

## Supplemental material

### Table of Contents for the Supplemental Material

Page	
2	<b>Supplemental Table 1:</b> Characteristics of 590 participants in the European Quality (EQUAL) study on treatment of older people with advanced chronic kidney disease at start of dialysis.
3	<b>Supplemental Table 2:</b> The number (%) of patients who did or did not have a study visit of all included patients (n = 457) within each follow-up interval.
4	<b>Supplemental Table 3:</b> Characteristics of 457 participants in the European Quality (EQUAL) study on treatment of older people with advanced chronic kidney disease at start of dialysis, stratified by the number of SF-36 questionnaires completed.
5-6	<b>Supplemental Table 4:</b> Evolution of mental and physical HRQoL in the year before and after start of dialysis within subgroups, adjusted for potential confounders.
7	<b>Supplemental Table 5:</b> Median (IQR) HRQoL scores at start of dialysis or within 30 days before start of dialysis in those who filled an SF-36 at that time.
8	<b>Supplemental Table 6:</b> Evolution of mental and physical health-related quality of life (HRQoL) with restriction of follow-up to 1 year before and 0.5 year after start of dialysis in 449 older patients.
8	<b>Supplemental Table 7:</b> Evolution of mental and physical health-related quality of life (HRQoL) with extension of follow-up to 3 years before and 1 year after start of dialysis in 496 older patients.
9	<b>Supplemental Figure 1:</b> Flow diagram indicating the selection of EQUAL Study participants.
10	<b>Supplemental Figure 2:</b> Histograms indicating the number of completed SF-36 questionnaires per dialysis patient in total (left) or during the year before or after start of dialysis (right).
11	<b>Supplemental Figure 3:</b> Histogram indicating the number of completed and missing SF-36 questionnaires during the year before and after start of dialysis.
12	<b>Supplemental Figure 4:</b> Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with additional knots at 3 [left] and 1 [right] months before and after start of dialysis in 457 older patients.
13	<b>Supplemental Figure 5:</b> Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) in the year before and after start of dialysis in 457 older patients, with adjustments for age, sex, diabetes and cardiovascular disease in order to correct for HRQoL data missing at random explained by these variables.
14	<b>Supplemental Figure 6:</b> Linear change of mental (blue) and physical (green) health-related quality of life (HRQoL) in the year before and after start of dialysis in 457 older patients, including a discontinuous change at start of dialysis.
15	<b>Supplemental Figure 7:</b> Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with restriction of follow-up to 1 year before and 0.5 year after start of dialysis in 449 older patients.
16	<b>Supplemental Figure 8:</b> Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with extension of follow-up to 3 years before and 1 year after start of dialysis in 496 older patients.

**Supplemental Table 1.** Characteristics of 590 participants in the European Quality (EQUAL) study on treatment of older people with advanced chronic kidney disease at start of dialysis.

	<b>Included</b> <i>n</i> = 457	<b>Excluded</b> <i>n</i> = 133
<b>Demographics</b>		
Age (yr)	76 (6)	75 (6)
Men, <i>n</i> (%)	344 (75)	92 (69)
<b>Clinical characteristics</b>		
Primary kidney disease, <i>n</i> (%)		
Diabetes	111 (24)	36 (27)
Hypertension	124 (27)	37 (28)
Systemic / glomerular / tubulointerstitial	116 (25)	18 (14)
Other / unknown	106 (23)	40 (30)
Dialysis modality, <i>n</i> (%)		
Hemodialysis	315 (74)	75 (74)
Peritoneal dialysis	110 (26)	26 (26)
Diabetes, <i>n</i> (%)	199 (45)	65 (51)
Cardiovascular disease, <i>n</i> (%) <sup>a</sup>	200 (46)	53 (42)
Chronic lung disease, <i>n</i> (%)	53 (12)	21 (16)
Malignancy, <i>n</i> (%)	95 (22)	21 (17)
BMI (kg/m <sup>2</sup> )*	27 (6)	27 (3)
Systolic BP (mmHg)*	147 (24)	147 (24)
Diastolic BP (mmHg)*	74 (12)	74 (12)
<b>Blood chemistry*</b>		
Creatinine (mg/dL) <sup>c</sup>	6.6 (2.3)	6.3 (2.1)
eGFR (ml/min/1.73m <sup>2</sup> ) <sup>d</sup>	8 (3)	8 (3)
Urea nitrogen (mg/dL) <sup>e</sup>	92 (42)	109 (73)
Albumin (g/dL)	3.5 (0.6)	3.5 (0.8)
Cholesterol (mg/dL) <sup>f</sup>	158 (54)	143 (35)

Data are expressed as number (%) or mean ( $\pm$  standard deviation)

<sup>a</sup>Cardiovascular disease was defined as any history of a cerebral vascular accident, a myocardial infarction or peripheral vascular disease.

<sup>b</sup>Measured at start of dialysis or within 30 days before start of dialysis.

<sup>c</sup>To convert the values for creatinine to micromoles per liter, multiply by 88.40.

<sup>d</sup>eGFR, was estimated based on serum creatinine using the CKD-EPI formula

<sup>e</sup>To convert the values for urea nitrogen to millimoles per liter, multiply by 0.3571.

<sup>f</sup>To convert the values for cholesterol to millimoles per liter, multiply by 0.02586.

**Supplemental Table 2.** The number (%) of patients who did or did not have a study visit of all included patients (n = 457) within each follow-up interval.

Follow-up interval in months*	-12 to -9	-9 to -6	-6 to -3	-3 to 0	0 to +3	+3 to +6	+6 to +9	+9 to +12
<b>Study visit, n (%)</b>	185 (40)	196 (43)	238 (52)	332 (73)	375 (82)	235 (51)	157 (34)	180 (39)
SF-36 completed	161 (87)	171 (87)	187 (79)	256 (77)	238 (63)	159 (68)	98 (62)	121 (67)
SF-36 missing	24 (13)	25 (13)	51 (21)	76 (23)	137 (37)	76 (32)	59 (38)	59 (33)
<b>No study visit, n (%)**</b>	272 (60)	261 (57)	219 (48)	125 (27)	82 (18)	222 (49)	300 (66)	277 (61)
Started during later interval	147 (54)	100 (38)	61 (28)	2 (1)	-	-	-	-
Previous visit <6 months ago	125 (46)	159 (61)	156 (71)	122 (98)	80 (98)	216 (97)	282 (94)	176 (64)
Did not yet reach interval	-	-	-	-	-	0 (0)	0 (0)	2 (1)
Died before scheduled visit	-	-	-	-	-	0 (0)	2 (1)	33 (12)
Stopped before scheduled visit	-	-	-	-	-	0 (0)	1 (0)	26 (9)
Unexplained missing visit	0 (0)	2 (1)	2 (1)	1 (1)	2 (2)	6 (3)	15 (5)	40 (14)

\* Month 0 = start of dialysis

\*\* For those who did not have a study visit, the reason for missing this visit is given: 1) the patient only started the EQUAL study at a later follow-up interval within the year before dialysis initiation; 2) the patient already had a visit during the 6 months before this follow-up interval, thus a new visit was not yet necessary; 3) the patient did not yet reach the corresponding follow-up interval after dialysis initiation at time of the data extraction; 4) the patient died before reaching the corresponding follow-up interval, 5) the patient stopped the study for other reasons before reaching the corresponding follow-up interval, 6) it was unclear why the patient had no study visit within the corresponding follow-up interval. Since these categories are mutually exclusive, the number of patients who died before a scheduled visit in this table (n = 33) differs from the total number of deaths (n = 74) observed in the year after dialysis. Of all patients who died, 41 (55%) had a previous visit <6 months ago before the last follow-up interval and were thus reported in the second category.

