



Psycho-nephrology: psychosocial management of patients with chronic kidney diseases

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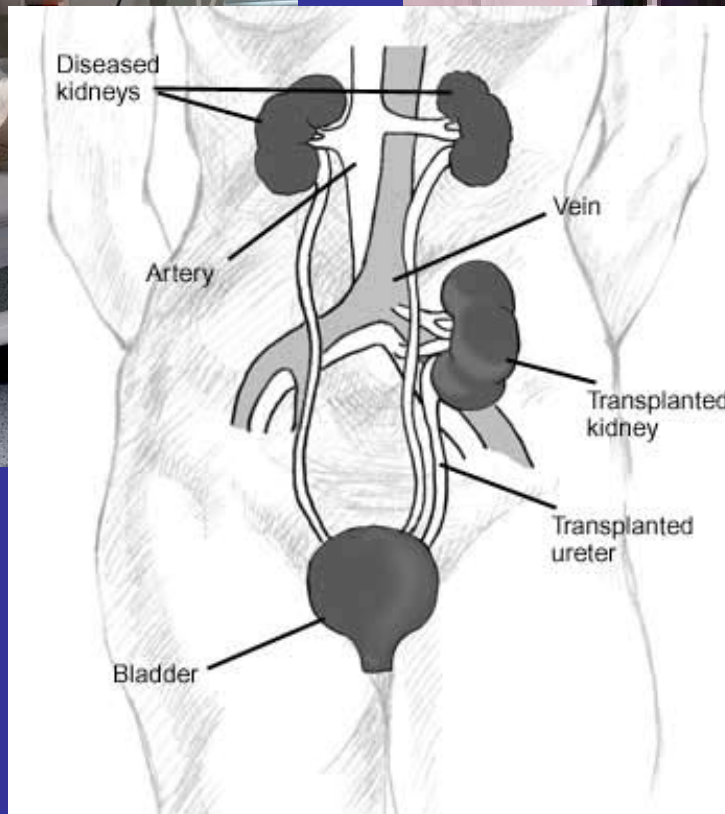
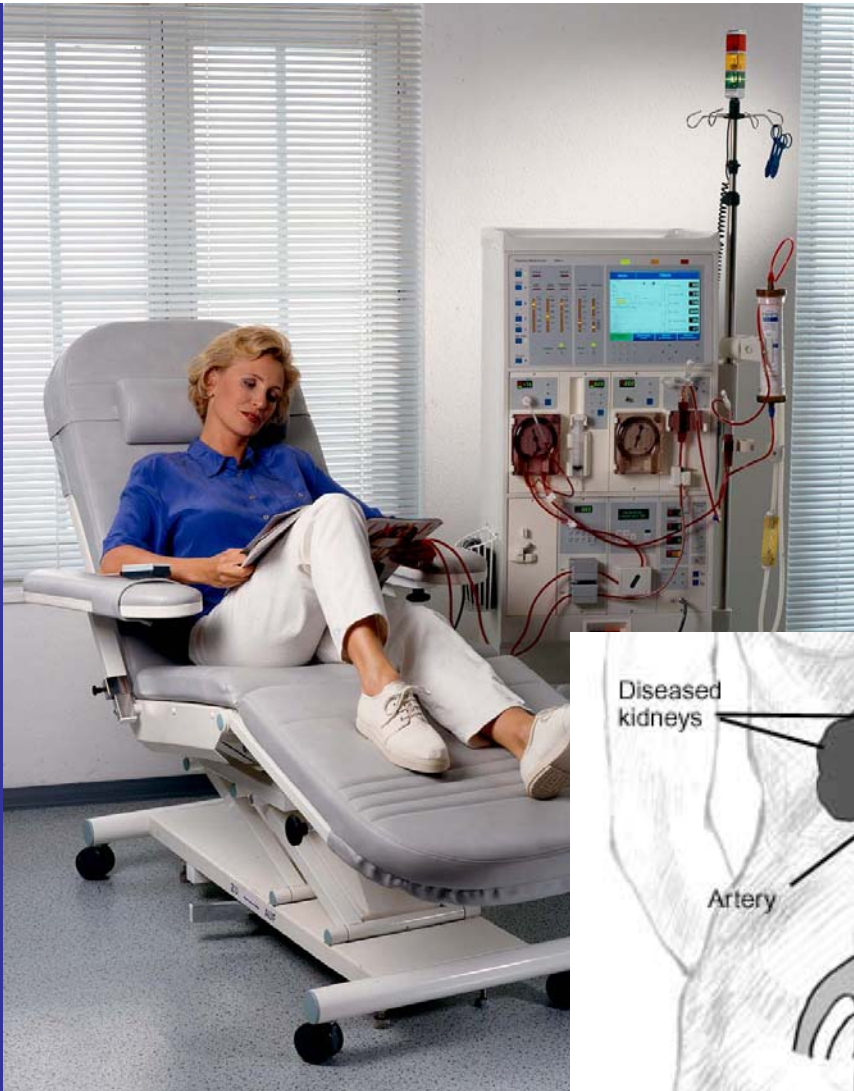
- Psycho-social issues associated with CKD
- Depression in the medically ill
- Depression in patients with kidney diseases
- What can we do?

Chronic renal failure, End-stage renal disease

a „psycho-somatic” disease with
significant renal involvement

Chronic renal disease (CKD)

- Potentially life-threatening
- Dialysis started only in the 60s
- Progressive
- High co-morbidity, physical discomfort
- Increased mortality
- End-stage renal disease (ESRD) –renal replacement therapies
- Intrusive treatment modalities
- High illness intrusiveness
- Impaired quality of life



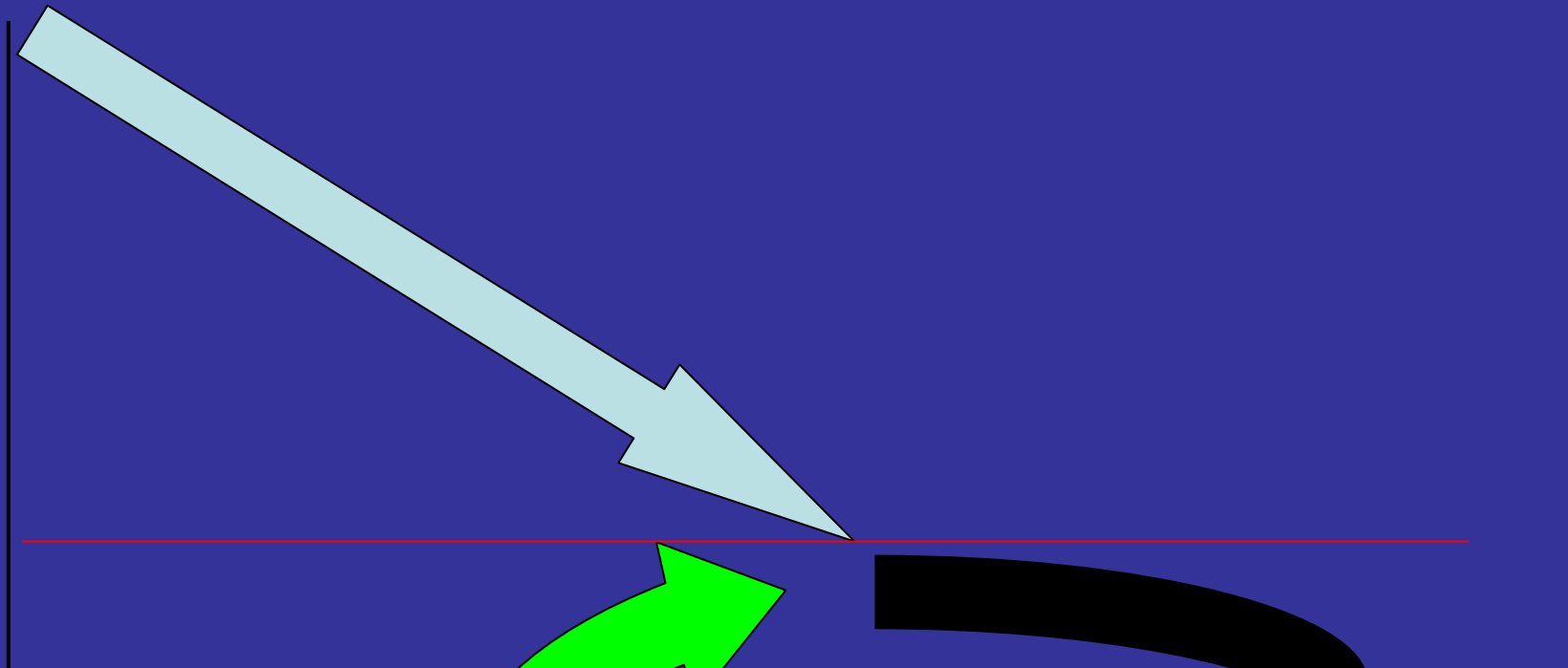
Renal replacement therapies

- Peritoneal dialysis
 - Continuous Ambulatory Peritoneal Dilysis (CAPD)
 - Continous Cycler assisted Peritoneal Dialysis (CCPD)
- Hemodialysis
 - In center hemodialysis
 - Self-care hemodialysis
 - Home hemodialysis
 - Nocturnal hemodialysis (home or in-center)
 - Daily hemodialysis (home or in-center)
- Kidney or kidney – pancreas transplantation
- Graft failure- back to dialysis
- Choosing modalities?
- New modalities? New challenges

GFR ml/min/1,73 m²

120

15



transplantation

dialysis

Psychosocial challenges in chronic diseases

- high psychosocial burden of disease
- everyday adjustment to chronic disease,
- existential - life-threatening disease
- coping with constant stressors- role of social support
- changes in social roles, intimate relationships, broken families
- loss of job, decreased income
- rehabilitation

Potential times of increased difficulties and crisis in patients with CKD

- Diagnosis of renal disease
- Threat of dialysis
- No linear progression
- Choosing modality - Initiation of dialysis
- Compliance with diet, fluid restrictions and dialysis
Restricted lifestyle, freedom
- Being on transplant waiting list
- Transplant surgery
- Graft failure- back to dialysis
- ONGOING EXISTENTIAL ISSUES – Life/death – meaning of life, keeping alive etc.

