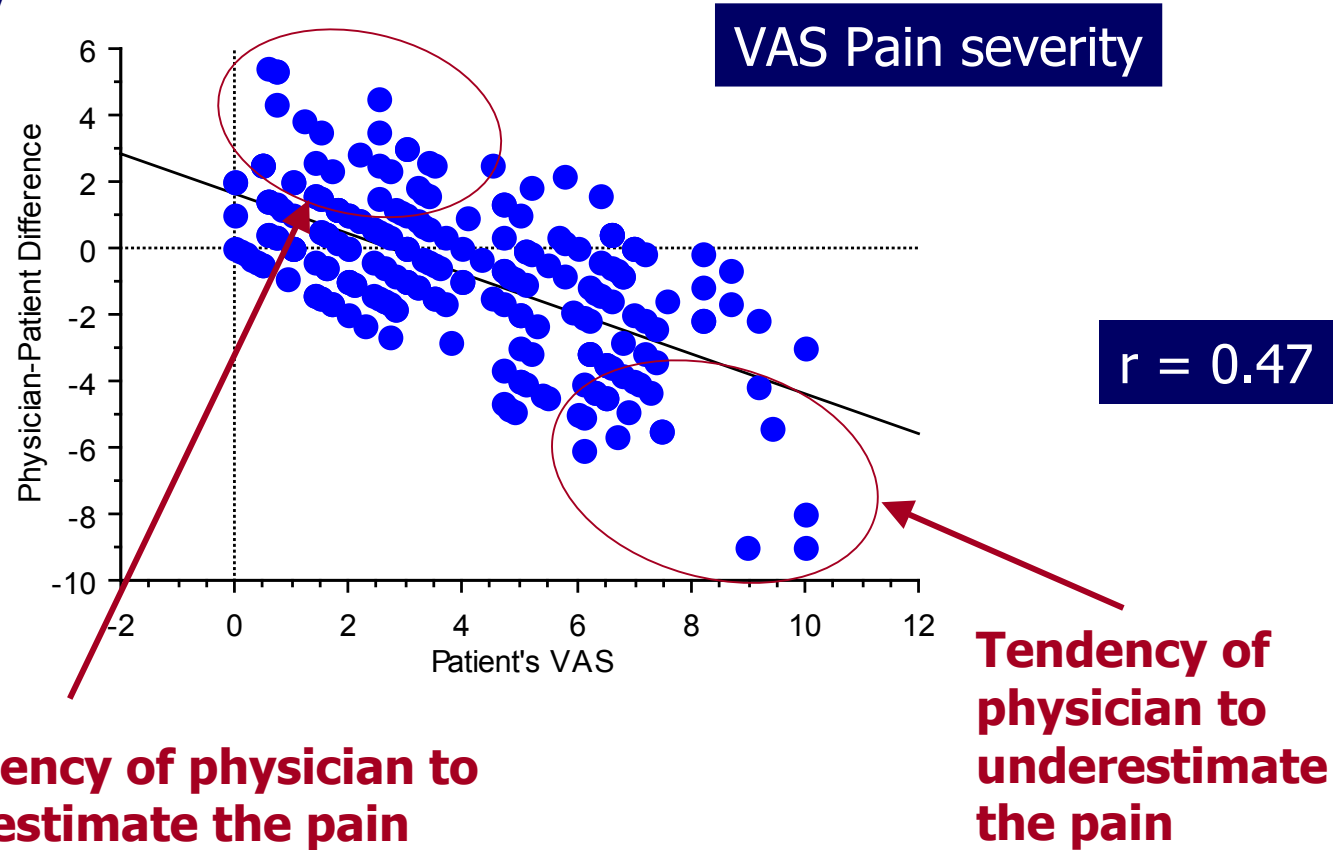
Cross-sectional survey

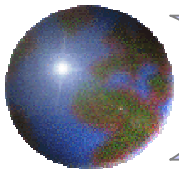
239 IBS patients

57.5 ± 16 years

64% women

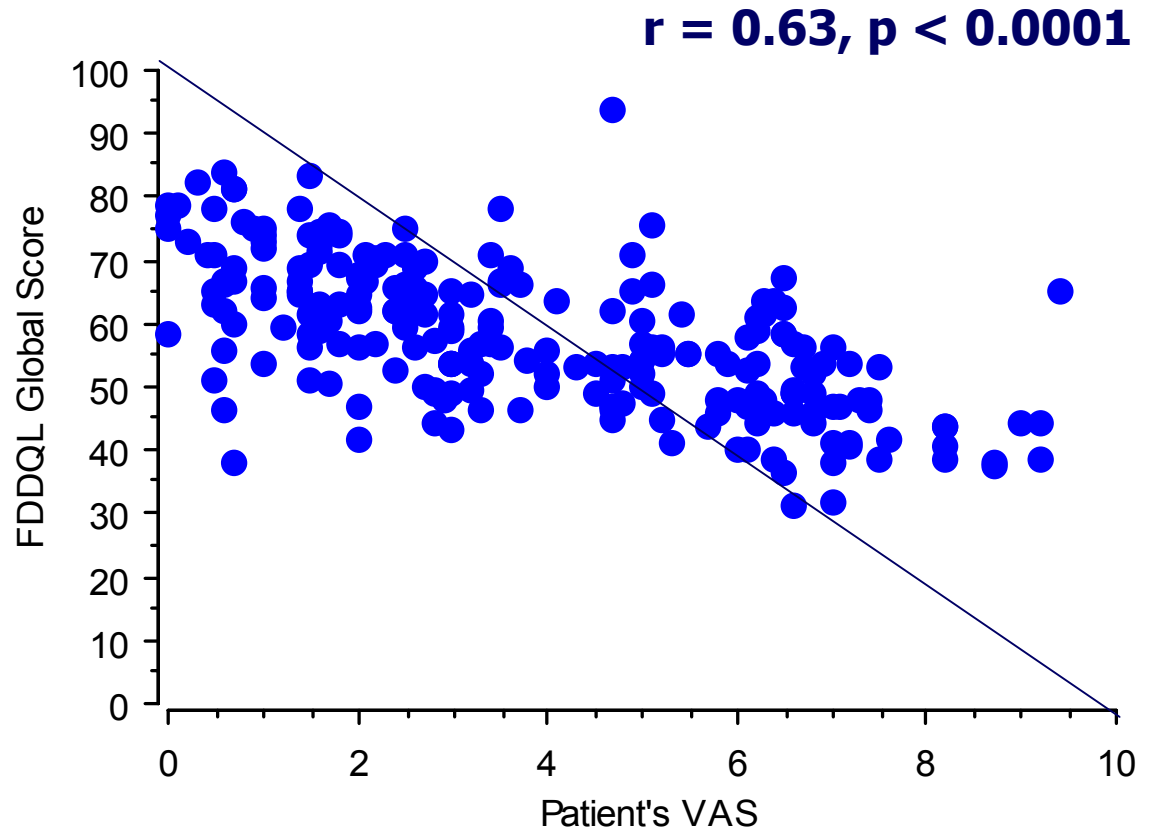
The physician is more disposed to bear the pain of his patient than the patient himself



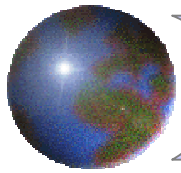


Perception of pain and HRQL by patients with IBS

239 IBS patients
57.5 ± 16 years
64% of women
Global FDDQL:
56.1 ± 11.6

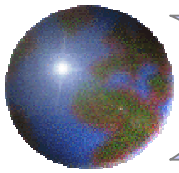


FDDQL : Functional Digestive Disorders Quality of Life
43 items / 8 domains, score 0-100 (best HRQL)



Weak correlation between HRQL & symptoms

- e.g. **Irritable Bowel Syndrome (IBS)**
- The absence of abdominal pain (e.g. during a consultation with a physician) may not be linked with a good HRQL.
The patient :
 - May be anxious not to know when the next bout will occur
 - May be limited in his inter-personal life and his leisure's
 - Constrained to take drugs and to pay attention to food
- The same is true in asthma, migraine, osteoarthritis, acne, heart failure, HIV (e.g. impact of lipodystrophia induced by antiretroviral therapy, even in patients who have not yet the side effect) ...

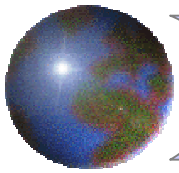


Perception of PROs by patients and clinicians ?

