Abnormal illness behavior, alexithymia, demoralization and other clinically relevant psychosocial syndromes in Kidney Transplant Recipients (KTRs): a comparative study of the Diagnostic Criteria for Psychosomatic Research (DCPR) system versus ICD-10 psychiatric nosology

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Authors' contribution

YB, EM contributed to conception and design of study and in drafting the manuscript; SM, GP analysis and interpretation of data; EC, LP contributed to acquisition of data; AS, LG, have been involved in revising the manuscript critically for important intellectual content.

Running Title: DCPR syndromes in Kidney Transplant Recipients

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An average of 35% prevalence of psychiatric morbidity (e.g. major depression, anxiety disorders) has been reported in kidney transplant recipients (KTRs).[1,2] However, a higher prevalence of other psychosocial syndromes (e.g. demoralization, health anxiety, irritable mood) not detectable by using the usual psychiatric nosological systems has been found among medically ill patients by using the Diagnostic Criteria for Psychosomatic Research (DCPR).[3] Since no data are available on the DCPR prevalence in KTRs, the aims of the study was to expand the information for sub-typing these patients both according to the DCPR and the ICD-10 psychiatric systems in KTRs.

A consecutive series of KTRs at the Nephrology Unit, S. Anna University Hospital, Ferrara, Northern Italy were administered a clinical interview of about 120 minutes, including (i) the MINI International Neuropsychiatric Interview 6.0 [4] which has been validated against the Composite International Diagnostic Interview (CIDI) to make an ICD-10 psychiatric diagnoses; and (ii) the DCPR semi-structured Interview [5] (see supplemental Appendix1 for details about the methods).

Data pertaining to 134 out of 143 consecutive KTRs were collected (see online supplemental Table 1 for the description of the sample). Forty-six patients (34.3%) received an ICD-10 psychiatric diagnosis, namely "Reaction to severe stress and adjustment disorders" (F43=15.7%), "Anxiety disorders" (F40-41=10.4%) and "Mood disorders" (F32-34;38-39=8.2%). In contrast, 63.4% patients met the criteria for at least one DCPR diagnosis (32.1% having one diagnosis, DCPR=1; 31.3% more than one, DCPR≥2) (Table 1). Abnormal Illness behaviour (31.3%), Irritability (31.3%), Alexithymia (23.1%), Somatization (19.3%) and Demoralization (17.2%) were the most frequent DCPR syndromes (online supplemental Table 2 for details). There was an overlap between DCPR and ICD diagnoses, with 43/46 (93.5%) patients with an ICD-10 diagnosis being also DCPR cases, while 43/85 (50.6%) patients with a DCPR diagnosis being also ICD-10 cases. Among the single ICD-10 diagnoses several DCPR syndromes were represented (e.g. patients with adjustment disorders were positive for a DCPR diagnosis of demoralization, irritable mood and health anxiety). Only 3 patients with a formal ICD diagnosis were not identified by the DCPR. Among patients without an ICD-10 diagnosis (n=88, 65.7% of the global sample), 42 (47.7%) received a DCPR diagnosis (31 subjects, 35.2% DCPR=1; 12, 13.6% DCPR≥2) (χ^2=31.98p <0.001).

The findings of the study presented here strongly confirm the relevance of other dimensions than ICD-10 formal psychiatric diagnoses in a sample of KTRs, as already demonstrated for patients with other medical illnesses.[3,6] The occurrence of DCPR diagnoses was in fact almost double (63.4%) than psychiatric diagnoses (34.3%). We did not found a hierarchical relationship between DCPR clusters and ICD diagnoses in both groups: all DPCR clusters were associated with

more than one ICD diagnosis and vice versa, suggesting that the DCPR system evaluate distinct clinical phenomena and not merely symptomatic states of psychiatric disorders. Importantly, half of the patients that did not have any ICD-10 diagnosis, were positive to one or more DCPR syndrome.

Regarding the specific DCPR clusters, irritable mood was found to be quite common (1/3 of the patients), in agreement with other studies.[7] It is possible that, despite the freedom from dialysis, irritability is activated by stressful conditions, including returning to work, social and family reintegration, and multiple diagnostic procedures. The patients' ways of experiencing and responding to their health status (AIB cluster) was also common (1/3 of the patients). Indeed, both illness denial and health anxiety have been found among KTRs. The former (particularly evident in patients showing low adherence to immunosuppressive medications and not making scheduled clinic and diagnostic visits/procedures) could express a underestimation of kidney transplant complications, The latter could be related to multiple fears (e.g. infections, unpredictable outcomes, allograft kidney rejection), with possible misinterpretation of bodily symptoms producing. In a similar way, the somatization cluster (19%) could also express an alert arousal condition with which autonomic arousal (e.g. palpitations, tremor, flushing, sweating) and/or exaggerated side effects from medical therapy, and/or high suggestibility preoccupation for somatic symptoms. Alexythimia, as a reduced ability to identify and describe subjective feelings and to distinguish among different feelings, was also evident, with a pure alexithymic condition in the minority of the cases, while in almost 2/3 it was associated with another DCPR diagnosis (e.g. irritability, AIB, somatization). Its role in nephrology should be examined more carefully giving the possible association with prognosis in hemodialysis patients[8]. Lastly, demoralization, as the person's inability to cope with problems, self-inefficacy and helplessness/hopelessness was also found in about 20% of the patients, in line with studies of patients with other medical diseases.[9]