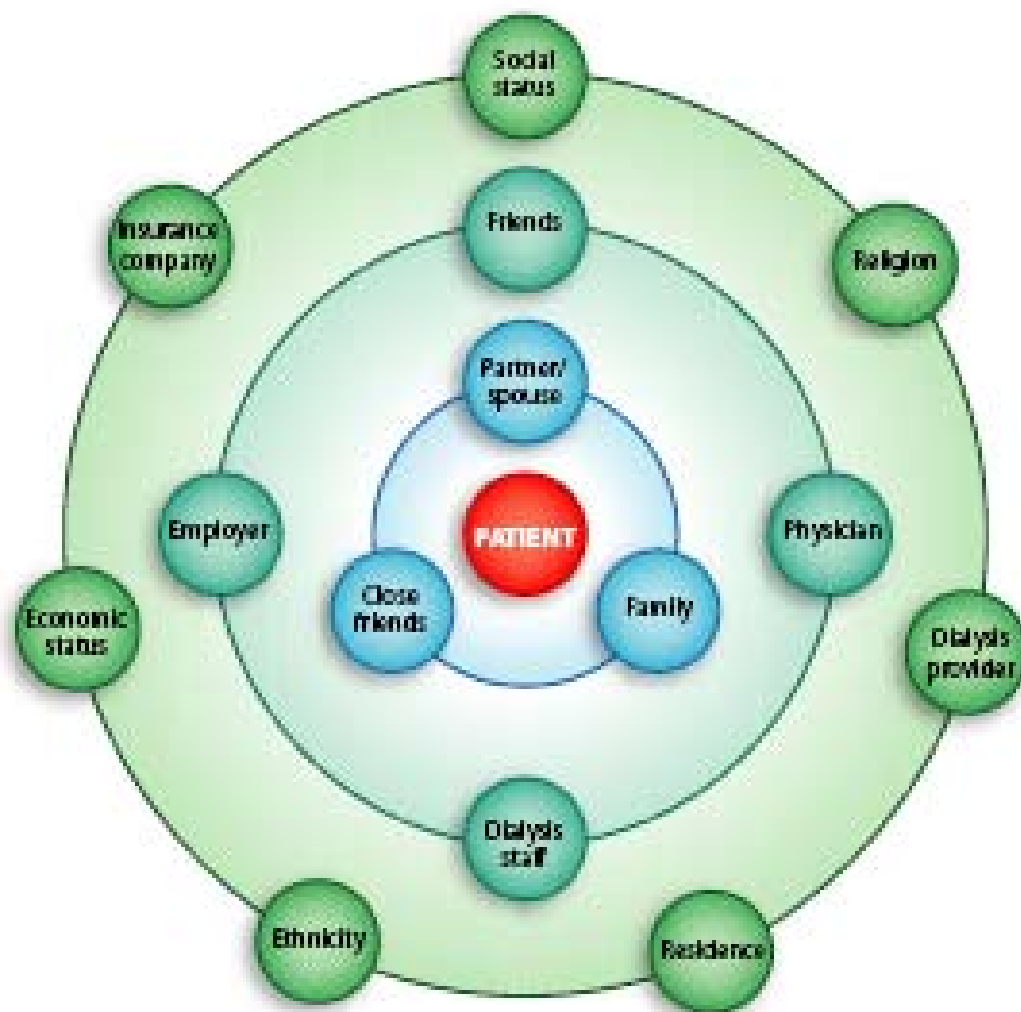


Figure 2. Psychosocial parameters: Spheres of influence.

Psychosocial Aspects of Chronic Disease: ESRD as a Paradigmatic Illness

Daniel Cukor,* Scott D. Cohen,† Rolf A. Peterson,† and Paul L. Kimmel†

J Am Soc Nephrol 18: 3042-3055, 2007

Psychosocial issues in CKD

(Vourlekis BS et al, 1997)

1. Difficulties with everyday life and treatment
2. Technical and environmental issues (financial, transport, recreation)
3. Patient and family – approach to CKD
4. Cultural issues (society, ethnical, religious differences)
5. Social network (family, peers, caretakers)
6. Emotional, behavioral problems, psychiatric disorders
7. Work, job, study –vocational rehabilitation

Life transitions – role transitions

- Biological (normal or illness-related): adolescence, pregnancy, aging, menopause/andropause, onset of chronic diseases
- Social: marriage, divorce, death, school, job, child born, moving, immigration, retirement, “empty nest syndrome”

Psychiatric disturbances in CKD

- Neuropsych. disturbances, cognitive problems
- Delirium
- Dementia
- Anxiety, PTSD (post-traumatic stress disorder)?
- Depression - most common (BUT 40 % in 70 HD pts, anxiety 46 %, Cukor et al, AJKD 2008)
- Subclinical depression, minor depression
chronic depression
- Suicide – withdrawal from dialysis
- Sleep disorders – relationship with mental health

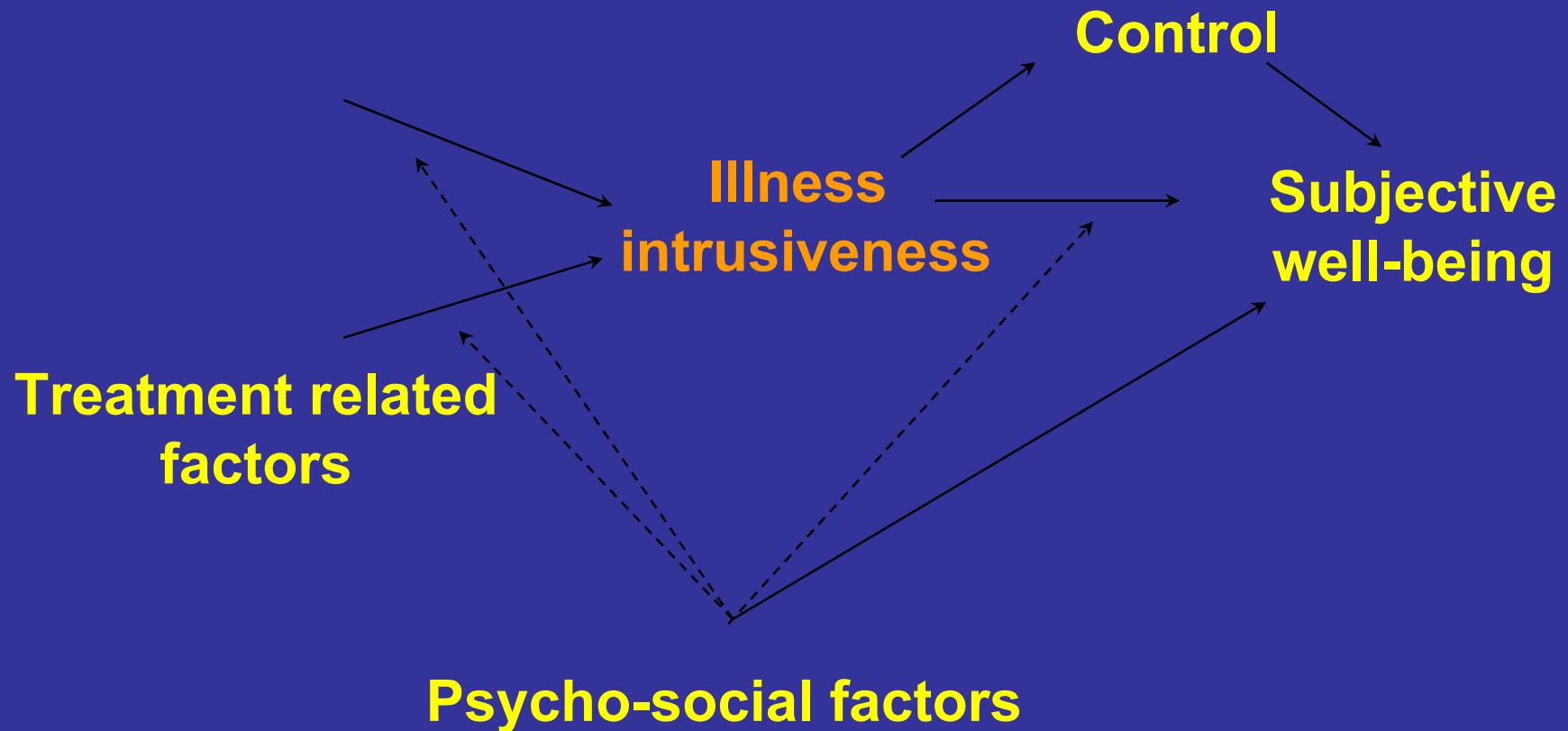
Transplantation – not a cure

- Recurrent crisis situations (listing, wait periods, surgery, intercurrent diseases, acute and chronic rejection, etc.)
- Coping
- Emotional problems
- Immunosuppressive and other drugs (adherence, side effects)
- Existential issues, life-death-survival
- Family, caregiver
- Adaptation to new roles, new lifestyle
- Rehabilitation, education, work

**Quality of Life - what is it,
why is it important?**

Quality of life and illness Intrusiveness (G. Devins, 1994)

Disease related factors



(Health Related) Quality of Life

- Physical, psychological and social domain of health
- As influenced by a person`s beliefs, experiences and expectations.
- It is the **subjective** perception of ones own health and its effect on overall quality of life.
- In individuals with health problems HRQoL will be influenced by **disease** and **treatment** related factors (in addition to several others)

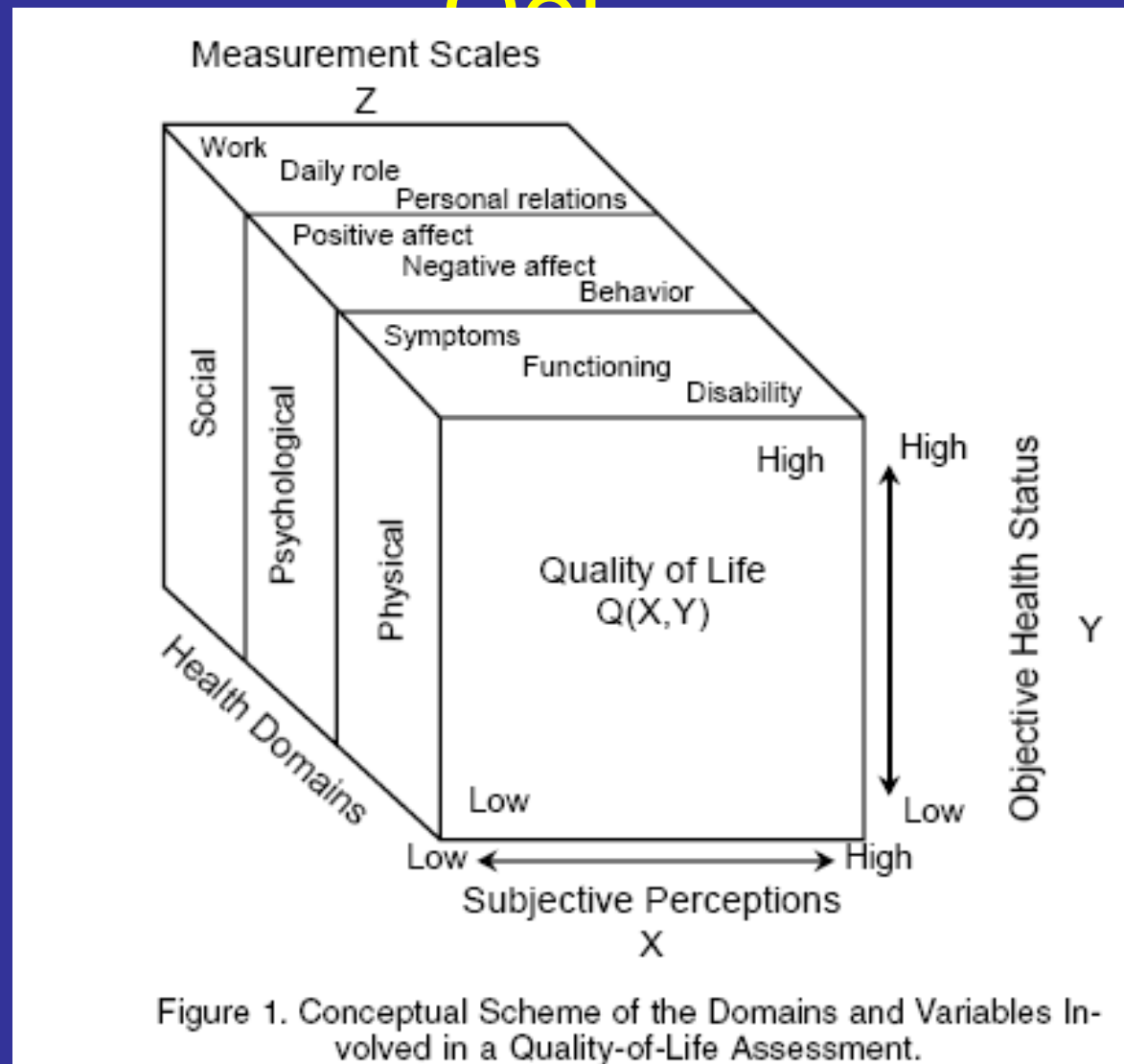
Health-related quality of life

HRQoL refers to a subset of quality of life endpoints related to the health of the patients.

