Non-depressive psychosocial factors and CKD outcomes in Black Americans

Supplemental Tables

Supplemental Table 1: Participant characteristics at baseline and follow up, stratified by inclusion status

Baseline covariates	All N=5301	Inclusion status	
		Included N=3390	Excluded N=1911
Demographics at Exam 1			
Age, years, mean ± SD	55 ± 13	55 ± 13	56 ± 12
Male, n (%)	1934 (36)	1266 (37)	668 (35)
Education: ≤ high school diploma, n (%)	2049 (39)	1221 (36)	828 (43)
Lower-middle income, n (%)	1798 (34)	1051 (31)	747 (39)
Not employed, n (%)	3294 (62)	2118 (62)	1176 (62)
Comorbidities			
BMI > 30, kg/m^2, mean ± SD	32 ± 7	32 ± 7	32 ± 7
Former/current smoker, n (%)	1716 (32)	1015 (30)	701 (37)
Hypertension, n (%)	3188 (60)	2051 (61)	1137 (60)
Diabetes, n (%)	1152 (22)	727 (21)	425 (22)
Self-reported history of CVD, n (%)	572 (11)	366 (11)	206 (11)
CKD awareness, n (%)	271 (5)	182 (5)	89 (5)
eGFR, mean ± SD			
At visit 1	94 ± 22	93 ± 24	95 ± 18
At visit 3	85 ± 23	86 ± 24	85 ± 22
Albumin-to-creatinine ratio, median [IQR]			
At visit 1	6 [4-13]	6 [4-12]	9 [5-26]
At visit 3	7 [5-16]	7 [5-16]	7 [5-16]
Psychosocial measures at Exam 1, mean ± SD			
Perceived discrimination			
Daily	9.69 ± 9.14	9.29 ± 8.96	10.41 ± 9.41
Lifetime	2.94 ± 2.12	2.95 ± 2.16	2.92 ± 2.04
Burden of lifetime	3.74 ± 2.44	3.68 ± 2.42	3.85 ± 2.47
Anger			
In	5.38 ± 3.48	5.32 ± 3.48	5.5 ± 3.48
Out	4.46 ± 3.12	4.41 ± 3.11	4.58 ± 3.15
Hostility	11.69 ± 4.87	11.59 ± 4.85	11.91 ± 4.91
John Henryism	29.73 ± 4.46	29.77 ± 4.44	29.67 ± 4.5
Stress	5.14 ± 4.38	5 ± 4.31	5.39 ± 4.5
Pessimism	2.2 ± 2.22	2.02 ± 2.14	2.51 ± 2.32
Low spirituality	6.83 ± 4.69	6.71 ± 4.66	7.06 ± 4.75
Social status	3.39 ± 2.03	3.37 ± 2.03	3.43 ± 2.02
Perceived social support	6.08 ± 2.68	6.04 ± 2.69	6.15 ± 2.67

BMI, body mass index; CVD, cardiovascular disease; CKD, chronic kidney disease; eGFR, estimated glomerular filtration rate

Supplemental Table 2: Associations between psychosocial variables and CKD outcomes in the Jackson Heart Study