Results of a survey in 3 chronic diseases

- Clinicians' and patients' perspectives although overlapping, are not similar
- Clinicians tend to underestimate the pain intensity of their patients
- Thus, perception of abdominal pain cannot be accurately inferred from the clinician's point of view
- Similarly, patient's perception of pain cannot completely reflect the impact of HRQL
- Patient's perspective is a major outcome in the evaluation of therapies

Grant: This study was sponsored by ALFIS
(Association des Laboratoires et des Firmes de Santé)



Is perception of patients and clinicians the same ?

Clinicians tended to **overemphasize** the impact that diabetes has on quality of life

Mean utility value

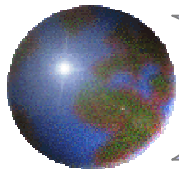
Type 1 diabetics	0.873
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Clinicians	0.829
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Time trade-off

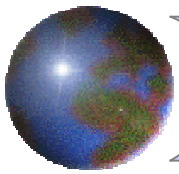
Subjects were asked what life expectancy would be and how many of their theoretically remaining years they would be willing to trade, if any, to receive a technology that would immediately free them of their diabetes, and would prevent further systemic complications.

**--> Utility value : 1.00 minus proportion of years given
1.0 = perfect health**

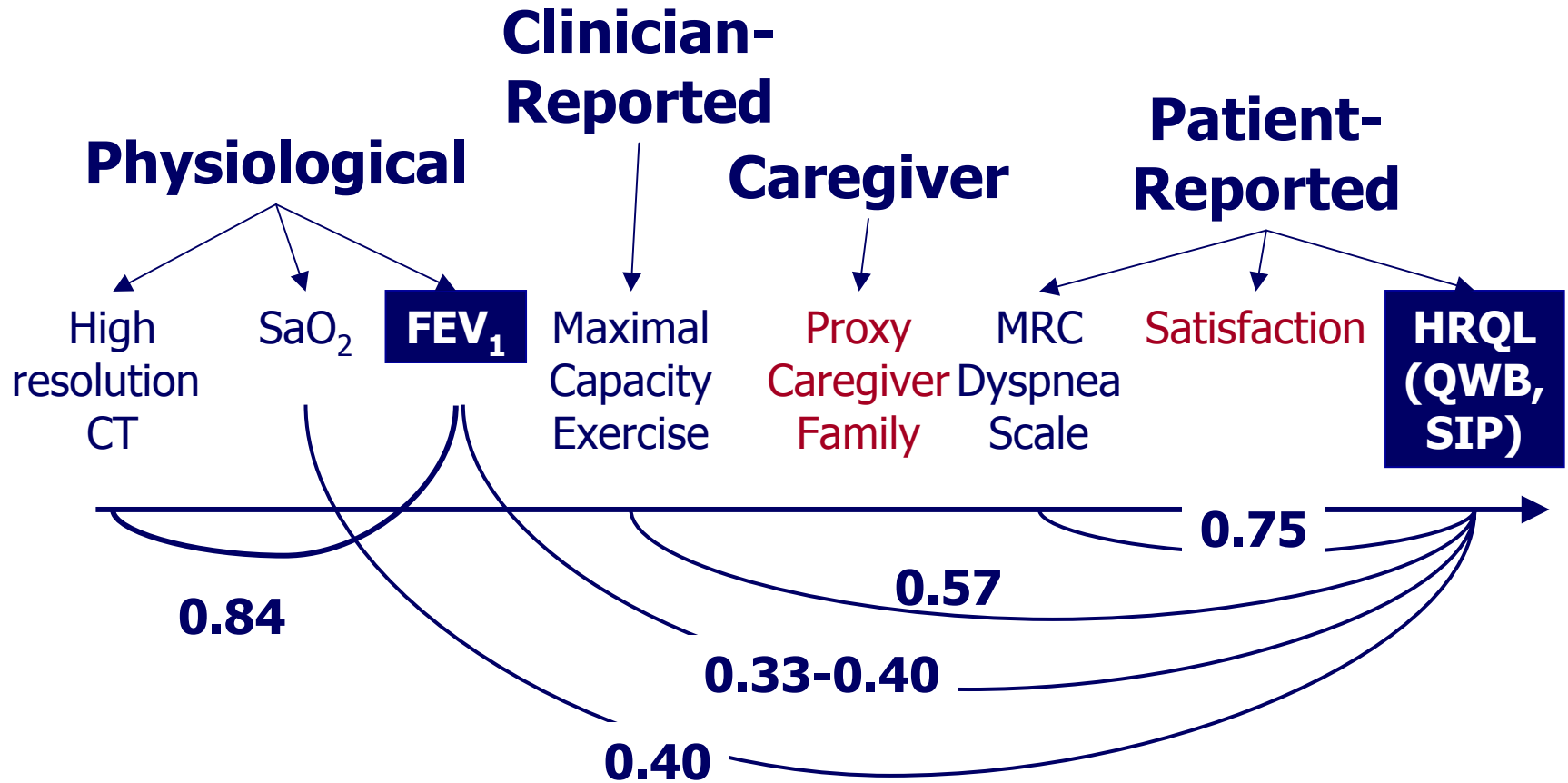


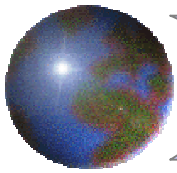
Cystic fibrosis : Correlation between different endpoints

- FEV_1 : reliable pulmonary function surrogate indicator for disease progression and survival
- Biomedical measures do not provide the patient or clinician adequate information about the impact of cystic fibrosis on the daily life functioning of adolescents



Cystic fibrosis : Correlation between different endpoints



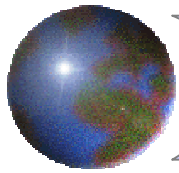


Correlation between adolescent pulmonary function (FEV1) and perception of health

24 adolescents (11-18 yrs) with CF, their mothers, and their fathers completed the Child Health Questionnaire during routine CF clinic visits at 2 urban hospitals.