SF-36: 36-item Short-Form Health Survey

**Supplemental Table 3.** Characteristics of 457 participants in the European Quality (EQUAL) study on treatment of older people with advanced chronic kidney disease at start of dialysis, stratified by the number of SF-36 questionnaires completed.

	<b>&lt;4 SF-36 completed</b> <i>n</i> = 252	<b>≥4 SF-36 completed</b> <i>n</i> = 205
<b>Demographics</b>		
Age (yr)	77 (7)	76 (6)
Men, <i>n</i> (%)	195 (77)	149 (73)
<b>Clinical characteristics</b>		
Primary kidney disease, <i>n</i> (%)		
Diabetes	61 (24)	50 (25)
Hypertension	67 (27)	57 (28)
Systemic / glomerular / tubulointerstitial	68 (27)	48 (23)
Other / unknown	56 (22)	50 (24)
Dialysis modality, <i>n</i> (%)		
Hemodialysis	176 (78)	139 (70)
Peritoneal dialysis	49 (22)	61 (30)
Charlson comorbidity score	7.2 (2.1)	6.6 (1.6)
Diabetes, <i>n</i> (%)	109 (44)	90 (45)
Cardiovascular disease, <i>n</i> (%) <sup>a</sup>	119 (50)	81 (41)
Chronic lung disease, <i>n</i> (%)	34 (14)	19 (9)
Malignancy, <i>n</i> (%)	62 (26)	33 (17)
BMI (kg/m <sup>2</sup> )*	27 (6)	27 (5)
Systolic BP (mmHg)*	147 (24)	148 (24)
Diastolic BP (mmHg)*	75 (12)	73 (12)
<b>Blood chemistry*</b>		
Creatinine (mg/dL)	6.5 (2.3)	6.9 (2.2)
eGFR (ml/min/1.73m <sup>2</sup> ) <sup>b</sup>	8 (3)	7 (3)
Urea nitrogen (mg/dL)	90 (45)	92 (39)
Albumin (g/dL) (mean (SD))	3.5 (0.7)	3.5 (0.5)
Cholesterol (mg/dL)	162 (58)	154 (54)

Data are expressed as number (%) or mean (± standard deviation)

<sup>a</sup>Cardiovascular disease was defined as any history of a cerebral vascular accident, a myocardial infarction or peripheral vascular disease.

<sup>b</sup>Measured at start of dialysis or within 30 days before start of dialysis.

<sup>c</sup>To convert the values for creatinine to micromoles per liter, multiply by 88.40.

<sup>d</sup>eGFR, was estimated based on serum creatinine using the CKD-EPI formula

<sup>e</sup>To convert the values for urea nitrogen to millimoles per liter, multiply by 0.3571.

<sup>f</sup>To convert the values for cholesterol to millimoles per liter, multiply by 0.02586.

**Supplemental Table 4.** Evolution of mental and physical HRQoL in the year before and after start of dialysis within subgroups, adjusted for potential confounders.

Subgroup analyses* [adjusted for]	MCS		PCS	
	change per year (95% CI)		change per year (95% CI)	
	Year before dialysis	Year after dialysis	Year before dialysis	Year after dialysis
<b>All 457 dialysis patients</b> [crude]	-13 (-17 to -9)	+2 (-7 to +4)	-11 (-15 to -7)	-2 (-11 to +7)
<b>Age</b>				
[crude]				
≥65 - <75 years, n = 204	-11 (-17 to -5)	+5 (-10 to +19)	-9 (-15 to -3)	-1 (-16 to +13)
≥75 years, n = 253	-14 (-20 to -9)	+0.0 (-13 to +13)	-12 (-17 to -7)	-1 (-13 to +11)
[sex]				
≥65 - <75 years	-11 (-17 to -5)	+5 (-10 to +19)	-9 (-15 to -3)	-1 (-16 to +13)
≥75 years	-14 (-20 to -9)	+0.1 (-13 to +13)	-12 (-17 to -7)	-1.0 (-13 to +11)
<b>Sex</b>				
[crude]				
male, n = 344	-14 (-18 to -9)	+2 (-9 to +12)	-11 (-15 to -7)	-3 (-13 to +7)
female, n = 113	-11 (-19 to -2)	+3 (-16 to +23)	-10 (-18 to -2)	+1 (-17 to +20)
<b>eGFR (CKD-EPI)</b>				
[crude]				
≥10 ml/min/1.73m <sup>2</sup> , n = 169	-16 (-23 to -10)	+2 (-14 to +19)	-12 (-18 to -6)	-4 (-19 to +11)
<10 ml/min/1.73m <sup>2</sup> , n = 176	-11 (-17 to -6)	+4 (-10 to +18)	-11 (-16 to -6)	-0.6 (-13 to +12)
[age + sex]				
≥10 ml/min/1.73m <sup>2</sup>	-16 (-23 to -10)	+3 (-13 to +19)	-12 (-18 to -6)	-3 (-18 to +11)
<10 ml/min/1.73m <sup>2</sup>	-11 (-17 to -5)	+4 (-10 to +18)	-11 (-16 to -5)	-0.2 (-13 to +13)
[age + sex + smoking + CVD + DM]				
≥10 ml/min/1.73m <sup>2</sup>	-15 (-21 to -8)	+6 (-11 to +23)	-12 (-18 to -5)	-2 (-18 to +14)
<10 ml/min/1.73m <sup>2</sup>	-12 (-17 to -6)	+4 (-10 to +18)	-11 (-16 to -6)	-0.3 (-13 to +13)
<b>Smoking status</b>				
[crude]				
never smoker, n = 140	-8 (-15 to -0.2)	+2 (-16 to +20)	-11 (-19 to -3)	-3 (-21 to +15)
ex smoker, n = 233	-14 (-20 to -8)	+2 (-11 to +15)	-8 (-13 to -3)	-3 (-15 to +9)
current smoker, n = 41	-28 (-40 to -16)	+5 (-26 to +36)	-22 (-33 to -12)	+0.1 (-26 to +27)
[age + sex]				
never smoker	-7 (-15 to +0.0)	+2 (-16 to +20)	-10 (-18 to -2)	-3 (-21 to +16)
ex smoker	-13 (-19 to -8)	+3 (-10 to +16)	-8 (-13 to -3)	-3 (-15 to +9)
current smoker	-28 (-40 to -16)	+5 (-27 to +36)	-22 (-33 to -12)	+0.6 (-26 to +27)
[age + sex + DM]				
never smoker	-7 (-14 to +0.9)	+2 (-16 to +20)	-10 (-17 to -2)	-2 (-21 to +16)
ex smoker	-13 (-19 to -8)	+3 (-10 to +16)	-8 (-13 to -3)	-3 (-15 to +9)
current smoker	-28 (-40 to -16)	+5 (-26 to +36)	-23 (-33 to -12)	+0.3 (-26 to +27)

