

SUPPLEMENTAL MATERIAL

Table of contents.

Supplemental	Title
Supplemental Table 1	Characteristics of participants who filled in the questionnaire and participants who did not fill in the questionnaires.
Supplemental Table 2	Increasing retirement age in The Netherlands.
Supplemental Table 3	Work-specific characteristics of kidney transplant recipients, potential kidney donors and community-dwelling employed adults.
Supplemental Table 4	Characteristics of kidney transplant recipients and potential kidney donors per employment status.
Supplemental Table 5	Characteristics of employed kidney transplant recipients of whom a WRFQ total score was available for primary analyses, of whom the WRFQ total score was set at missing because participants answered 'not applicable to my job' to >20% of the questions and without a WRFQ total score because of missing data.
Supplemental Table 6	Results per question of the Work Role Functioning Questionnaire 2.0 of 362 kidney transplant recipients.
Supplemental Table 7	Results for sub scores and total scores of the Work Role Functioning Questionnaire 2.0 in kidney transplant recipients, potential kidney donors and community-dwelling adults.
Supplemental Table 8	Characteristics of employed kidney transplant recipients of whom pre-transplantation work functioning data were available and of whom pre-transplant work functioning data were not available.
Supplemental Table 9	Characteristics and work functioning of kidney transplant recipients 12 and 24 months after transplantation.
Supplemental Table 10	Associations with work functioning of employed kidney transplant recipients including work functioning total scores of participants who answered 'not applicable to my job' to >20% of the questions.

Supplemental Table 1. Characteristics of participants who filled in the questionnaire and participants who did not fill in the questionnaires.

	Participants who filled in the questionnaires	Participants who did not fill in the questionnaires	P
Kidney Transplant recipients, <i>n</i> (%)	930 (81)	225 (19)	n/a
Male sex, <i>n</i> (%)	564 (61)	137 (61)	0.9
Age, years	56 ± 13	55 ± 15	0.4
Body mass index, kg/m ²	27.3 ± 4.7	27.5 ± 5.0	0.6
Time after transplantation, years	3 [2 to 10]	2 [1 to 7]	0.011
Pre-emptive transplantation, <i>n</i> (%)	338 (36)	65 (29)	0.035
Living donor, <i>n</i> (%)	520 (57)	91 (44)	<0.001
eGFR, mL/min/1.73m ²	51 ± 18	50 ± 19	0.4
Potential kidney donors, <i>n</i> (%)	327 (81)	79 (19)	n/a
Male sex, <i>n</i> (%)	145 (44)	42 (53)	0.2
Age, years	57 ± 11	54 ± 13	0.05
Body mass index, kg/m ²	26.5 ± 3.5	26.1 ± 3.5	0.4
eGFR, mL/min/1.73m ²	85 ± 13	87 ± 16	0.2

Data are presented as number (valid %). Variables had no missing values or <5% was missing. Significance of differences between groups were assessed using independent samples T-tests, Mann-Whitney U tests and Chi Square test depending on data distribution.

Supplemental Table 2. Increasing retirement age in The Netherlands.

Birth date¹	Retirement age
≤09-30-1950	65 year
>09-30-1950	65 year and 6 months
>06-30-1951	65 years and 9 months
>03-31-1952	66 years
>12-31-1952	66 years and 4 months

¹: Birth date is presented as month-day-year. Reference: Tax and Customs Administration of The Netherlands.

Supplemental Table 3. Work-specific characteristics of kidney transplant recipients, potential kidney donors and community-dwelling employed adults.

Work specific characteristics	Kidney transplant recipients N=668	Potential kidney donors N=246	Community-dwelling employed adults N=553
Employed, <i>n</i> (%)	373 (56)	195 (79)	553 (100)
Contract type, <i>n</i> (%)			
Temporary contract	21 (6)	15 (8)	31 (11)
Permanent contract	267 (72)	144 (74)	237 (86)
Other	84 (23)	36 (18)	7 (3)
Working hours per week, <i>n</i> (%)			
>32 hours	210 (58)	118 (61)	476 (87)
20 to 32 hours	87 (24)	53 (27)	58 (11)
12 to 20 hours	35 (10)	15 (8)	9 (2)
<12 hours	31 (9)	7 (4)	4 (0.7)
Working tasks ¹ , <i>n</i> (%)			
Mentally demanding tasks	162 (44)	68 (35)	156 (37)
Physically demanding tasks	91 (25)	49 (25)	257 (62)
Both	116 (31)	78 (40)	5 (1)
Sickness absence ² , <i>n</i> (%)			
0% of contract hours	13 (44)	5 (63)	-
0 to 50% of contract hours	9 (31)	1 (13)	-
>50% of contract hours	7 (24)	2 (25)	-
Disability pension ² , <i>n</i> (%)	62 (17)	1 (0.5)	-
Unemployed	295 (44)	51 (21)	n/a
Disability pension, <i>n</i> (%)	209 (71)	8 (16)	n/a