The findings of this study in the specific setting of nephrology confirm that the DCPR can detect psychological dimensions which are not identified by the ICD-10 criteria. This support the need to jointly apply the DCPR and traditional psychiatric nosographic systems within the integrated and multidisciplinary care of KTRs [10] in order to improve the identification of psychological distress conditions.

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Table 1. Main DCPR diagnoses among ICD-10 syndromes (multiple diagnoses are possible with DCPR) (%) *

ICD / **DCPR**	No ICD Diagnosis (n=88)	ICD-Adjustment Disorders (n=21)	ICD-Anxiety Disorders (n=14)	ICD-Mood Disorders (n=11)	Total ICD Diagnoses (n=46)
	n (%)	n (%)	n (%)	n (%)	n (%)
Heath Anxiety (n=19)	5 (5.7)	5 (23.8)	9 (64.3)	2 (18.2)	16 (34.8)
Demoralization (n=23)	3 (3.4)	9 (42.8)	8 (57.1)	3 (27.3)	20 (43.5)
Alexithymia (n=31)	22 (25)	3 (14.2)	3 (21.4)	3 (27.3)	9 (19.5)
Irritable Mood (N=29)	11 (12.5)	7 (33.3)	8 (57.1)	3 (27.3)	18 (39.1)
Type A (n=13)	5 (5.7)	2 (9.5)	3 (21.4)	3 (27.3)	8 (17.4)
Persistent somatization (N=17)	6 (6.8)	5 (23.8)	5 (35.7)	1 (9)	11 (23.4)
Illness Denial (n=18)	8 (9)	3 (14.2)	5 (35.7)	3 (27.3)	11 (23.9)

* The distribution of ICD-10 diagnoses were not reported here if the number of patients meeting the criteria for some DCPR syndromes was too small (i.e. Functional somatic symptoms=7; Disease Phobia=4; Thanatophobia =1;Conversion symptoms=1; Anniversary reaction=1) (see Online supplemental Table 2 for details)

Online supplemental Table 1. Socio-demographic and clinical variables of the sample

Age	56.13 ±12
Education (in years)	11.5±4.52
Sex	
Males	90 (67.2%)
Females	44 (32.8%)
Marital Status	
Single	29 (22%)
Married	89 (88.7%)
Divorced	10 (7.5%9
Widowed	6 (4.4%)
Living situation	93 (69.9)
Family	22 (16.5%)
Parents	11 (8.3%)
Alone	6 (4.4%)
Other	
Occupation	42 (31.34%)
Employed	9 (7%)
Unemployed	57 (44.2%)
Retired	3 (2.3%)
Housewives	13 (9.4%)
Other	
Previous psychological disorders	
Yes	41 (30.6%)
No	93 (69.4%)
Blood test values	
Hemoglobin	12.4 ±1.53
Calcemia	2.57 ± 1.2
Phospohremia	3.27 ±0.65
Total Protein	6.6 ± 0.71
GFR-MDRD	53.2 ± 17.5
Albumin	58.1 ± 4.97
Parathormone	84.45 ± 51.14
BMI	24.5 ± 3.5
Systolic blood pressure	130.45 ± 13.9
Diastolic blood pressure	78.25 ± 7.93

Online supplemental Table 2. Ranking order of DCPR and ICD-0 diagnoses (%)

Rank DCPR (multiple diagnoses)	
No DCPR diagnosis = 49 (36.7%)	
DCPR diagnosis n=85 (63.4%)	
- 1 diagnosis= 43 (32%)	
- Multiple diagnoses ≥2 = 42 (31.3%)	
Cluster AIB	*42 (31.3)*
Health anxiety	19 (14.2)
Illness denial	18 (13.4)
Disease phobia	4 (3)
Thanatophobia	1 (0.7)
Cluster Irritability	*42 (31.3)*
Irritable mood	29 (21.6)
Type A behavior	13 (9.7)
Cluster Somatization	*26 (19,3)*
Persistent somatization	17 (12.7)
Functional somatic symptoms	7 (5.2)
Conversion symptoms	1 (0.7)
Anniversary reaction	1 (0.7)
Other Constructs	*54 (40.3)*
Demoralization	23 (17.2)
Alexithymia	31 (23.1)
Rank ICD diagnosis	
No ICD diagnosis	88 (65.7)
ICD-10 diagnosis	46 (34.3%)
- F43 Reaction to severe stress. and adjustment disorders	21 (15.7)
- F40-41 Anxiety disorders	14 (10.4)
- F32-34;38-39 Mood [affective] disorders	11 (8.2)

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