<b>History of diabetes</b>				
<i>[crude]</i>				
yes, n = 200	-15 (-21 to -8)	-0.9 (-16 to +14)	-9 (-14 to -3)	-5 (-18 to +9)
no, n = 248	-11 (-16 to -7)	+6 (-6 to +17)	-13 (-18 to -8)	+0.6 (-11 to +12)
<i>[age + sex]</i>				
yes	-14 (-21 to -8)	-0.8 (-16 to +14)	-8 (-14 to -2)	-4 (-10 to +9)
no	-11 (-16 to -6)	+6 (-6 to +18)	-13 (-18 to -8)	+1 (-11 to +13)
<i>[age + sex + smoking]</i>				
yes	-14 (-21 to -8)	-0.8 (-16 to +14)	-8 (-14 to -2)	-4 (-18 to +9)
no	-12 (-17 to -7)	+6 (-6 to +18)	-13 (-18 to -8)	+2 (-10 to +14)
<b>History of cardiovascular disease**</b>				
<i>[crude]</i>				
yes, n = 201	-14 (-20 to -8)	-3 (-18 to +12)	-9 (-15 to -3)	-4 (-18 to +10)
no, n = 237	-12 (-17 to -8)	+7 (-6 to +19)	-13 (-18 to -8)	+2 (-10 to +14)
<i>[age + sex]</i>				
yes	-14 (-20 to -8)	-3 (-18 to +12)	-9 (-15 to -3)	-4 (-18 to +10)
no	-11 (-16 to -6)	+7 (-5 to +19)	-13 (-18 to -8)	+2 (-10 to +14)
<i>[age + sex + smoking + DM]</i>				
yes	-14 (-21 to -8)	-3 (-18 to +13)	-9 (-15 to -4)	-4 (-18 to +10)
no	-11 (-16 to -6)	+7 (-6 to +19)	-13 (-18 to -7)	+2 (-10 to +14)
<b>Charlson comorbidity index</b>				
<i>[crude]</i>				
<7, n = 216	-14 (-19 to -8)	+5 (-8 to +18)	-15 (-20 to -9)	+0.8 (-12 to +13)
≥7, n = 232	-13 (-18 to -7)	-0.1 (-14 to +14)	-8 (-13 to -3)	-4 (-17 to +8)
<i>[age + sex]</i>				
<7	-13 (-19 to -8)	+5 (-8 to +18)	-14 (-19 to -9)	+0.6 (-12 to +13)
≥7	-13 (-18 to -7)	-0.1 (-14 to +14)	-8 (-13 to -3)	-4 (-17 to +9)
<i>[age + sex + smoking]</i>				
<7	-14 (-19 to -9)	+5 (-8 to +18)	-15 (-20 to -9)	+1 (-12 to +14)
≥7	-12 (-18 to -7)	-0.2 (-14 to +14)	-8 (-13 to -2)	-5 (-17 to +8)
<b>Dialysis modality</b>				
<i>[crude]</i>				
hemodialysis, n = 325	-14 (-19 to -9)	+3 (-9 to +14)	-10 (-15 to -5)	-0.7 (-12 to +10)
peritoneal dialysis, n = 100	-13 (-20 to -7)	-0.2 (-17 to +16)	-15 (-21 to -8)	-7 (-23 to +10)
<i>[age + sex]</i>				
hemodialysis	-14 (-19 to -9)	+3 (-9 to +14)	-10 (-15 to -5)	-0.4 (-11 to +10)
peritoneal dialysis	-13 (-20 to -6)	-0.2 (-16 to +17)	-14 (-21 to -7)	-6 (-23 to +11)
<i>[age + sex + smoking + DM + CVD]</i>				
hemodialysis	-13 (-18 to -8)	+4 (-9 to +16)	-10 (-15 to -6)	-0.8 (-10 to +12)
peritoneal dialysis	-13 (-20 to -7)	+0.9 (-15 to +18)	-15 (-22 to -8)	-5 (-22 to +12)

\*Subgroup status determined at start of dialysis

\*\*Defined as a history of cerebrovascular disease, myocardial infarction or peripheral vascular disease

**Supplemental Table 5.** Median (IQR) HRQoL scores at start of dialysis or within 30 days before start of dialysis in those who filled an SF-36 at that time.

Subgroup	HRQoL at or within 30 days before start of dialysis	
	Median MCS (IQR)	Median PCS (IQR)
<b>Total with SF-36 available, <i>n</i> = 199*</b>	53 (38-73)	39 (27-58)
<b>Age</b>		
≥65 - <75 years, <i>n</i> = 85	56 (41-74)	38 (28-59)
≥75 years, <i>n</i> = 114	51 (37-72)	40 (27-55)
<b>Sex</b>		
men, <i>n</i> = 157	54 (40-74)	42 (29-64)
women, <i>n</i> = 42	45 (34-61)	29 (23-37)
<b>eGFR (CKD-EPI)</b>		
≥10 ml/min/1.73m <sup>2</sup> , <i>n</i> = 106	51 (34-75)	40 (28-57)
<10 ml/min/1.73m <sup>2</sup> , <i>n</i> = 83	59 (43-72)	40 (26-57)
<b>Smoking status</b>		
never smoker, <i>n</i> = 57	58 (41-75)	38 (29-56)
ex smoker, <i>n</i> = 102	49 (34-71)	42 (28-65)
current smoker, <i>n</i> = 21	46 (38-66)	41 (35-50)
<b>History of diabetes</b>		
yes, <i>n</i> = 88	55 (38-73)	37 (27-57)
no, <i>n</i> = 107	51 (38-73)	41 (28-57)
<b>History of cardiovascular disease**</b>		
yes, <i>n</i> = 88	55 (37-71)	38 (29-57)
no, <i>n</i> = 104	51 (38-73)	40 (24-56)
<b>Charlson comorbidity index</b>		
<7, <i>n</i> = 97	54 (41-76)	42 (29-69)
≥7, <i>n</i> = 98	51 (34-69)	38 (24-54)
<b>Dialysis modality</b>		
hemodialysis, <i>n</i> = 140	50 (35-69)	38 (27-54)
peritoneal dialysis, <i>n</i> = 53	54 (43-78)	43 (28-70)

\*Since not all patients completed an SF-36 questionnaire at start of dialysis or within 30 days before start of dialysis, this information was only available for 199 (44%) of the 457 included patients.