¹: working tasks were self-reported by kidney transplant recipients and potential kidney donors, and scored by an investigator based on job description for community-dwelling employed adults. ²: data were not assessed among community-dwelling employed adults. Data are presented as number (valid %). Data regarding disability pension were missing in 41 (8%) kidney transplant recipients, and data regarding contract type, working hours per week and working tasks were missing in 278 (50%), 6 (1%) and 135 (24%) community-dwelling employed adults. Other variables had no missing values or <4% was missing.

Supplemental Table 4. Characteristics of kidney transplant recipients and potential kidney donors per employment status.

	Unemployed	Employed
Kidney Transplant recipients, <i>n</i> (%)	295 (44)	373 (56)
Male sex, <i>n</i> (%)	150 (51)	241 (65)
Age, years	54 ± 10	48 ± 11
Body mass index, kg/m ²	28 ± 6	27 ± 4
Educational level, <i>n</i> (%)		
Low	132 (46)	92 (25)
Moderate	99 (34)	165 (45)
High	58 (20)	110 (30)
Time after transplantation, years	3 [2 to 9]	3 [2 to 11]
Pre-emptive transplantation, <i>n</i> (%)	92 (31)	162 (43)
Living donor, <i>n</i> (%)	148 (50)	258 (69)
eGFR, mL/min/1.73m ²	51 ± 20	54 ± 17
Potential kidney donors, <i>n</i> (%)	51 (21)	195 (79)
Male sex, <i>n</i> (%)	19 (37)	86 (44)
Age, years	57 ± 8	51 ± 8
Body mass index, kg/m ²	27 ± 4	26 ± 4
Educational level, <i>n</i> (%)		
Low	24 (47)	54 (28)
Moderate	16 (31)	78 (40)
High	11 (22)	63 (32)
eGFR, mL/min/1.73m ²	83 ± 12	88 ± 14

Normally distributed data are presented as means ± standard deviation (SD), non-normally distributed data as median [interquartile range], and categorical data as number (valid %). Data regarding education level were missing in 11 kidney transplant recipients, respectively. No data regarding Abbreviations: eGFR, estimated glomerular filtration rate.

Supplemental Table 5. Characteristics of employed kidney transplant recipients of which a WRFQ total score was available for primary analyses, of which the WRFQ total score was set at missing because participants answered ‘not applicable to my job’ to >20% of the questions and without a WRFQ total score because of missing data.

	Employed kidney transplant recipients		
	With a WRFQ total score N=316	Without a WRFQ total score because participants answered to >20% of the questions “not applicable to my job” N=46	Without a WRFQ total score because of missing data N=11
Baseline variables			
Male sex, <i>n</i> (%)	206 (65)	26 (57)	9 (82)
Age, years	48 ± 10	49 ± 12	53 ± 7
Body mass index, kg/m ²	26.9 ± 4.4	26.9 ± 4.2	26.0 ± 2.4
Time after transplantation, years	3 [2 to 11]	4 [2 to 9]	2 [2 to 12]
Pre-emptive transplantation, <i>n</i> (%)	132 (42)	27 (59)	3 (27)
Living donor, <i>n</i> (%)	220 (70)	32 (70)	6 (55)
eGFR, mL/min/1.73m ²	54 ± 17	54 ± 16	49 ± 27

Normally distributed data are presented as means ± standard deviation, non-normally distributed data as median [interquartile range], and categorical data as number (valid %).

Supplemental Table 6. Results per question of the Work Role Functioning Questionnaire 2.0 of 362 kidney transplant recipients.