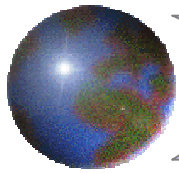
Health Scale	Adolescents	Mothers	Fathers
General health	0.73	0.73	0.54
Physical functioning	0.37	0.70	0.64
Role/social-physical	0.47	0.73	0.60
Bodily pain	0.42	0.55	0.37
Role/social-emotional	0.39	-0.01	0.11
Role/social-behavior	-0.21	0.03	0.06
Mental health	0.27	0.28	-0.05
Family activities	0.34	0.37	0.18
Self-esteem	0.24	0.05	-0.23
Behavior problems	-0.04	-0.21	-0.36

Adolescents with cystic fibrosis: family reports of adolescent quality of life and forced expiratory volume in one second. Powers PM et al. Pediatrics 2001; 107: E70.



Cystic fibrosis : Correlation between different endpoints

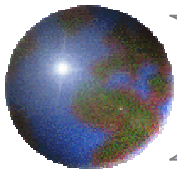
- Adolescent pulmonary function (FEV_1) is not associated to perceptions of adolescent emotional, social or behavioral HRQL by any of the 3 family reporters
- Results demonstrate the need to include multiple informants and comprehensive, **multidimensional** measures of HRQL, in addition to pulmonary function, when assessing health in adolescents with CF



Correlation between adolescent vs mother and father reports of perceived adolescent Health

24 adolescents (11-18 yrs) with CF, their mothers, and their fathers completed the Child Health Questionnaire during routine CF clinic visits at 2 urban hospitals.

Health Scale	Mothers	Fathers
General health	0.66	0.57
Physical functioning	0.69	0.31
Role/social-physical	0.62	0.49
Bodily pain	0.69	0.37
Role/social-emotional	-0.12	0.24
Role/social-behavior	0.48	0.17
Mental health	0.33	0.48
Family activities	0.45	-0.09
Self-esteem	0.41	0.65
Behavior problems	0.71	0.66



Place of Patient-Reported Outcomes (PRO)

Patient Outcomes Assessment

Sources and Examples

Clinician-Reported

For example

- Global impression
- Observation & tests of function

Physiological

For example

- FEV₁
- HbA1c
- Tumor size

Caregiver-Reported

For example

- Dependency
- Functional status

Patient-Reported

- **Global Impression**
- **Functional status**
- **Well-being**
- **Symptoms**
- **HRQL**
- **Satisfaction with TX**
- **Treatment adherence**