\*\*Defined as a history of cerebrovascular disease, myocardial infarction or peripheral vascular disease.

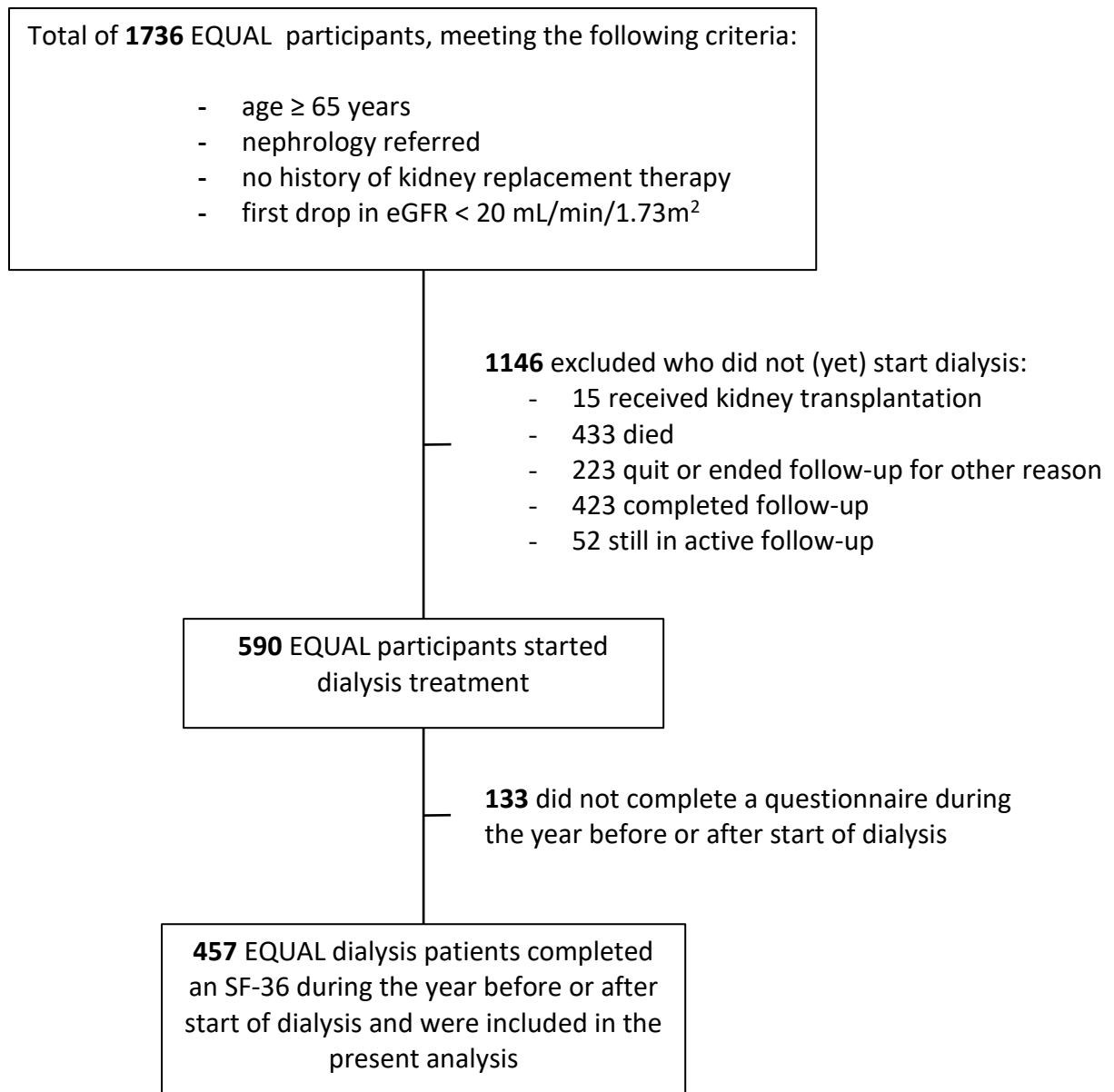
**Supplemental Table 6.** Evolution of mental and physical health-related quality of life (HRQoL) with restriction of follow-up to 1 year before and 0.5 year after start of dialysis in 449 older patients.

	<b>Mental HRQoL change (95% CI)</b>	<b>Physical HRQoL change (95% CI)</b>
1 year before start of dialysis	-13 (-17 to -9)	-11 (-15 to -7)
0.5 year after start of dialysis	+11 (+3 to +19)	+6 (-8 to +20)

**Supplemental Table 7.** Evolution of mental and physical health-related quality of life (HRQoL) with extension of follow-up to 3 years before and 1 year after start of dialysis in 496 older patients.