<i>Physical/somatic</i>	<i>Psychological/ mental</i>	<i>Social</i>
Functioning, stamina	Life satisfaction	Vocational rehabilitation
Activities of daily living	Well-being	Recreation
Ability to work	Self esteem	Family and social relations
Pain, symptoms	Anxiety, stress, distress,depression	Sexuality

Subjective and objective elements of

QoL



QoL instruments used in CKD populations

- SF36
- Sickness Impact Profile
- Nottingham Health Profile
- Illness Intrusiveness Rating Scale
- KDQoL-SF
- RDQoL
- ESRD Symptom Checklist-Transplantation Module
- Kidney Transplant Questionnaire

KDQoL-SF36 questionnaire

(Hays et al., 1994)¹¹ - 79 items -

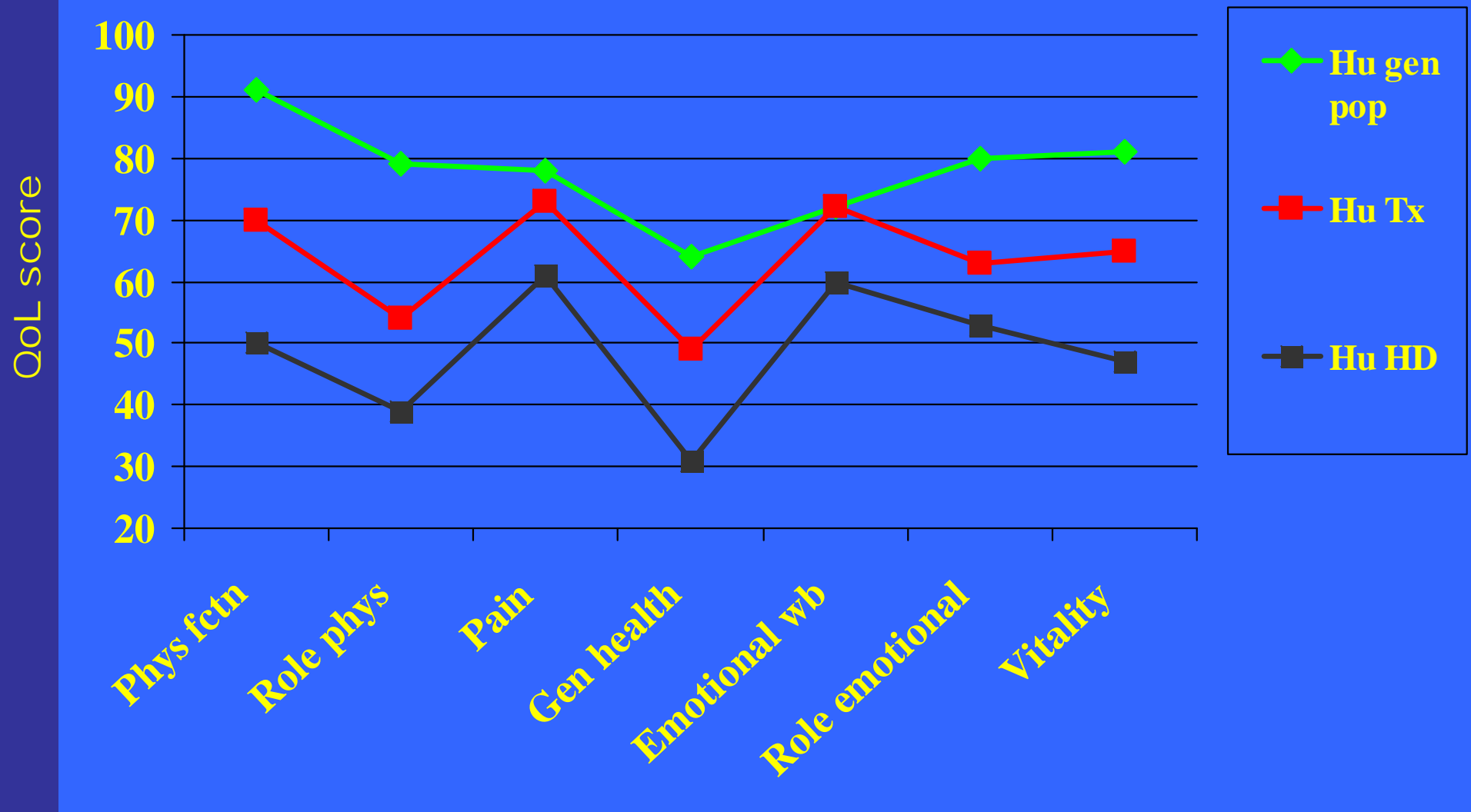
GENERAL DOMAINS

1. Physical functioning
2. Physical role
3. Pain
4. General health perceptions
5. Emotional role
6. Emotional well-being
7. Social function
8. Energy/fatigue

DISEASE SPECIF. DOMAINS

1. Symptoms/problems
2. Effects of kidney disease
3. Burden of kidney disease
4. Work status
5. Cognitive function
6. Quality of social interaction
7. Sexual function
8. Sleep
9. Social support
10. Dial./Tx staff encouragement
11. Patient satisfaction

Quality of Life



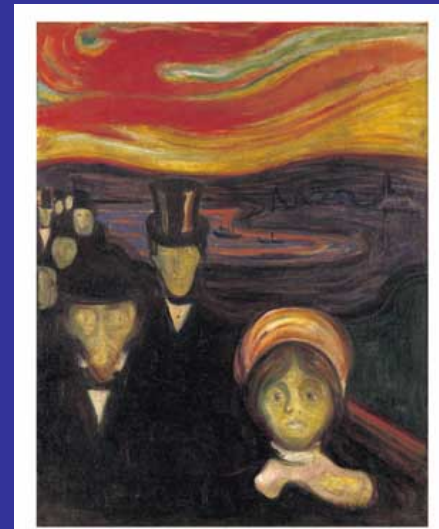
Utilization of QoL data

- Evaluate quality, effectiveness of care

Improve clinical outcomes, facilitate rehabilitation

- Compare alternative treatments, cost effectiveness (QALY)
- Enhance patient satisfaction

DEPRESSION IN RENAL PATIENTS



Depression in medically ill patients

- High prevalence in cancer, neurological disorders, cardiovascular disorders
- ? Related to the medical illness or medical therapies? Bidirectional link?
- Coping with medical illness
- Risk of suicide
- Compliance
- Predictor of relapse, outcome?

Types of depression

- Major depression
- Minor – subclinical
- Chr depression –dysthymia

- Adjustment disorder – with depressed mood
- Depression often co-occurs with anxiety
- Depression and chr stress

Criteria for major depression*

Five or more of the following symptoms during the same two week period representing a change from normal

- Depressed mood ◇
- Substantial weight loss or weight gain
- Insomnia or hypersomnia
- Feelings of worthlessness or inappropriate guilt
- Recurrent thoughts of death or suicide or suicide attempt
- Decreased interest or pleasure ◇
- Psychomotor retardation or agitation
- Fatigue or loss of energy
- Diminished ability to think or concentrate

* From *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition

◇ One of these symptoms must be present

DEPRESSION IN RENAL PATIENTS

- Most common psychiatric/psychological problem
- Is it a „natural reaction?“
- Overlapping symptoms: fatigue, sleep, appetite
- Prevalence (Craven et al. 1987):
 - Depressive symptoms: 25-50 %
 - Major depression 8-22 %

Factors contributing to mood disorders in patients with renal disease

- **Bio-psycho-social model**
- Disease-related, comorbidities, pain, discomfort
- Treatment related? Medications
- Biological: uremia, neurotransmitters, neurotoxins, inflammation?
- Psychological issues (loss): adaptation, role changes, life goals, loss, uncertainty, body image, intimacy
- Social: relationships, job, social roles, intimacy-sex
- Lifestyle issues: lack of exercise and light, altered sleep-wake schedule

Diagnosing depression in patients with end-stage renal disease (ESRD)

- Depressive symptoms
- Screening questionnaires (BDI, CESD)
- Structured clinical interviews (SCID etc)

Difficulties in renal patients: somatic symptoms (sleep, appetite, libido, fatigue)

Validated instruments? (Hedayati et al, 2006)

Is one question enough?

Prevalence of depression (HD, Europe and US DOPPS)

Region	Patient Depression
Euro	16.2 %
US	21.1 %

Depression in patients on maintenance dialysis

In the DOPPS (Dialysis Outcomes and Practice Patterns Study) study (20 000 dialysis pts, multicenter)

physician-diagnosed depression was 13.9%

CES-D based diagnosed was 43%

Antidepressant prescription was:

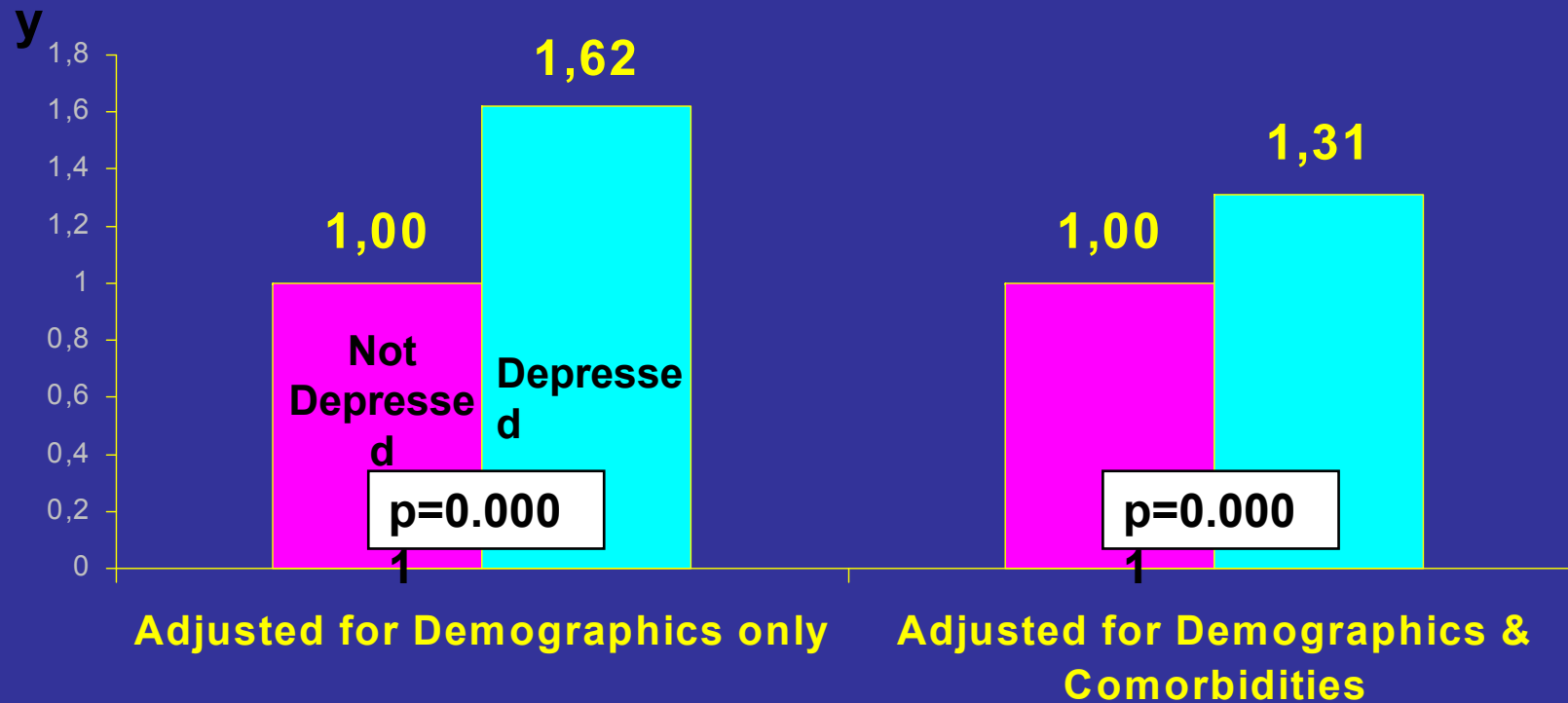
34.9% in patients with physician-diagnosed depr.