In the past four weeks, I found it difficult to...	Sub scale	'not applicable to my job (%)'	Kidney transplant recipients					Mean
			Response, n (valid %) ¹					
			0	1	2	3	4	
get going easily at the beginning of the work day	WSD	18 (5)	20 (6)	31 (9)	24 (7)	81 (24)	188 (55)	3.12
start on your job as soon as you arrived at work	WSD	19 (5)	48 (14)	26 (8)	8 (2)	34 (10)	227 (66)	3.07
go your work without stopping to take extra breaks or rest	WSD	27 (7)	22 (7)	47 (14)	19 (6)	65 (19)	182 (54)	3.01
stick to a routine or schedule	WSD	28 (8)	31 (9)	30 (9)	17 (5)	44 (13)	212 (64)	3.13
work fast enough	OD	26 (7)	30 (9)	38 (11)	22 (7)	55 (16)	191 (57)	3.01
finish work on time	OD	33 (9)	18 (6)	24 (7)	15 (5)	61 (19)	211 (64)	3.29
do your work without making mistakes	OD	19 (5)	18 (5)	24 (7)	7 (2)	73 (21)	221 (64)	3.33
satisfy the people who judge your work	OD	46 (13)	25 (8)	30 (10)	7 (2)	37 (12)	217 (69)	3.24
feel a sense of accomplishment in your work	OD	12 (3)	43 (12)	46 (13)	28 (8)	57 (16)	176 (50)	2.79
feel you have done what you are capable of doing	OD	14 (4)	55 (16)	55 (16)	16 (5)	42 (12)	180 (52)	2.68
lift, carry, or move objects at work weighing more than 10 pounds	PD	103 (28)	8 (3)	13 (5)	10 (4)	29 (15)	189 (73)	3.38
sit, stand, or stay in one position for longer than 15 min while working	PD	25 (10)	9 (3)	16 (5)	17 (5)	40 (12)	245 (75)	3.52
repeat the same motion over and over again while working	PD	86 (24)	2 (0.7)	13 (5)	16 (6)	45 (16)	200 (73)	3.55
bend, twist, or reach while working	PD	59 (16)	2 (0.7)	15 (5)	15 (5)	44 (15)	227 (75)	3.58
use hand-held tools or equipment	PD	42 (12)	5 (2)	7 (2)	7 (2)	18 (6)	283 (88)	3.77
keep your mind on your work	MSD	6 (2)	13 (4)	23 (7)	9 (3)	93 (26)	218 (61)	3.35
do work carefully	MSD	4 (1)	18 (5)	23 (6)	5 (1)	66 (18)	246 (69)	3.39
concentrate on your work	MSD	8 (2)	12 (3)	18 (5)	14 (4)	100 (28)	210 (59)	3.35
work without losing your train or thought	MSD	10 (3)	11 (3)	18 (5)	13 (4)	97 (28)	213 (61)	3.37
easily read or use your eyes when working	MSD	26 (7)	7 (2)	27 (8)	13 (4)	87 (26)	202 (60)	3.34
speak with people in-person, in meetings or on the phone	MSD	28 (8)	8 (2)	15 (5)	9 (3)	52 (16)	250 (75)	3.56
control your temper around people when working	MSD	23 (6)	15 (4)	13 (3)	8 (2)	39 (12)	264 (88)	3.55
set priorities in my work	FD	21 (6)	8 (2)	18 (5)	12 (4)	66 (19)	237 (70)	3.48
handle changes in my work	FD	23 (6)	6 (2)	16 (5)	13 (4)	69 (20)	235 (69)	3.51
process incoming information, for example e-mails, in time	FD	62 (17)	5 (2)	11 (4)	10 (3)	60 (20)	214 (71)	3.56
perform multiple tasks at the same time	FD	32 (9)	5 (2)	21 (6)	19 (6)	82 (25)	203 (62)	3.38
be proactive, show initiative in my work	FD	13 (4)	16 (5)	12 (3)	14 (4)	30 (9)	277 (79)	3.55

¹: 0=difficult all the time, 1=difficult most of the time, 2=difficult half of the time, 3=difficult some of the time, 4=difficult none of the time.

Supplemental Table 7. Results for sub scores and total scores of the Work Role Functioning Questionnaire 2.0 in kidney transplant recipients, potential kidney donors and community-dwelling adults.