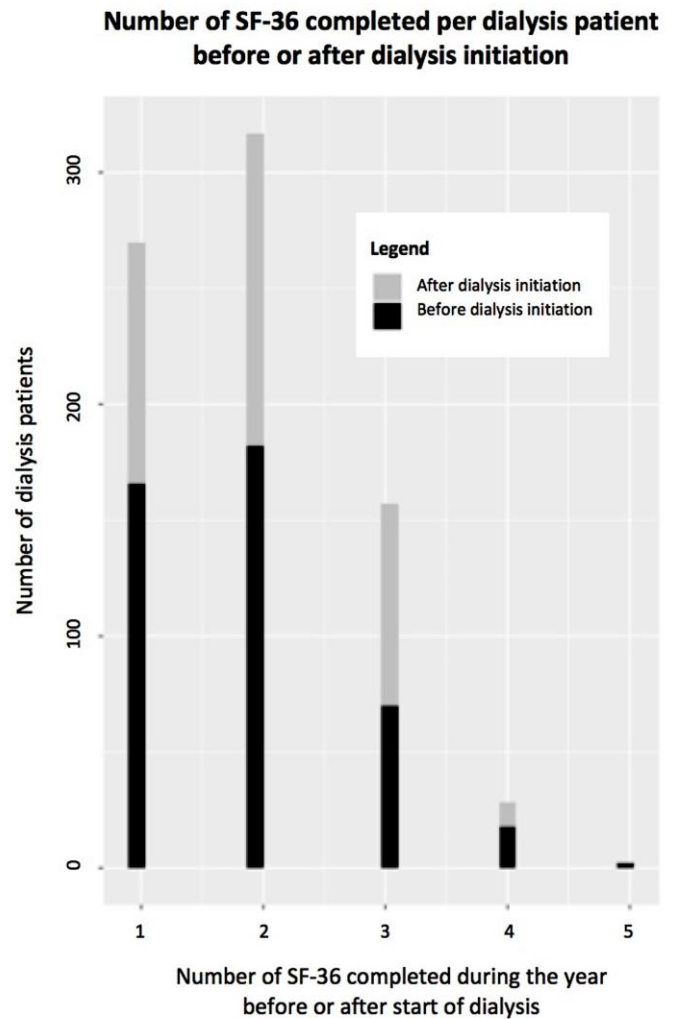
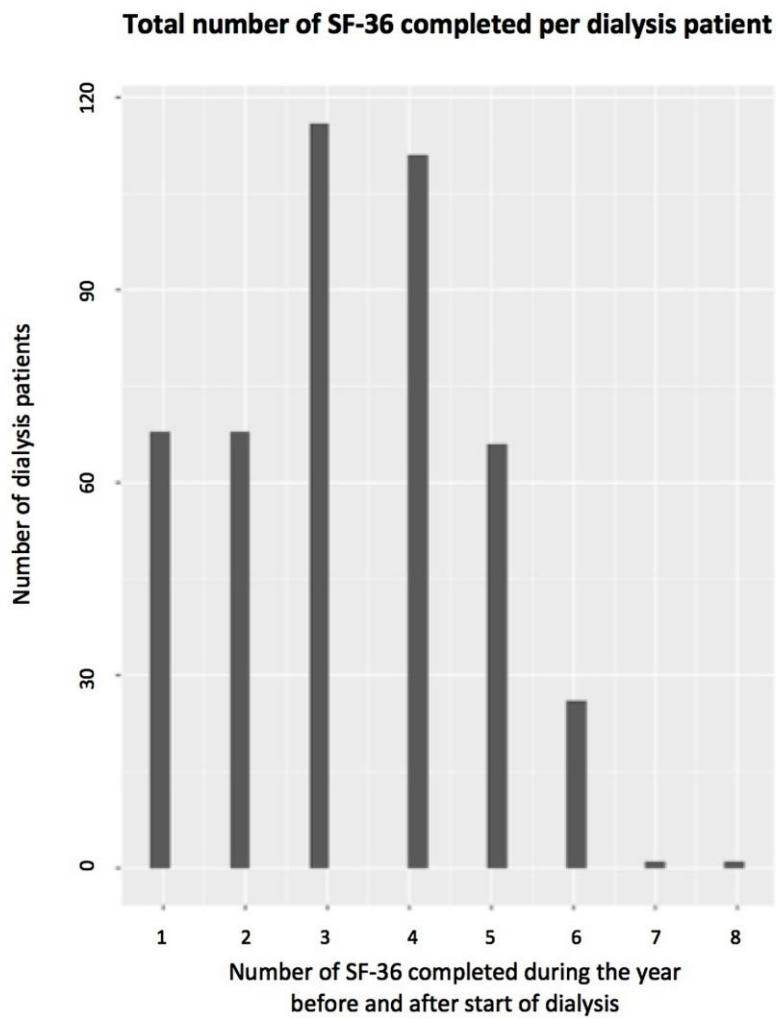
	<b>Mental HRQoL change (95% CI)</b>	<b>Physical HRQoL change (95% CI)</b>
3 years before start of dialysis	-20 (-23 to -16)	-19 (-23 to -15)
1 year after start of dialysis	+2 (-2 to +6)	-3 (-7 to +2)





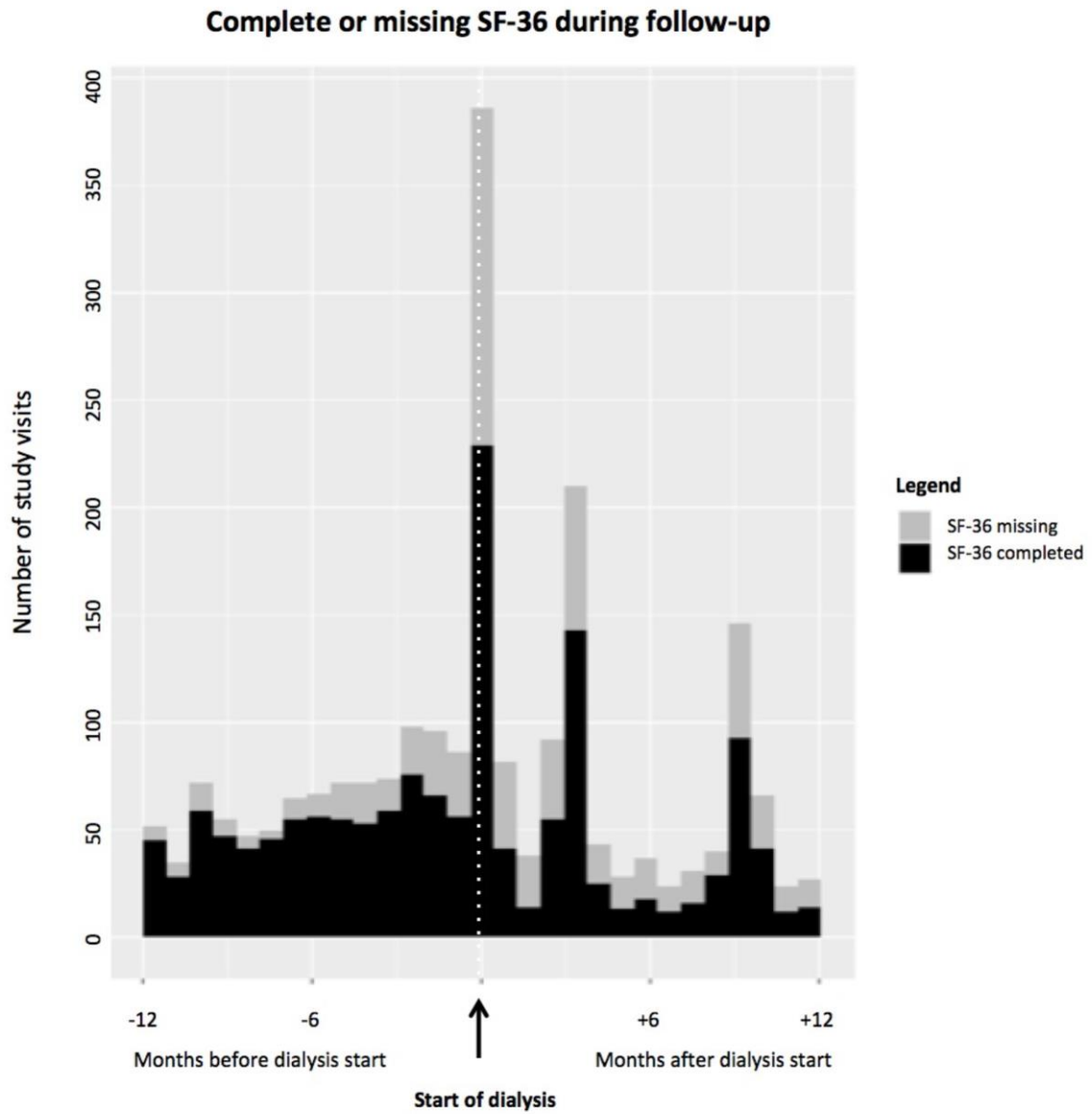
**Supplemental Figure 1.** Flow diagram indicating the selection of EQUAL Study participants.

eGFR: estimated glomerular filtration rate, SF-36: 36-item Short-Form Health Survey



**Supplemental Figure 2.** Histograms indicating the number of completed SF-36 questionnaires per dialysis patient in total (left) or during the year before or after start of dialysis (right).