17.3% in patients diagnosed depr. based on CES-D

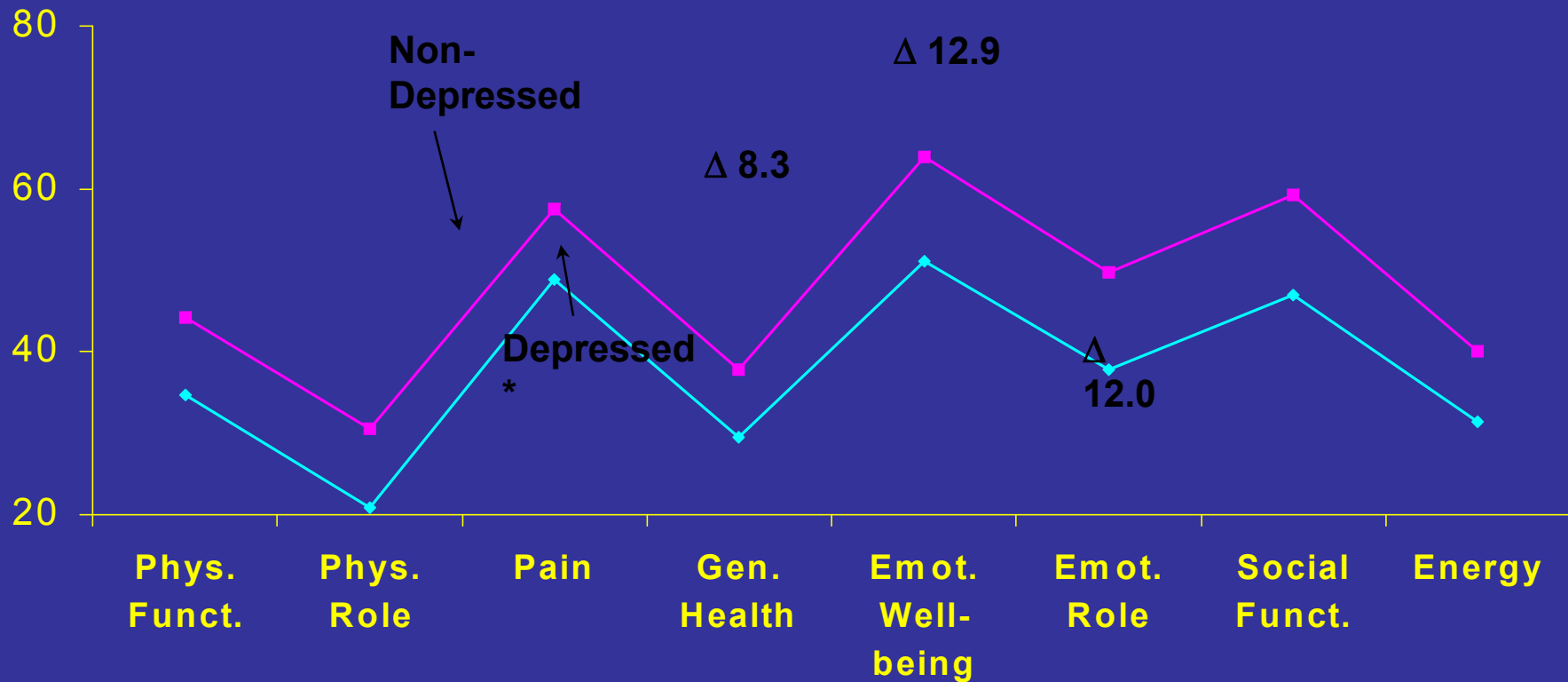
Depression was associated with female gender, lower educational status, unemployment status, some comorbid conditions

Depression and mortality in HD pts (DOPPS)

RR
Mortality



QoL of depressed patients (DOPPS)*



*All Comparisons significant at the 0.0001 level

**A Δ 5 in QoL Scores is Clinically Meaningful

Adjusted for Demographics and Comorbidities

Depression in patients on maintenance dialysis

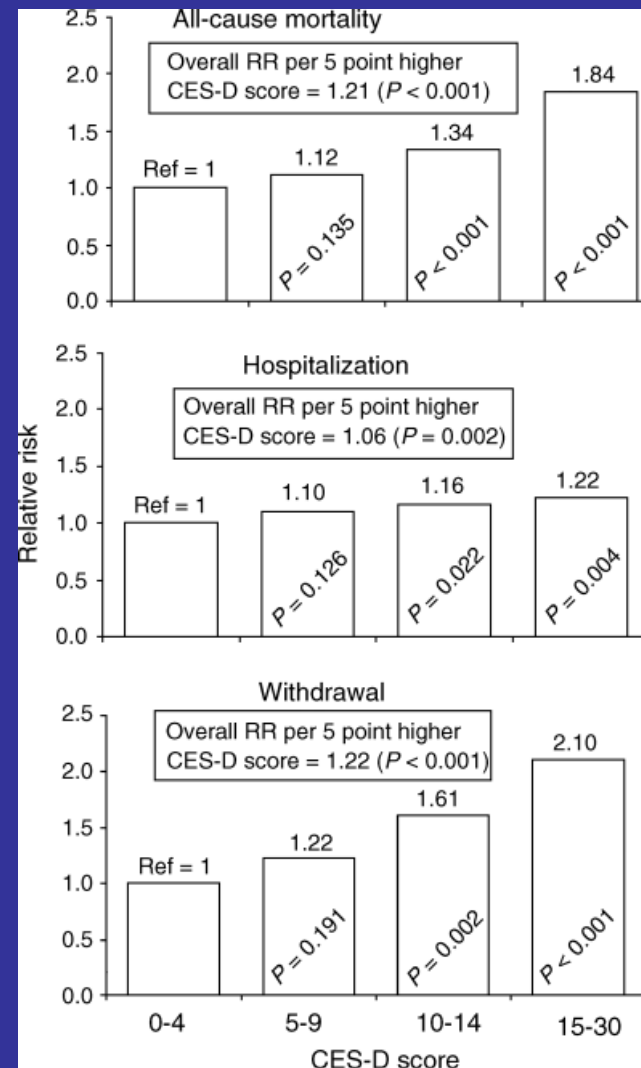
Depression is a predictor of:

mortality

hospitalization

and withdrawal

in patients on dialysis



Lopes et al.; Kidney International (2004)

Depression in CKD

- Prevalence varies between 10-60% (due to different screening tools and patient selection)
- Correlation between depression and patient **compliance** in dialysed population (Kimmel, 1998)
- An important **predictor of quality of life** in patients on dialysis (Walters, 2002)
- Independent **predictor of mortality** in patients on haemodialysis (Kimmel, 2000, Drayer 2006)

Depression in kidney transplanted (Tx) patients

- Few data about **prevalence**: ~20%
- No data available association with **mortality**
- Psychoterapeutic **intervention** is effective (Baines et al.; 2002)
- Some potential **aetiology**:
 - Association with loss, grief and bereavement in relationship to the death of unknown donor
 - Fear of rejection
 - Altered body image
 - Side effects of medications
 - Old and new challenges

Data from our recent studies I.

Psychosocial survey in Hungary (3500 pts)

20% reported to expect more support from family

46 % reported symptoms of depression

One third would like to get help

Depressive symptoms: woman, low education, older age, bad financial situation

Some data from
our recent studies II.
DEPRESSION

- Dialysis patients – 40-45%
(Hungarian data)
- Predialysis population – 44%
(Humber River Hosp. data and
Hungarian data)

Trans-Qol-HU study

- Prospective cohort study, all pts at the Dept of Transplantation, 9 dialysis centers in Budapest
- Follow-up time: 4 years
- Screening for depression: **Center For Epidemiological Studies- Depression (CES-D)** scale (Radloff, 1977); cut-off score: 16/18
- Kidney Disease QOL Questionnaire (Hays, 1994)
- Sleep questionnaires
- Socio-demographic and laboratory parameters were collected
- **Outcome:**
 - **Return to dialysis (chronic allograft nephropathy)**
 - **Mortality**

Summary

- Prevalence of depression still high after renal transplantation (27 vs 40 %)
- Prevalence of depressive symptoms were higher in women than in man
- There was significant difference in some parameters (gender, eGFR, comorbidity) between patients with depressive symptoms than patients without depressive symptoms
- There was difference between two populations in combined outcome (return to dialysis or died)
- Mortality was higher in patients with depressive symptoms than in ones without these symptoms
- Depression is an independent predictor of mortality even after controlling for important clinical variables

Summary II

Odds for a poor outcome:

- Male- **1.8**
 - Patients with heart disease- almost **twice**
 - Patients with depressive symptoms- **1.8**
-
- **Patients with depressive symptoms have lower survival rate than ones without these symptoms**

Depression and sleep disorders

- Depression most important predictor of insomnia
- Depression in patients with restless legs syndrome
- Prevalence of OSAS: 33% vs. 28% (WL vs. Tx)
- Prevalence of depression: 34% vs. 22% (WL vs. Tx)
- In the presence of OSAS, there is a 2-fold risk of depression: 43% vs. 23%
- In the presence of OSAS, the odds for depression is 1.6 times higher even after correction for gender, age, comorbidities, mode of RRT and other sleep disorders

What can we do?

- Multidisciplinary team
- Identifying high risk patients: young – old?, single, females, older pts living alone
- Focusing on crisis points
- Complex psychosocial programs for patient and caregivers
- Routine and regular screening of depression and qol

How can we improve social support in patients with kidney disease?

- Psychoeducation, counselling, psychotherapy
- Involving families, caregivers
- Group therapies: supportive, CBT, IPT, ACT
- Stress management, comm. Skills (Williams training ect)
- Marital counselling
- Patient self-help: books, groups, patient clubs
- Stress management, burnout of medical staff
- New therapies, new challenges (home dialysis, living kidney donation)
- Phone – support, psychotherapy
- Internet, email, chat...