Work role functioning questionnaire	Mean \pm SD	Median [IQR]	N (%)
Kidney transplant recipients			
Work scheduling demands	78 \pm 29	94 [63 to 100]	n/a
Output demands	76 \pm 28	88 [63 to 100]	n/a
Physical demands	90 \pm 18	100 [88 to 100]	n/a
Mental and social demands	86 \pm 22	96 [82 to 100]	n/a
Flexibility demands	88 \pm 20	95 [85 to 100]	n/a
Total score	84 \pm 19	91 [76 to 98]	n/a
Low work functioning, <i>n</i> (%)	n/a	n/a	75 (24)
Medium work functioning, <i>n</i> (%)	n/a	n/a	74 (23)
High work functioning, <i>n</i> (%)	n/a	n/a	168 (53)
Potential kidney donors			
Work scheduling demands	85 \pm 25	94 [81 to 100]	n/a
Output demands	83 \pm 23	94 [71 to 100]	n/a
Physical demands	94 \pm 16	100 [95 to 100]	n/a
Mental and social demands	91 \pm 17	100 [89 to 100]	n/a
Flexibility demands	91 \pm 16	95 [90 to 100]	n/a
Total score	89 \pm 15	94 [85 to 99]	n/a
Low work functioning, <i>n</i> (%)	n/a	n/a	20 (12)
Medium work functioning, <i>n</i> (%)	n/a	n/a	37 (22)
High work functioning, <i>n</i> (%)	n/a	n/a	113 (66)
Community-dwelling employed adults			
Work scheduling demands	83 \pm 22	94 [75 to 100]	n/a
Output demands	81 \pm 21	88 [75 to 96]	n/a
Physical demands	87 \pm 20	95 [81 to 100]	n/a
Mental and social demands	85 \pm 17	89 [79 to 100]	n/a
Flexibility demands	84 \pm 21	90 [75 to 100]	n/a
Total score	84 \pm 16	88 [79 to 95]	n/a
Low work functioning, <i>n</i> (%)	n/a	n/a	98 (18)
Medium work functioning, <i>n</i> (%)	n/a	n/a	195 (36)
High work functioning, <i>n</i> (%)	n/a	n/a	242 (45)

Low work functioning was defined as a work role functioning questionnaire total score <75. Medium work functioning was defined as a score between 75 and 89, and high work functioning was defined as a score \geq 90. Abbreviations: IQR, interquartile range; SD, standard deviation.

Supplemental Table 8. Characteristics of employed kidney transplant recipients with and without additional work functioning data before transplantation.

	Employed kidney transplant recipients with a WRFQ total score	
	With an additional WRFQ total score before Tx	Without an additional WRFQ total score before Tx
	N=29	N=287
Baseline variables		
Male sex, <i>n</i> (%)	22 (76)	184 (64)
Age ¹ , years	50 ± 9	48 ± 10
Pre-emptive transplantation, <i>n</i> (%)	18 (62)	114 (40)
Time after transplantation, years	n/a	5 [2 to 12]
eGFR ¹ , mL/min/1.73m ²	58 ± 11	53 ± 17
Work functioning		
WRFQ total score before tx	83 [66 to 93]	n/a
WRFQ total score 12 months after tx	92 [88 to 98]	n/a

¹: at 12 months after transplantation for participants with an additional WRFQ total score before tx. Normally distributed data are presented as means ± standard deviation, non-normally distributed data as median [interquartile range], and categorical data as number (valid %). Abbreviations: Tx, transplantation; WRFQ, work role functioning questionnaire.

Supplemental Table 9. Baseline characteristics and work functioning of kidney transplant recipients 12 and 24 months after transplantation.

	Employed kidney transplant recipients with WRFQ data 12 and 24 months after Tx N=56
Baseline variables	
Male sex, <i>n</i> (%)	37 (66)
Age 24 months after transplantation, years	50 ± 10
Pre-emptive transplantation, <i>n</i> (%)	32 (57)
eGFR 24 months after transplantation, mL/min/1.73m ²	60 ± 15
Work functioning	
WRFQ total score 12 months after transplantation	90 [78 to 95]
WRFQ total score 24 months after transplantation	89 [76 to 99]

Normally distributed data are presented as means ± standard deviation, non-normally distributed data as median [interquartile range], and categorical data as number (valid %). Abbreviations: Tx, transplantation; WRFQ, work role functioning questionnaire.

Supplemental Table 10. Associations with work functioning of employed kidney transplant recipients including work functioning total scores of participants who answered ‘not applicable to my job’ to >20% of the questions.