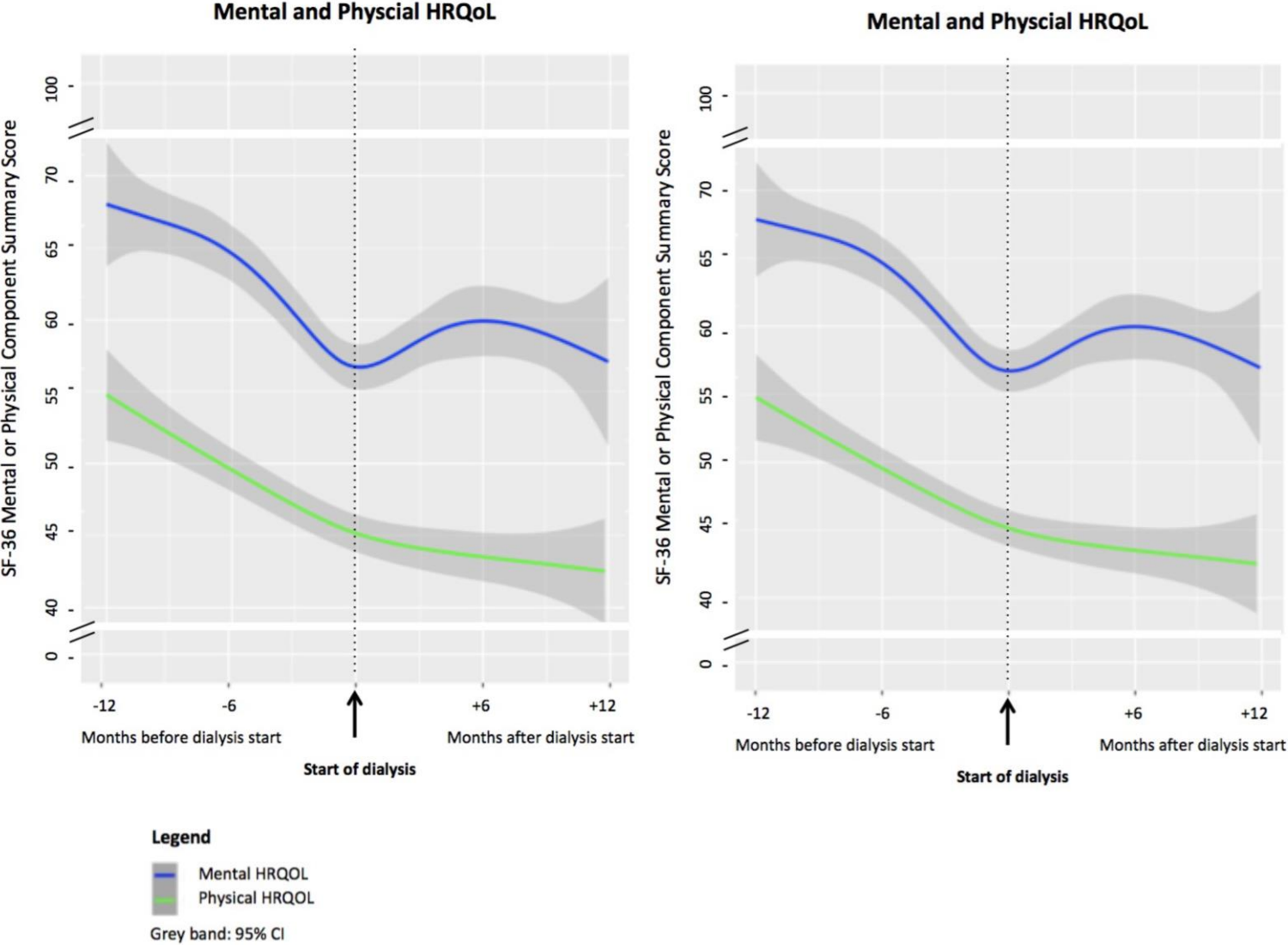
SF-36: 36-item Short-Form Health Survey



**Supplemental Figure 3.** Histogram indicating the number of completed and missing SF-36 questionnaires during the year before and after start of dialysis.