Treatment considerations

- Only few studies – RCTs needed
- Pharmacotherapy
- Psychotherapy: individual, marital, group
- Flexible therapy options: during dialysis, over the phone?
- CBT, IPT, psychodynamic psychotherapy
- Crisis therapy?
- Other psychological and psychosocial interventions:
 - Behavioral interventions
 - Stress reduction
 - Coping strategies
 - Communication skills

Future studies needed

- Longitudinal studies: disease and symptoms changes
- Indicators of qol and rehabilitation
- Biological and psychosocial correlates of depression in CKD
- Interventional studies
- Choosing the best modality- improving quality of life
- Development of screening tools

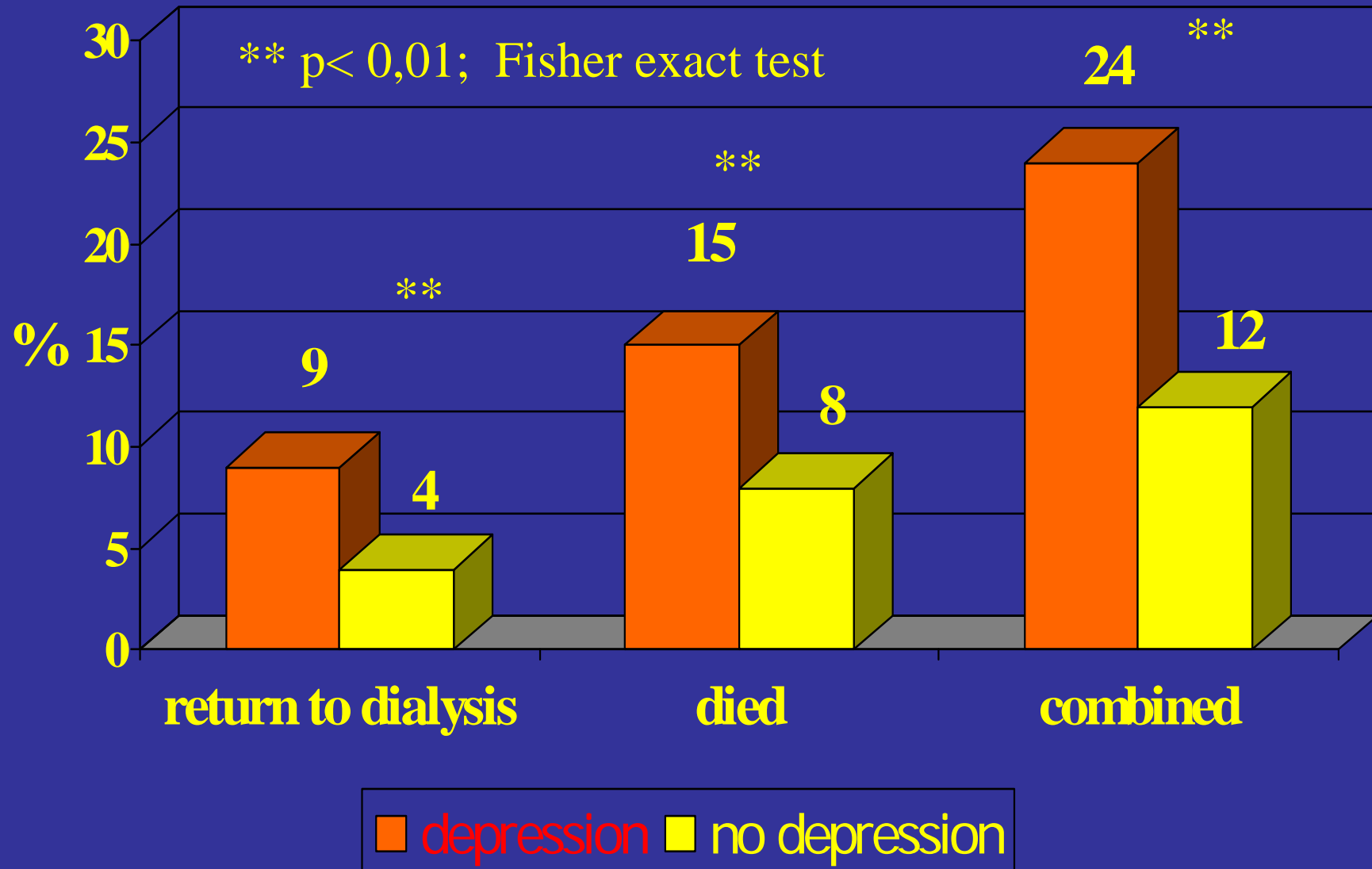
Conclusions

- Close collaboration between psychiatrists/ and nephrologist (not absolutely necessary to marry them) may improve management of mood disorders and enhance quality of life
- Longitudinal and randomized treatment studies are needed
- Treatment of depression and other mental health problems may improve QoL of our patients and even affect survival

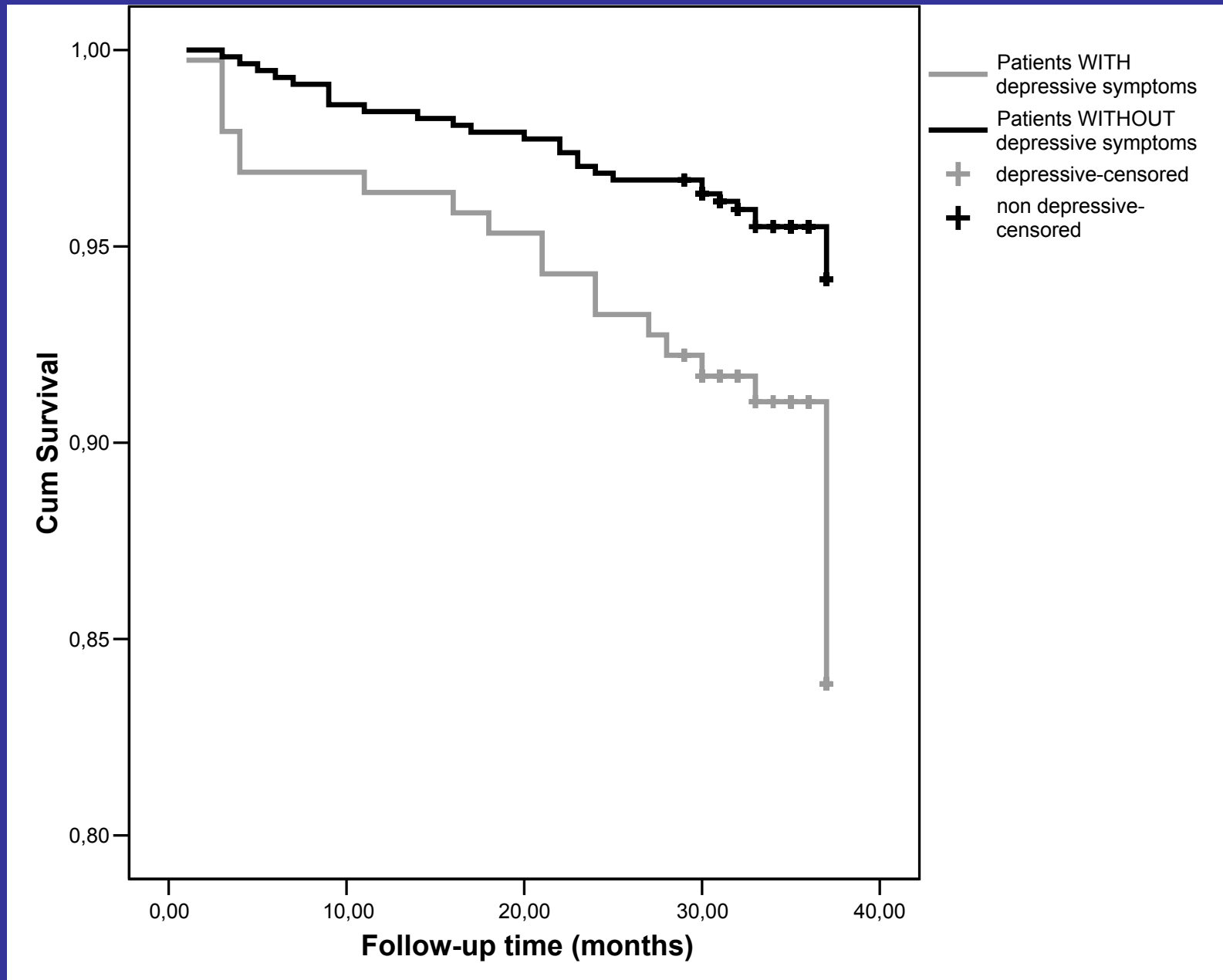
Aknowledgement – Psychonephrology Group, Semmelweis University, Budapest



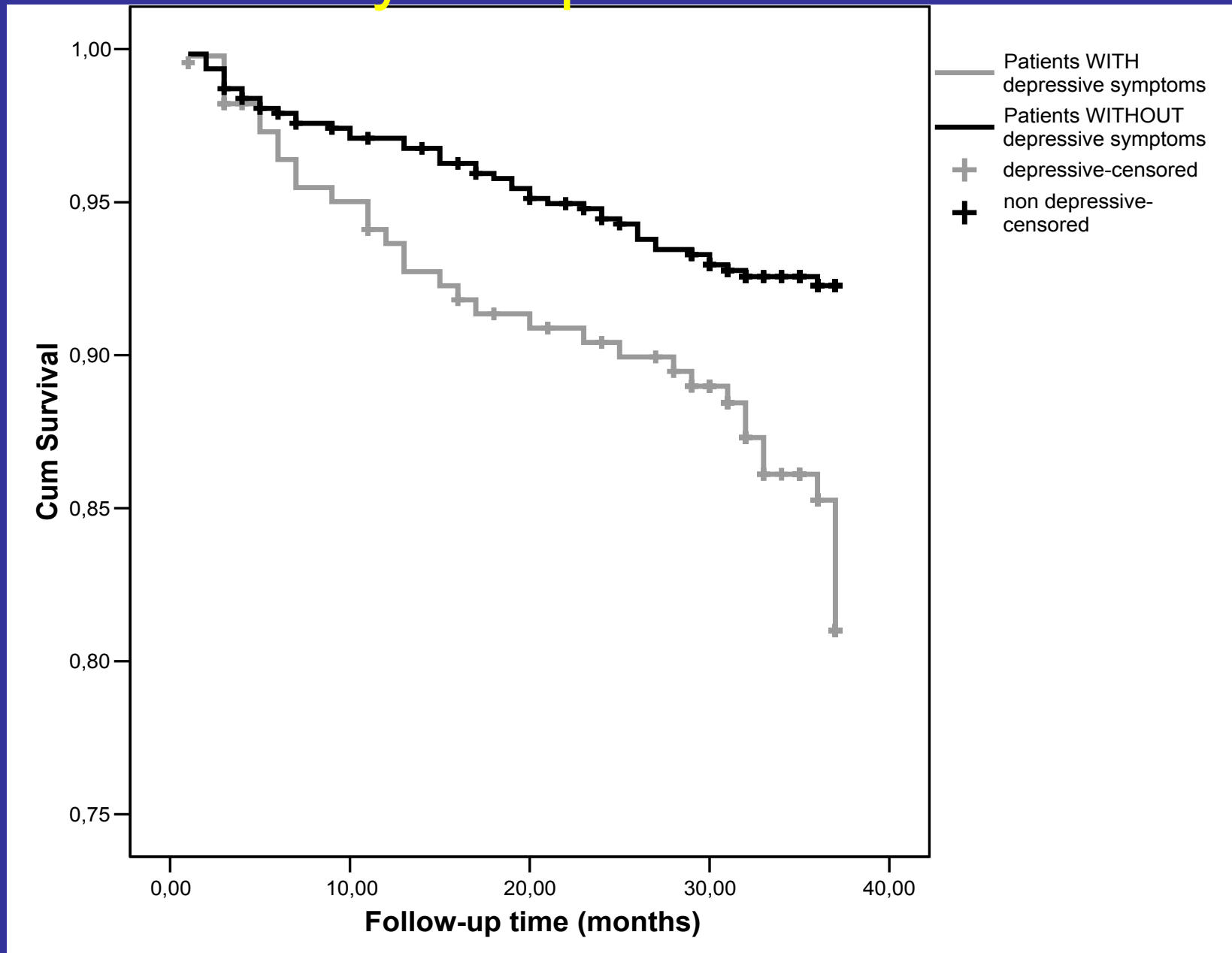
Prevalence of graft failure and mortality