Variables	WRFQ total score, including work functioning total scores of participants who answered ‘not applicable to my job’ to >20% of the questions	
	Univariable linear regression	Stepwise backwards linear regression ²
	Adjusted differences (95% CI)	Adjusted differences(95% CI)
Work-specific characteristics		
Working hours per week, <i>n</i> (%)		
>32 hours	<i>reference</i>	
20 to 32 hours	-0.05 (-0.16 to 0.06)	~
12 to 20 hours	-0.09 (-0.19 to 0.02)	~
<12 hours	0.01 (-0.10 to 0.12)	~
Working tasks, <i>n</i> (%)		
Mentally demanding tasks	<i>reference</i>	
Physically demanding tasks	-0.08 (-0.20 to 0.04)	~
Both	-0.03 (-0.15 to 0.08)	~
Educational level, <i>n</i> (%)		
Low	<i>reference</i>	<i>reference</i>
Moderate	0.19 (0.07 to 0.32)	0.21 (0.09 to 0.34)
High	0.12 (-0.00 to 0.25)	0.13 (0.01 to 0.26)
Demographics		
Male sex, <i>n</i> (%)	-0.04 (-0.15 to 0.06)	
Age, years	-0.03 (-0.13 to 0.07)	
Body mass index, kg/m ²	-0.02 (-0.12 to 0.09)	
Diabetes, <i>n</i> (%)	-0.02 (-0.12 to 0.09)	
Time after transplantation, years ³	-0.03 (-0.13 to 0.08)	
Pre-emptive transplantation, <i>n</i> (%)	-0.04 (-0.15 to 0.06)	
Living donor, <i>n</i> (%)	-0.05 (-0.15 to 0.06)	
Laboratory measurements		
Hemoglobin, g/dL	0.03 (-0.07 to 0.14)	
Albumin, g/dL	0.10 (-0.01 to 0.20)	~
eGFR, mL/min/1.73m ²	0.08 (-0.03 to 0.18)	~
Medication use		
Prednisolone, <i>n</i> (%)	0.08 (-0.03 to 0.18)	
Calcineurin inhibitor, <i>n</i> (%)	0.06 (-0.05 to 0.16)	
Proliferation inhibitor, <i>n</i> (%)	-0.01 (-0.11 to 0.10)	
mTOR inhibitor, <i>n</i> (%)	-0.10 (-0.20 to 0.01)	
Beta-blockers, <i>n</i> (%)	0.01 (-0.09 to 0.11)	~
Antidepressants, <i>n</i> (%)	-0.03 (-0.13 to 0.08)	
Patient-reported outcome measures		
Trembling hands, <i>n</i> (%)	0.01 (-0.10 to 0.11)	
Tingling or numbness of hands or feet, <i>n</i> (%)	-0.18 (-0.28 to -0.08)	~
Feeling of warmth in hands or in feet, <i>n</i> (%)	-0.06 (-0.17 to 0.04)	
Muscle weakness, <i>n</i> (%)	-0.24 (-0.34 to -0.13)	-0.13 (-0.24 to -0.03)
Muscle cramps, <i>n</i> (%)	-0.13 (-0.24 to -0.03)	~
Dizziness, <i>n</i> (%)	-0.19 (-0.30 to -0.09)	~
Headaches, <i>n</i> (%)	-0.11 (-0.22 to -0.01)	~

Depressive feeling, <i>n</i> (%)	-0.22 (-0.32 to -0.12)	-0.13 (-0.23 to -0.02)
Concentration/memory problems, <i>n</i> (%)	-0.23 (-0.33 to -0.12)	-0.16 (-0.26 to -0.05)
Sleep difficulties, <i>n</i> (%)	-0.14 (-0.25 to -0.04)	~
Nightmares, <i>n</i> (%)	-0.07 (-0.17 to 0.03)	~
Anxiety, <i>n</i> (%)	-0.17 (-0.27 to -0.07)	~
Restlessness/nervousness, <i>n</i> (%)	-0.21 (-0.31 to -0.11)	~
Mood swings, <i>n</i> (%)	-0.19 (-0.29 to -0.08)	~
Severe fatigue, <i>n</i> (%)	-0.25 (-0.35 to -0.15)	-0.18 (-0.28 to -0.07)

¹: WRFQ total score was available in 361 employed kidney transplant recipients. To meet the assumptions of linear regression analyses, the total WRFQ score was transformed using the formula: $\log_{10}(\text{maximal score}+1-\text{WRFQ total score})\times-1$. ²: Analyses in the final model were performed in 350 employed kidney transplant recipients. The R^2 of the final model was 16.2%. ³: Log_2 transformed. ~: excluded during stepwise backwards linear regression analyses. Results of linear regression are presented as adjusted differences, referring to the number of standard deviations the transformed work functioning score changes per standard deviation increase of the independent variable. Variables had no missing values or <3% was missing. Abbreviations: eGFR, estimated glomerular filtration rate; WRFQ, work role functioning questionnaire.