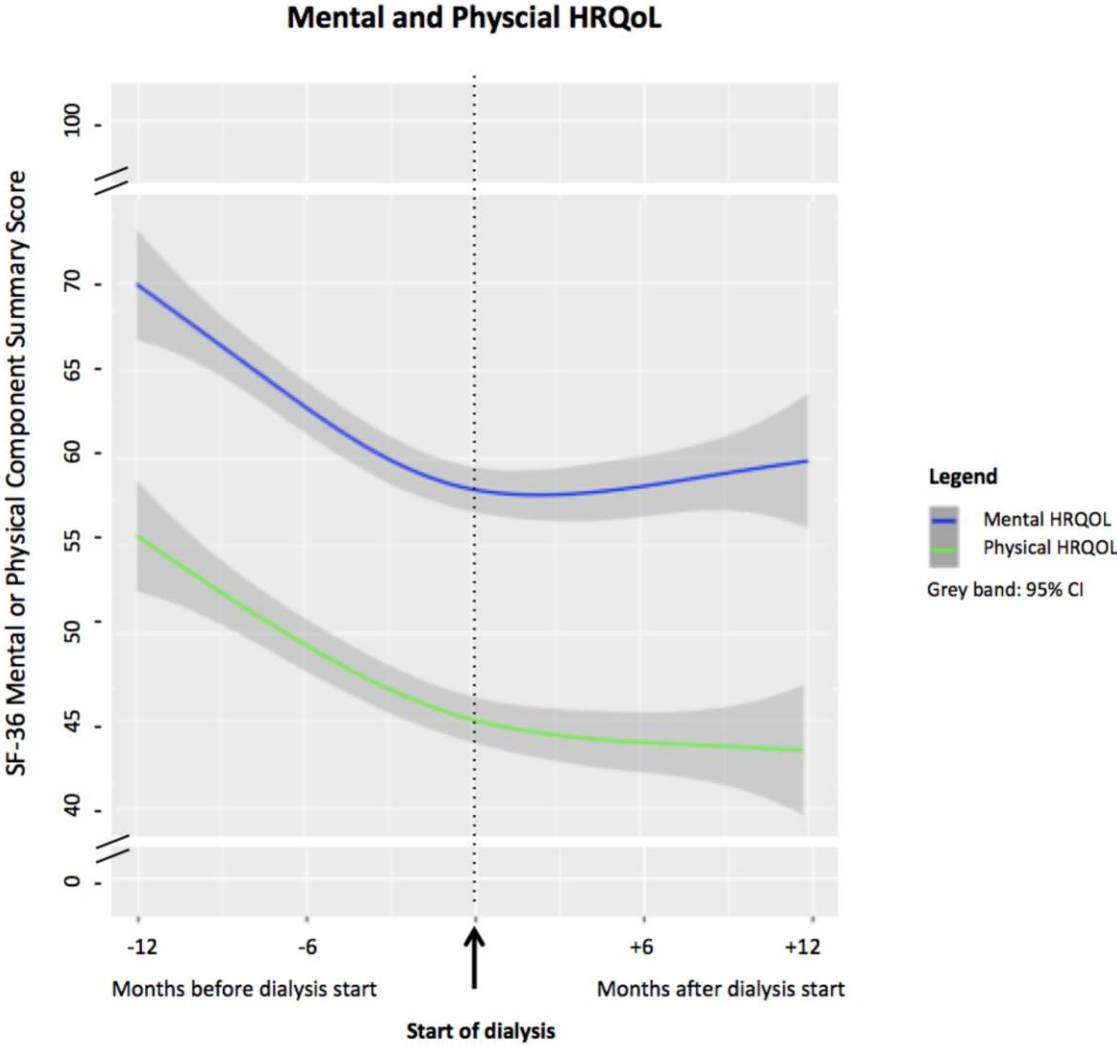
SF-36: 36-item Short-Form Health Survey

**Supplemental Figure 4.** Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with additional knots at 3 [left] and 1 [right] months before and after start of dialysis in 457 older patients.



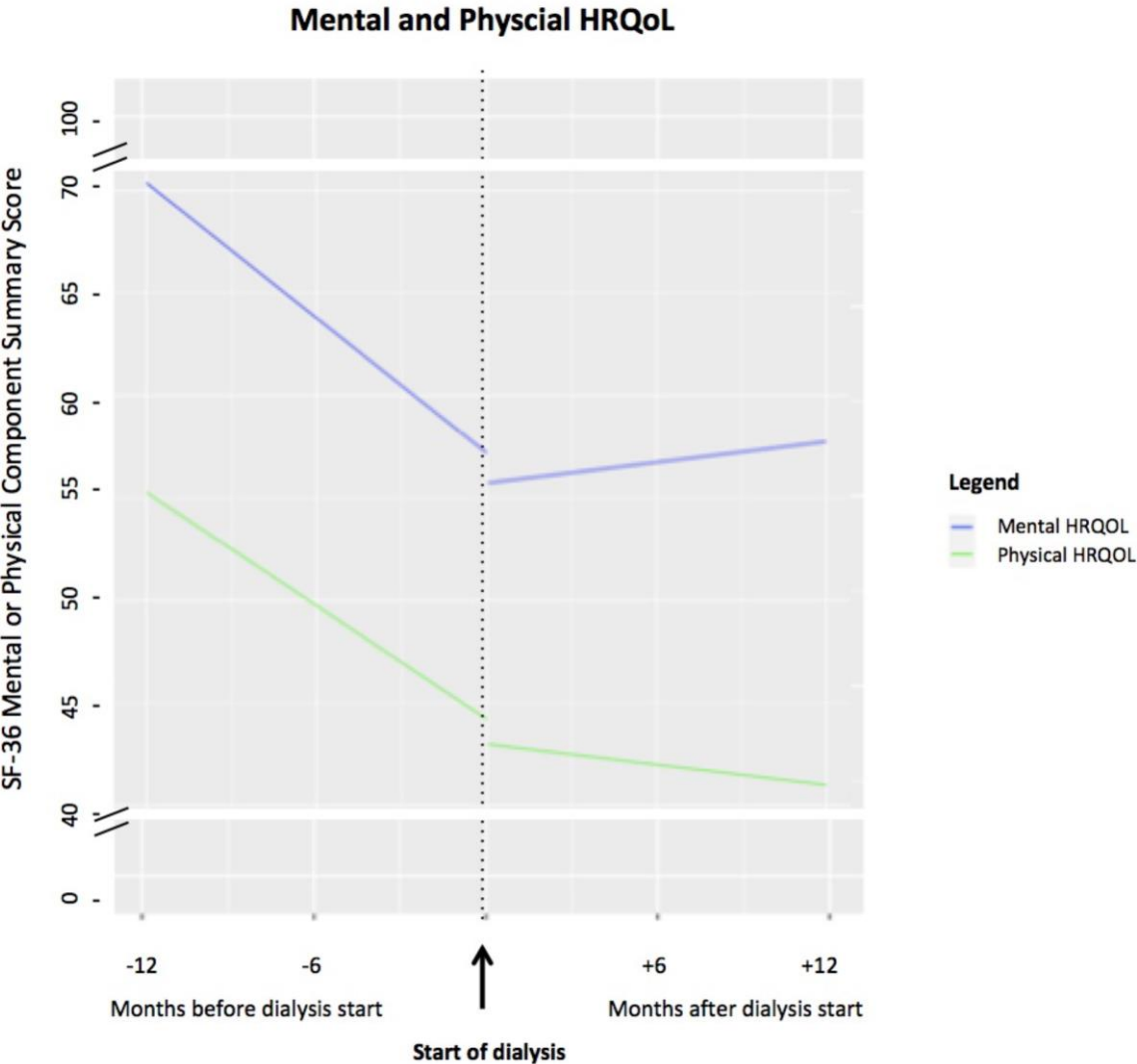
HRQoL: health-related quality of life, SF-36: 36-item Short-Form Health Survey

**Supplemental Figure 5.** Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) in the year before and after start of dialysis in 457 older patients, with adjustments for age, sex, diabetes and cardiovascular disease in order to correct for HRQoL data missing at random explained by these variables.