Return to dialysis - Kaplan-Meier curve



Mortality - Kaplan-Meier curve



Cox regression analysis: mortality

	HR	95 % C.I. for HR		p
		lower	upper	
Gender (female)	2.845	1.680	4.819	<0.001
Age (+1 year)	1.037	1.015	1.060	0.001
eGFR (+1 ml/min)	0.969	0.954	0.985	<0.001
Number of comorbid conditions (+1 illness)	1.047	0.920	1.190	0.488
Hemoglobin (+ 1 g/l)	0.997	0.984	1.010	0.651
Albumin (+1 g/l)	0.907	0.850	0.967	0.003
Time since transplantation (+1 month)	1.004	1.000	1.008	0.066
CESD score (+1 point)	1.029	1.007	1.051	0.008

Cox regression analysis: return to dialysis

	HR	95 % C.I. for HR		p
		lower	upper	
Gender (female)	1.325	0.704	2.495	0.383
Age (+1 year)	0.961	0.938	0.985	0.002
eGFR (+1 ml/min)	0.982	0.964	1.000	0.045
Number of comorbid conditions (+1 illness)	1.093	0.918	1.302	0.320
Hemoglobin (+ 1 g/l)	0.975	0.960	0.991	0.002
Albumin (+1 g/l)	0.914	0.840	0.994	0.035
Time since transplantation (+1 month)	1.002	0.995	1.008	0.631
CESD score (+1 point)	1.046	1.017	1.075	0.001

Logistic regression analysis of correlates of depressive symptoms

	Odds ratio	95 % C.I. for Odds ratio		p
		lower	upper	
Age (+1 year)	1.002	0.986	1.017	0.851
Gender (male)	0.727	0.504	1.048	0.087
eGFR (+1 ml/min)	0.992	0.984	1.001	0.093
Number of comorbid conditions (+1 illness)	1.329	1.195	1.477	<0.001
Occupation (occupied)	0.619	0.392	0.976	0.039
Albumin (+1 g/l)	0.936	0.886	0.988	0.016
Time since transplantation (+1 month)	0.998	0.994	1.002	0.412

Cox regression			
Mortality	HR	95% CI	p
CESD (+1 point)	1.029	1.007-1.051	0.008
Depressive symptoms (above 16)	1.593	0.995-2.552	0.053
Return to dialysis			
CESD (+1 point)	1.046	1.017-1.075	0.001
Depressive symptoms (above 16)	2.185	1.181-4.042	0.013
Combined outcome			
CESD (+1 point)	1.033	1.016-1.050	<0.001
Depressive symptoms (above 16)	1.783	1.230-2.584	0.002

Adjusted for: age, gender, eGFR, alb, hb, comorbidity, Tx time

Characteristics of patients with or without depressive symptoms

	Depression sympt. (n=228)	No depression sympt. (n=626)	p value
Age (mean \pm SD) (years)	50 \pm 12	48 \pm 13	NS
Women (%)	49	39	<0.01
eGFR (mean \pm SD) (mL/min.)	46 \pm 20	51 \pm 23	<0.01
Number of comorbid conditions (median; min-max)	2 (0-7)	1 (0-7)	<0.01
Diabetes (%)	19	16	NS
Serum albumin (mean \pm SD) (g/L)	41.0 \pm 3.2	41.8 \pm 3.3	<0.01
Serum Hb (mean \pm SD) (g/L)	131 \pm 19	133 \pm 19	NS
Time since transplantation (mean (IQR)) (months)	57 (64)	52 (61)	NS
Occupational status: Part or full time job (%)	18	29	<0.01

Characteristics of patients with or without depressive symptoms in transplant patients

	Depression (n=228)	No depression (n=626)	p value
Age (mean \pm SD) (years)	50 \pm 12	48 \pm 13	NS
Women (%)	49	39	<0.01
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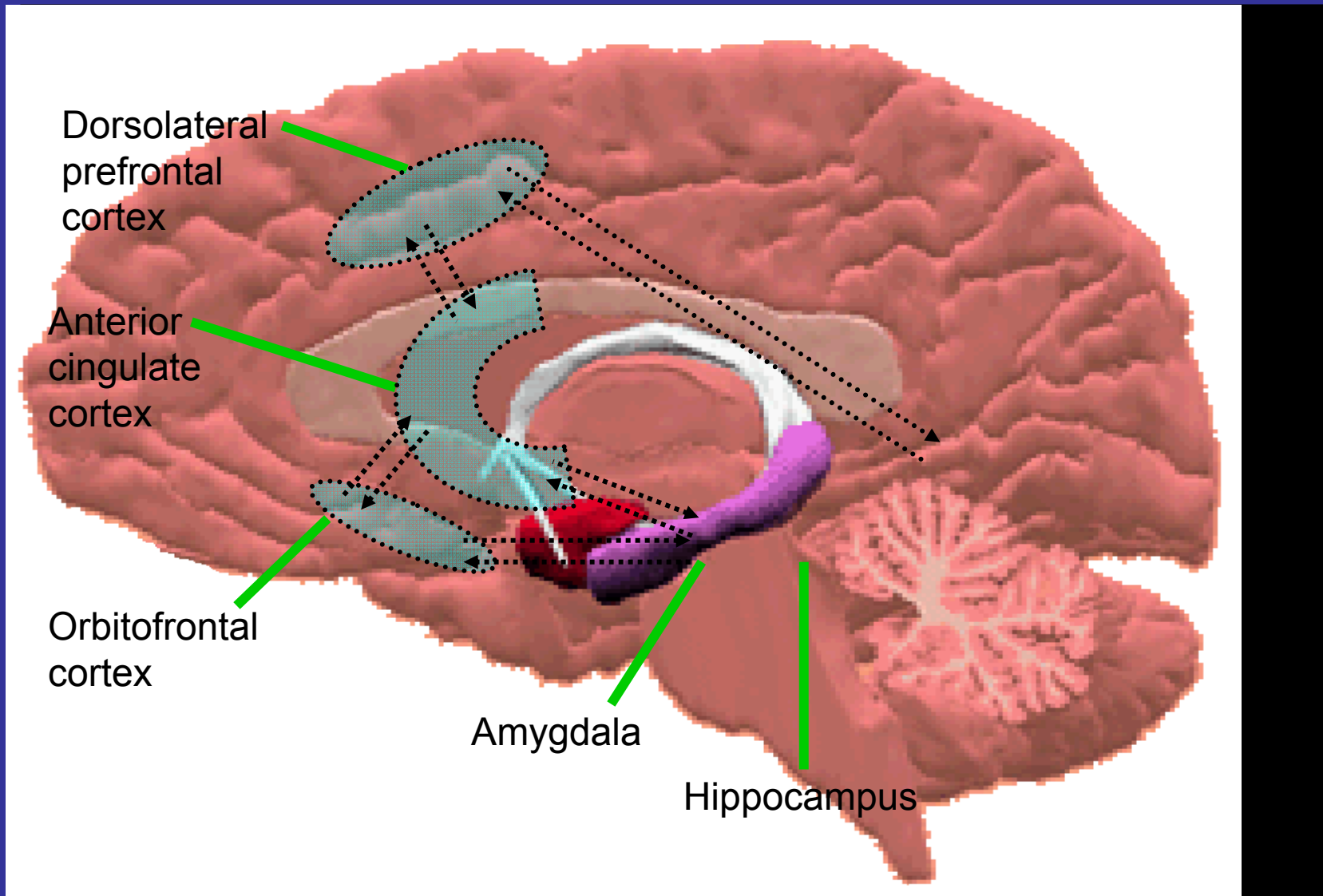
Prevalence of depression in patients with ESRD I.

	Year	Patients	Diagnostic tool	Prevalence of depression
Lowry, USA	1980	83 home HD	DSM-III	18%
Smith, USA	1985	60 HD	BDI	47%
			DSM-III	5%
			MAACL	17%
Craven, Canada	1988	99 HD	DSM-III	8.1% major depr
Hinrichsen, USA	1989	124 HD	RDC	17.7% minor depr
Kimmel, USA	1998	295 HD	BDI	
Kim, Korea	2002	96 CAPD	CESD \geq 16	75%
Walters, USA	2002	422 HD	DIS	45%
Lopes, DOPSS I , multicenter	2002	5256 HD	Physician	17.7%
			„downhearted and blue” – SF-36	21.5%
			„so down in the dumps” – SF-36	19.5%
Wuerth, USA	2003	380 CAPD	BDI \geq 11	42%
			HDRS, DSM-IV	(87% of this major depr)
Watnick, USA	2003	123 HD at start	BDI	44%

Prevalence of depression in patients with ESRD II.

	Year	Patients	Diagnostic tool	Prevalence of depression
Einwohner, USA	2004	66 PD	ZDS	33%
				6,5% major depr
Lopes, DOPSS II, multicenter	2004	9382 HD	CESD short ≥ 10	43%
			Physician	13,9%
Akman, Turkey	2004	27 Tx	BDI ≥ 11	22,2%
		30 VL		40%
		31 HD		61,3%
Araplasan, Turkey	2004	40 Tx	SCID-I	50%
Wuerth, USA	2005	380 PD	BDI ≥ 11	49%
Watnick, USA	2005	62 HD	BDI ≥ 16	19% major depr
Tyrrell, France	2005	51 HD (≥ 70 yrs)	MADRS	60%
Taskapan, Turkey	2005	40 HD	HDRS	35%
Kalender, Turkey	2005	68 HD	DSM-IV	24,1%
		47 CAPD	SCID-CV	
		26 predial		
Hedayati, USA	2005	1588 HD	ICD	14,7%
Wilson, Canada	2006	124 HD	BDI-II ≥ 14	38,7%
			Nurse	41,9%
			Nephrologist	24,2%

The Anatomy of Depression



Depression Subtypes and Cytokines

- IL-1 β production following mitogen stimulation
 - Significant increase in non-melancholic vs controls and vs melancholic groups
Kaestner et al J Affect Disord 2005
 - ?Role in stress reduction of Hippocampal Neurogenesis
Koo & Duman 2005
- Interferon- α induced depression in malignant melanoma patients is significantly diminished by pretreatment with paroxetine
 - Positive effect on: Mood, anxiety, memory, concentration (IL-6-CRF-5HT)
 - Lack of effect on: fatigue, psychomotor slowing, sleep, anorexia (Basal ganglia-thalamic-DA)
Capuron & Miller, Biol Psychiatry 2004