Psychosocial measures, stratified by corresponding factors	Prevalent CKD OR (95% CI)[a]		Incident CKD OR (95% CI)[a]		eGFR decline β (95% CI)[b]	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Stressors						
Daily discrimination	1.00 (0.99, 1.01)	0.99 (0.97, 1.01)	**1.02 (1.00-1.04)**	1.01 (0.98, 1.03)	0.01 (-0.04, 0.02)	0.01 (-0.01, 0.02)
Lifetime discrimination	0.96 (0.91, 1.02)	0.92 (0.84, 1.01)	1.02 (0.94, 1.11)	1.04 (0.93, 1.16)	0.01 (-0.03, 0.06)	0.003 (-0.05, 0.06)
Burden of lifetime discrimination	**0.94 (0.89, 0.98)**	0.98 (0.92, 1.06)	0.95 (0.89, 1.03)	0.96 (0.87, 1.05)	-0.01 (-0/04, 0.03)	0.01 (-0.03, 0.06)
Stress	0.99 (0.97, 1.02)	0.97 (0.93, 1.01)	1.02 (0.98, 1.06)	1.03 (0.98, 1.08)	0.01 (-0.01, 0.03)	-0.002 (-0.03, 0.02)
Moods						
Anger in	1.02 (0.98, 1.06)	1.02 (0.97, 1.07)	1.00 (0.95, 1.06)	1.00 (0.93, 1.07)	**0.04 (0.01, 0.07)**	**0.03 (0.004, 0.06)**
Anger out	1.01 (0.97, 1.05)	1.04 (0.99, 1.10)	1.05 (0.99, 1.11)	1.03 (0.96, 1.10)	-0.001 (-0.03, 0.03)	-0.01 (-0.04, 0.02)
Hostility	1.01 (0.99, 1.04)	1.02 (0.99, 10.6)	1.01 (0.97, 1.01)	0.98 (0.94, 1.03)	-0.01 (-0.03, 0.01)	-0.01 (-0.04, 0.01)
Coping						
Social status	1.03 (0.97, 1.09)	1.05 (0.97, 1.13)	0.99 (0.90, 1.08)	0.93 (0.84, 1.03)	0.02 (-0.02, 0.06)	-0.003 (-0.05, 0.05)
Perceived social support	0.99 (0.95, 1.03)	0.99 (0.94, 1.05)	1.02 (0.96, 1.08)	1.00 (0.93, 1.07)	-0.01 (-0.04, 0.02)	-0.02 (-0.06, 0.02)
John Henryism	0.99 (0.97, 1.02)	0.98 (0.95, 1.01)	0.99 (0.95, 1.03)	1.00 (0.96, 1.05)	0.005 (-0.01, 0.02)	0.01 (-0.01, 0.03)
Low spirituality	1.01 (0.99, 1.04)	1.01 (0.97, 1.04)	0.98 (0.95, 1.02)	0.97 (0.92, 1.01)	-0.01 (-0.03, 0.01)	-0.01 (-0.03, 0.01)
Pessimism	--	0.95 (0.88, 1.02)	--	1.06 (0.97, 1.15)	--	0.04 (-0.01, 0.08)
CKD, chronic kidney disease; OR, odds ratio; CI, confidence interval; eGFR, estimated glomerular filtration rate						
Models were fitted using [a]logistic regression (binary outcome) or [b]linear regression (continuous outcome variable; mL/min/1.73m^2 per year) prior to conducting factor analysis						
All models were adjusted for age, sex, body mass index, family income, employment status, educational attainment, smoking status, diabetes, hypertension, and self-reported history of cardiovascular disease; eGFR decline model[b] was additionally adjusted for baseline eGFR and ACR						
Model 1 was restricted to psychosocial measures that loaded on a given factor, whereas Model 2 included all psychosocial measures						

Supplemental Table 3: Pairwise correlations between psychosocial variables for each CKD outcome

A) Prevalent CKD:

	Perceived discrimination			Stress	Social status	John Henryism	Low spirituality	Anger in	Anger out	Hostility	Pessimism	Social Support
	Daily	Lifetime	Burden									
Perceived discrimination												
Daily	1.00	0.42	0.37	0.34	0.12	-0.03	0.07	0.24	0.17	0.21	0.11	0.10
Lifetime	0.42	1.00	0.49	0.28	0.00	-0.08	0.09	0.13	0.09	0.06	0.00	0.06
Burden	0.37	0.49	1.00	0.29	0.02	-0.05	0.16	0.20	0.10	0.13	0.10	0.07
Stress	0.34	0.28	0.29	1.00	0.18	-0.13	0.15	0.28	0.18	0.13	0.11	0.09
Social status	0.12	0.00	0.02	0.18	1.00	-0.10	0.16	0.17	0.11	0.05	0.09	0.14
John Henryism	-0.03	-0.08	-0.05	-0.13	-0.10	1.00	-0.12	-0.05	0.03	0.11	-0.02	-0.03
Low spirituality	0.07	0.09	0.16	0.15	0.16	-0.12	1.00	0.24	0.10	0.12	0.11	0.15
Anger in	0.24	0.13	0.20	0.28	0.17	-0.05	0.24	1.00	0.37	0.34	0.13	0.14
Anger out	0.17	0.09	0.10	0.18	0.11	0.03	0.10	0.37	1.00	0.30	0.05	0.07
Hostility	0.21	0.06	0.13	0.13	0.05	0.11	0.12	0.34	0.30	1.00	0.19	0.08
Pessimism	0.11	0.00	0.10	0.11	0.09	-0.02	0.11	0.13	0.05	0.19	1.00	0.04
Social support	0.10	0.06	0.07	0.09	0.14	-0.03	0.15	0.14	0.07	0.08	0.04	1.00

B) eGFR decline:

	Perceived discrimination			Stress	Social status	John Henryism	Low spirituality	Anger In	Anger Out	Hostility	Pessimism	Social Support
	Daily	Lifetime	Burden									
Perceived discrimination												
Daily	1.00	0.43	0.38	0.33	0.11	-0.02	0.05	0.23	0.15	0.22	0.10	0.09
Lifetime	0.43	1.00	0.47	0.27	-0.02	-0.08	0.09	0.14	0.09	0.06	0.00	0.05
Burden	0.38	0.47	1.00	0.27	0.01	-0.05	0.15	0.18	0.09	0.12	0.09	0.05
Stress	0.33	0.27	0.27	1.00	0.19	-0.12	0.15	0.28	0.17	0.13	0.10	0.09
Social status	0.11	-0.02	0.02	0.19	1.00	-0.10	0.14	0.16	0.09	0.03	0.11	0.13
John Henryism	-0.02	-0.08	-0.05	-0.12	-0.10	1.00	-0.12	-0.06	0.02	0.13	-0.03	-0.04
Low spirituality	0.05	0.09	0.15	0.15	0.14	-0.12	1.00	0.23	0.11	0.12	0.11	0.15
Anger in	0.23	0.14	0.18	0.28	0.16	-0.06	0.23	1.00	0.36	0.33	0.12	0.14
Anger out	0.15	0.09	0.09	0.17	0.09	0.02	0.11	0.36	1.00	0.30	0.05	0.06
Hostility	0.22	0.06	0.12	0.13	0.03	0.13	0.13	0.33	0.30	1.00	0.19	0.07
Pessimism	0.11	0.00	0.09	0.10	0.11	-0.03	0.11	0.12	0.05	0.19	1.00	0.04
Social support	0.09	0.05	0.05	0.09	0.13	-0.04	0.15	0.14	0.06	0.07	0.04	1.00

C) Incident CKD:

				Stress	Social status	John Henryism	Low spirituality	Anger In	Anger Out	Hostility	Pessimism	Social Support
	Daily	Lifetime	Burden									
Perceived discrimination												
Daily	1.00	0.43	0.39	0.33	0.11	-0.02	0.06	0.22	0.13	0.24	0.10	0.08
Lifetime	0.43	1.00	0.49	0.27	-0.01	-0.08	0.09	0.13	0.08	0.08	0.00	0.05
Burden	0.39	0.49	1.00	0.27	0.01	-0.05	0.13	0.18	0.10	0.14	0.08	0.05
Stress	0.33	0.27	0.27	1.00	0.18	-0.11	0.14	0.29	0.18	0.15	0.10	0.09
Social status	0.11	-0.01	0.01	0.18	1.00	-0.10	0.13	0.17	0.11	0.06	0.12	0.13
John Henryism	-0.02	-0.08	-0.05	-0.11	-0.10	1.00	-0.14	-0.07	0.01	0.11	-0.03	-0.04
Low spirituality	0.06	0.09	0.13	0.14	0.13	-0.14	1.00	0.23	0.12	0.14	0.11	0.15
Anger in	0.22	0.13	0.18	0.29	0.17	-0.07	0.23	1.00	0.36	0.34	0.13	0.14
Anger out	0.13	0.08	0.10	0.18	0.11	0.01	0.12	0.36	1.00	0.28	0.03	0.06
Hostility	0.24	0.08	0.14	0.15	0.06	0.11	0.14	0.34	0.28	1.00	0.18	0.06
Pessimism	0.11	0.00	0.08	0.10	0.12	-0.03	0.11	0.13	0.03	0.18	1.00	0.04
Social support	0.08	0.05	0.05	0.09	0.13	-0.04	0.15	0.14	0.06	0.06	0.04	1.00

Supplemental Table 4: Sensitivity analysis for the associations between psychosocial factors and CKD outcomes in the Jackson Heart Study with systolic blood pressure included in the models

Psychosocial factors	Prevalent CKD OR (95% CI) [a]	Incident CKD OR (95% CI) [a]	eGFR decline β (95% CI) [b]
Stressors	0.76 (0.65, 0.89)*	1.07 (0.88, 1.29)	0.08 (-0.02, 0.17)
Moods	1.12 (0.96, 1.29)	1.02 (0.84, 1.24)	0.03 (-0.06, 0.13)
Coping	1.09 (0.93, 1.27)	0.91 (0.75, 1.11)	-0.02 (-0.12, 0.08)
CKD, chronic kidney disease; OR, odds ratio; CI, confidence interval; eGFR, estimated glomerular filtration rate. Estimates are from [a]logistic regression (binary outcome) or [b]linear regression (continuous outcome variable; mL/min/1.73m² per year). All models adjusted for age, sex, diabetes, systolic blood pressure (kept continuous), cardiovascular disease, family income, employment status, educational attainment, smoking status, and body mass index; eGFR decline model[b] additionally adjusted for baseline eGFR and ACR. *P < 0.05; ¶P < 0.1			