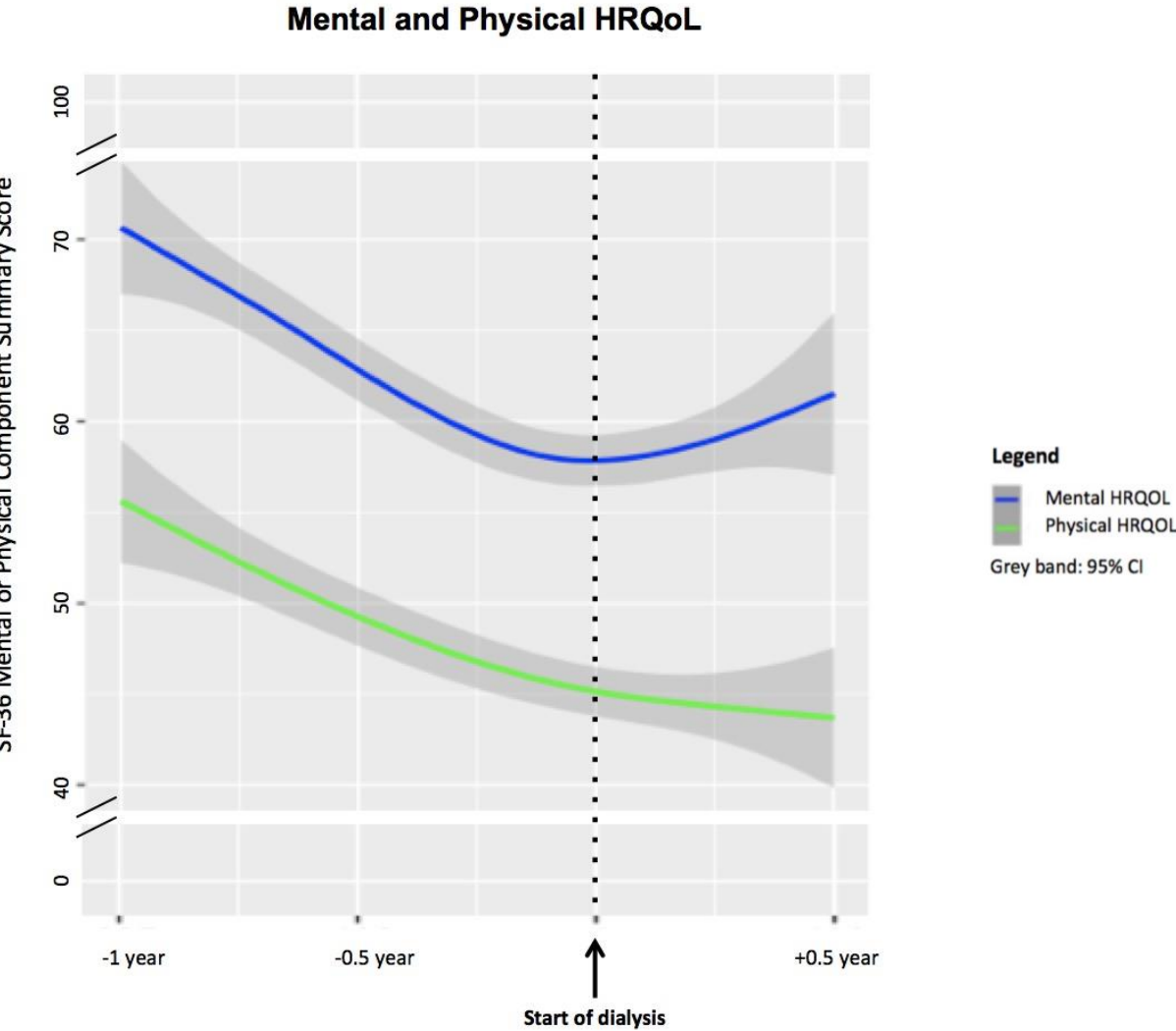
HRQoL: health-related quality of life, SF-36: 36-item Short-Form Health Survey

**Supplemental Figure 6.** Linear change of mental (blue) and physical (green) health-related quality of life (HRQoL) in the year before and after start of dialysis in 457 older patients, including a discontinuous change at start of dialysis.



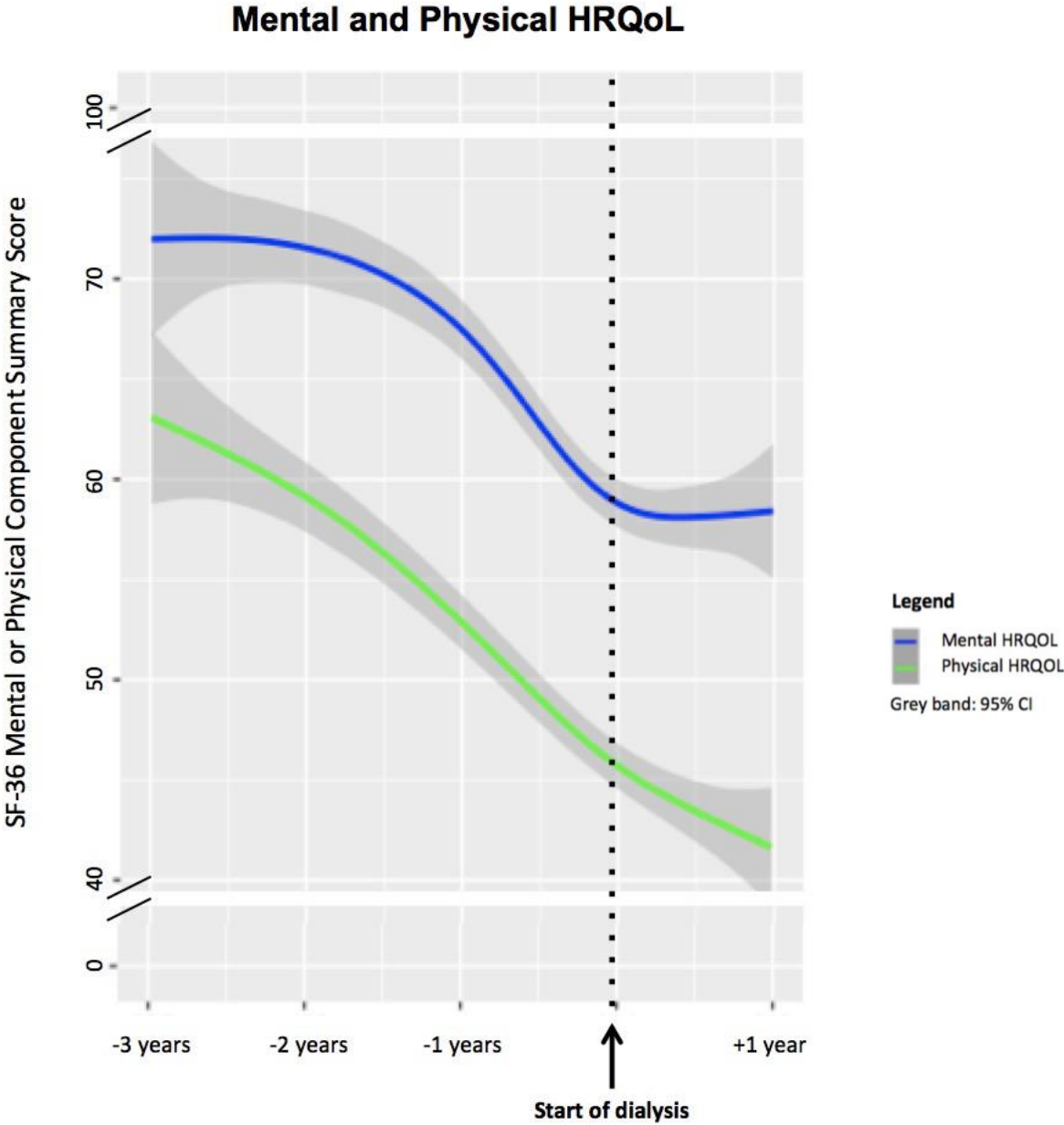
HRQoL: health-related quality of life, SF-36: 36-item Short-Form Health Survey

**Supplemental Figure 7.** Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with restriction of follow-up to 1 year before and 0.5 year after start of dialysis in 449 older patients.



HRQoL: health-related quality of life, SF-36: 36-item Short-Form Health Survey

**Supplemental Figure 8.** Evolution of mental (blue) and physical (green) health-related quality of life (HRQoL) with extension of follow-up to 3 years before and 1 year after start of dialysis in 496 older patients.



HRQoL: health-related quality of life, SF-36: 36-item Short-Form Health Survey