The Hippocampus & Depression

- Correlation between severity of depression and volume reduction

(Vakili et al, 2000)

- Relationship between memory impairment and volume loss in multiple episode but not first episode depressed patients

(MacQueen et al, 2003)

- Correlation between untreated days depressed and volume reduction

(Sheline et al, 2003)

Hippocampal Volume in a Depressed Subject Compared to a Healthy Control

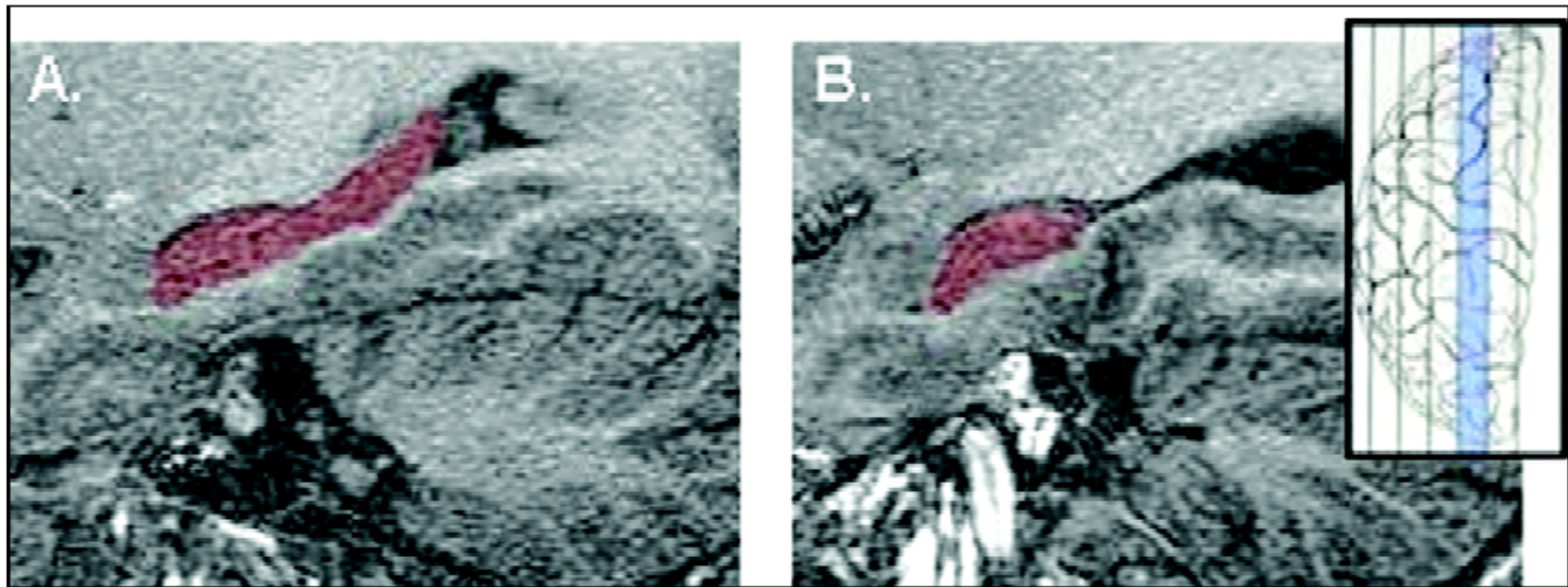


Fig. 2: Magnetic resonance spectroscopic images of the left hippocampus in a healthy control subject and in a patient with recurrent depression. The size of the difference shown here is unusually large, with most positive studies reporting a reduction in hippocampal complex (HC) volume of about 15% between cases and controls.⁷⁸ Insert shows in blue the approximate sagittal level of the HC. Images were acquired on a 1.5-T GE Sigma Genesis–based EchoSpeed imager using previously published parameters.⁷⁹

A: Sagittal view of the left HC, highlighted in red, of a healthy control subject whose left HC volume measured 3295 mm³.
B: The patient whose left HC is represented here, with an HC volume of 2015 mm³, was of the same age and sex as the control subject but had a long history of recurrent depression.

Treatment adherence

- Adherence is crucial (risk of rejection and death)
- Bi-directional association between adherence and QoL
- Prevalence of non-adherence is estimated about 20-50%
- Non-adherence may play a role in 1/3 or more of rejection episodes
- Medication related (dosing, side effects) and patient related (depression, anxiety, social factors, personality) both influence adherence

Benefits of a social support network

- **Sense of belonging.** Spending time with people helps ward off loneliness. Whether it's other new moms, dog lovers, fishing buddies or siblings, just knowing you're not alone can go a long way toward coping with stress.
- **Increased sense of self-worth.** Having people who call you a friend reinforces the idea that you're a good person to be around.
- **Feeling of security.** By reaching out and sharing yourself with others, you have the added security of knowing that if you start to show signs of depression or exhibit unhealthy lifestyle habits, your friends can help alert you to the problem.

Cultivating your support network

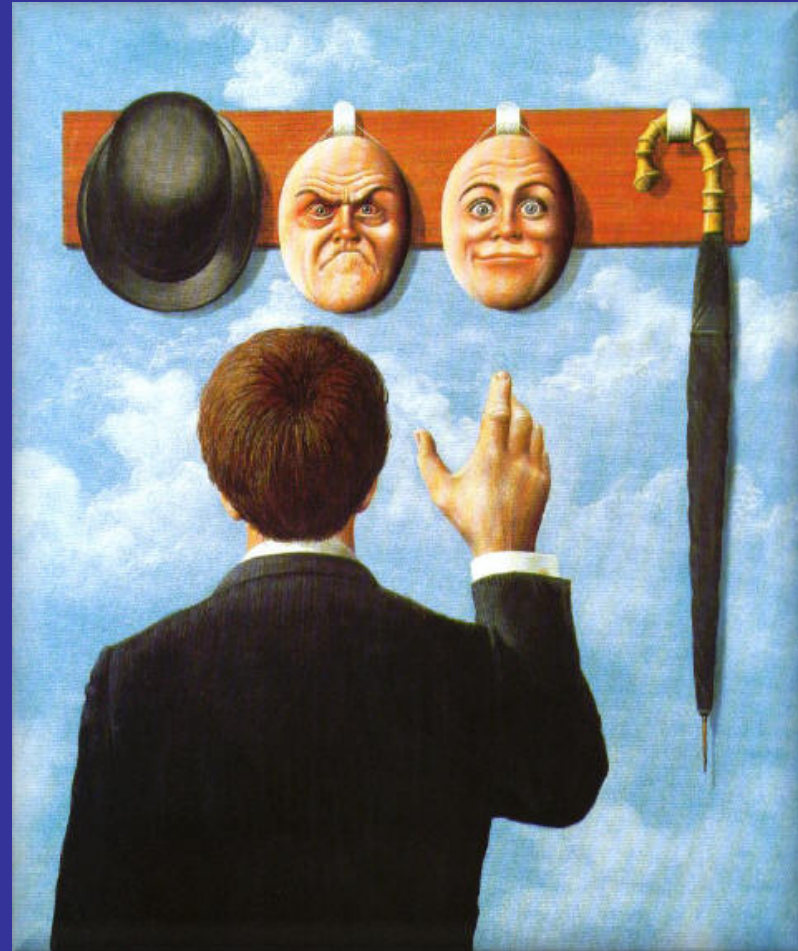
- **Stay in touch.** Answering phone calls, returning e-mails and reciprocating invitations lets people know you care.
- **Be proactive.** Don't wait for someone else to make the first move. If you meet someone you think could be a good friend, invite him or her for coffee. Or be the one to strike up a conversation while in line at the grocery store.
- **Know when to say no and when to say yes.** Spending time with people who aren't supportive can add stress and take away valuable time. On the other hand, don't decline an invitation because you feel shy or insecure.
- **Don't compete.** Be happy instead of jealous when your friends succeed, and they'll celebrate your accomplishments in return.
- **Be a good listener.** Find out what's important to your friends — you might find you have even more in common than you think.
- **Challenge yourself.** Keep looking for ways to improve yourself. Maybe it's by complaining less, being more generous or forgiving others' faults.
- **Don't overdo it.** In your zeal to extend your social network, be careful not to overwhelm friends and family with phone calls and e-mails. Save those high-demand times for when you really need them.
- **Appreciate your friends and family.** Take time to say thank you and express how important they are to you.

Extending social network

- **Visit the park.** Whether you bring your dog, your kids or your running shoes, you'll have something to talk about.
- **Volunteer.** Pick a cause that's important to you, and you're sure to meet others who share a similar value system.
- **Ask a friend.** Next time you meet a friend for lunch, ask him or her to bring along someone else.
- **Go back to school.** A local college or community education course will put you in contact with others who share similar hobbies or pursuits.
- **Look online.**

“Side-effects” of social networks

- **Manage obligatory social ties**
- **Beware of co-dependents.** A support system with people who are engaged in the same unhealthy behaviors that you're trying to overcome — whether it's substance abuse or simply a negative attitude — can be damaging to your well-being.
- **Avoid a sense of duty.**
- **Pick the right supporter.** If you need help through a hard time, consider carefully which friend or family member to ask. A sibling might not be the best choice, for example, in dealing with grief over a lost parent because they too are affected by the loss.



Vocational rehabilitation, education

- Vocational rehabilitation is insufficient world wide
- In Hungary cca 75% of the kidney transplanted patients and more than 90% of the dialysis patients are on disability benefit
- Work status is an important predictor of QoL
- In some studies appropriate level of education is reported for children and young adults after Tx
- In Hungary many children have problems with schooling – in part because of pathologies in the family unit

Patients

Transplanted (TX)

N=1065

- age: 49±12 years (18-76 years)
- Median Tx time: 61 months (1-311 months)
- **male: 59.5%**
- **diabetes: 14%**
- Hb: 132 ±19 g/l
- albumin: 42 ±3 g/l
- creatinin clearance (abbreviated MDRD): 57 ±21 ml/min

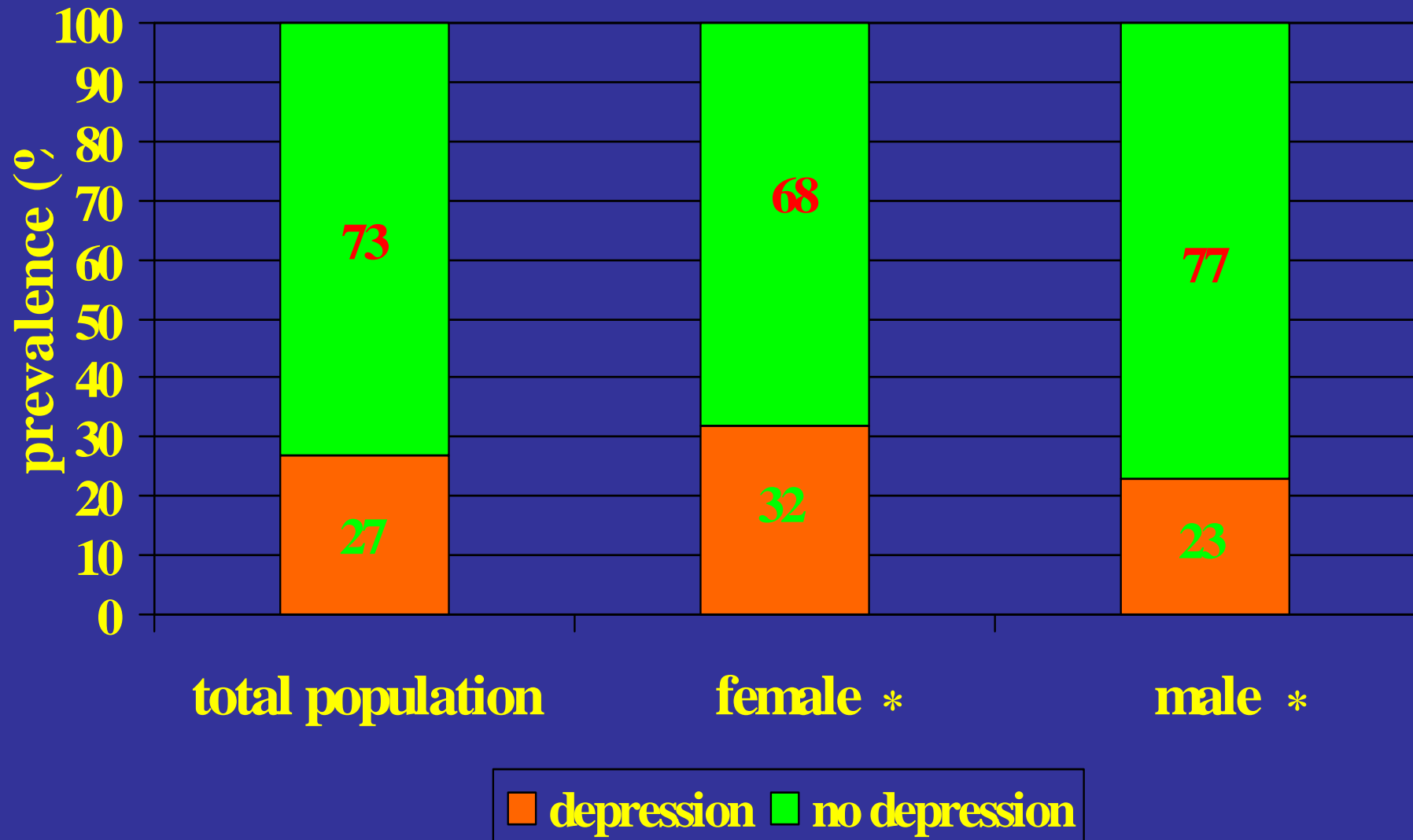
Waiting list/hemodialysis

N= 214

- age: 49±12 years (23-79 years)
- Median time on dial.: 35 months (3-213 months)
- male: 62%**
- diabetes: 14.5%**
- Hb: 113 ±15 g/l
- albumin: 41 ±4 g/l
- Kt/V: 1.27 ± 0.26

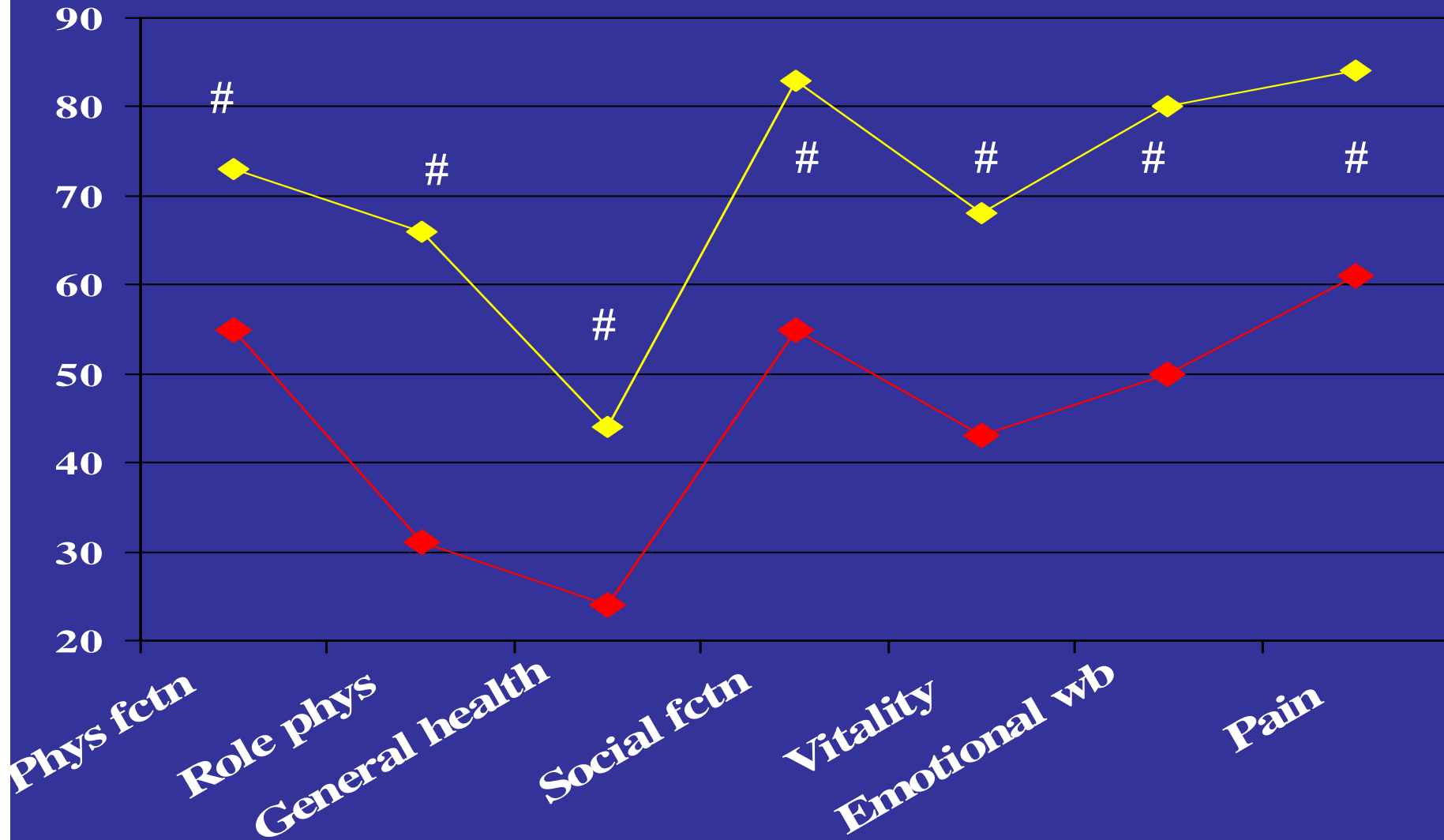
Prevalence of depression in the transplant group

* $p < 0,01$; Fisher exact test



Depression and general HRQOL domains

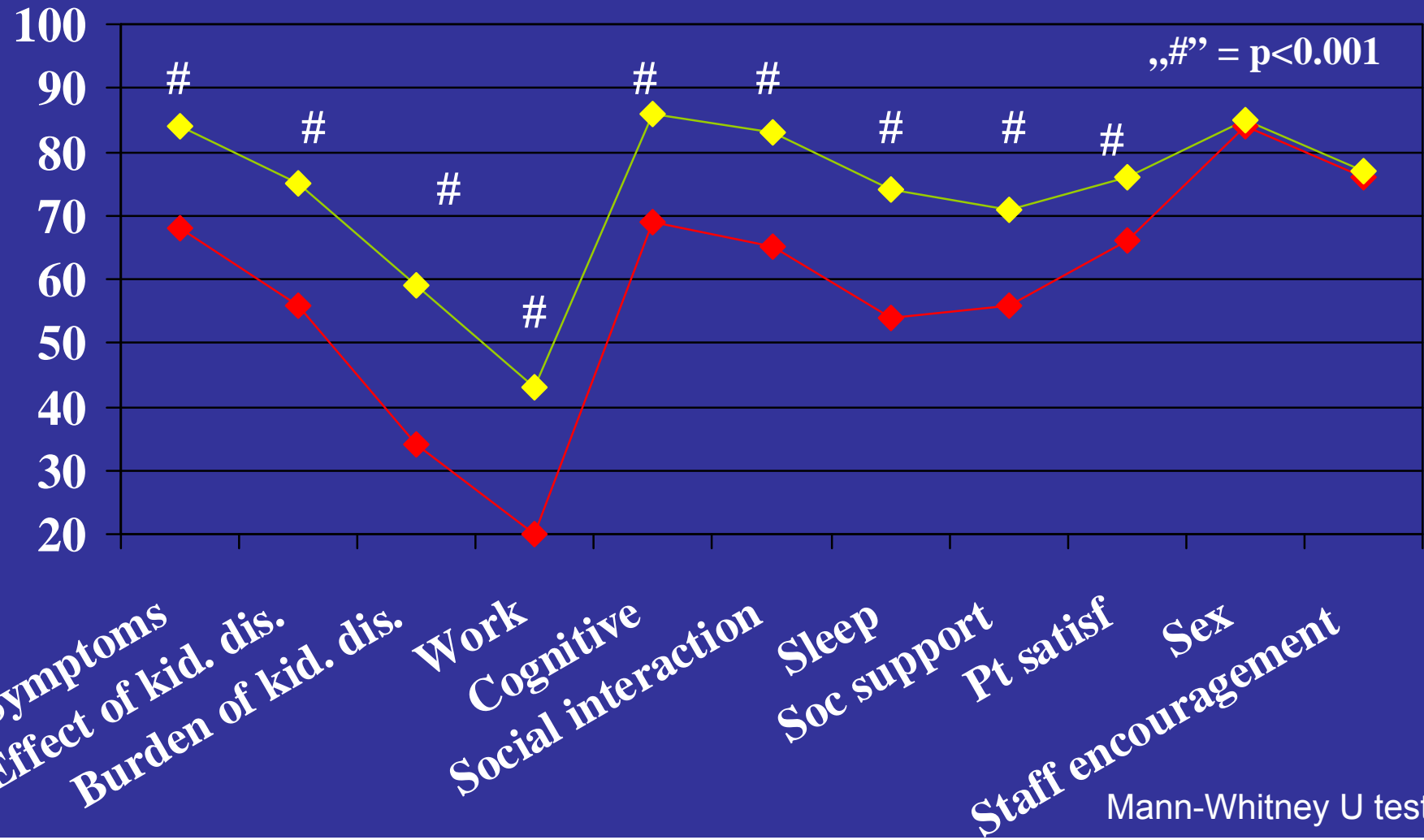
◆ High risk for depression ◆ Low risk for depression



„#” = $p < 0.001$, Mann-Whitney U test

Depression versus age and gender adjusted disease specific HRQOL scores

◆ High risk for depression ◆ Low risk for depression





**Factors associated
with QoL**

Factors – socio-demographic

- Age
- Gender
- Socio-economical, social status – education; work; financial status
- Beliefs/culture

Factors – clinical

- Underlying disease (DM, immune, etc)
- Comorbidity
- Renal function
- Anemia
- ESRD vintage
- Physical fitness
- Drug related
 - Cosmetic
 - Neurologic
 - Endocrine
 - Physical fctn
- Steroids
 - Bone
 - Psychological
 - Endocrine
 - sleep

Factors – Psychological/social

- Anxiety
- depression
- Distress
- Fear
- Control
- Grief
- Body image
- Personality –
premorbid
- Family relations
- Sexuality
- Pregnancy
- Social support
- Work
- Education