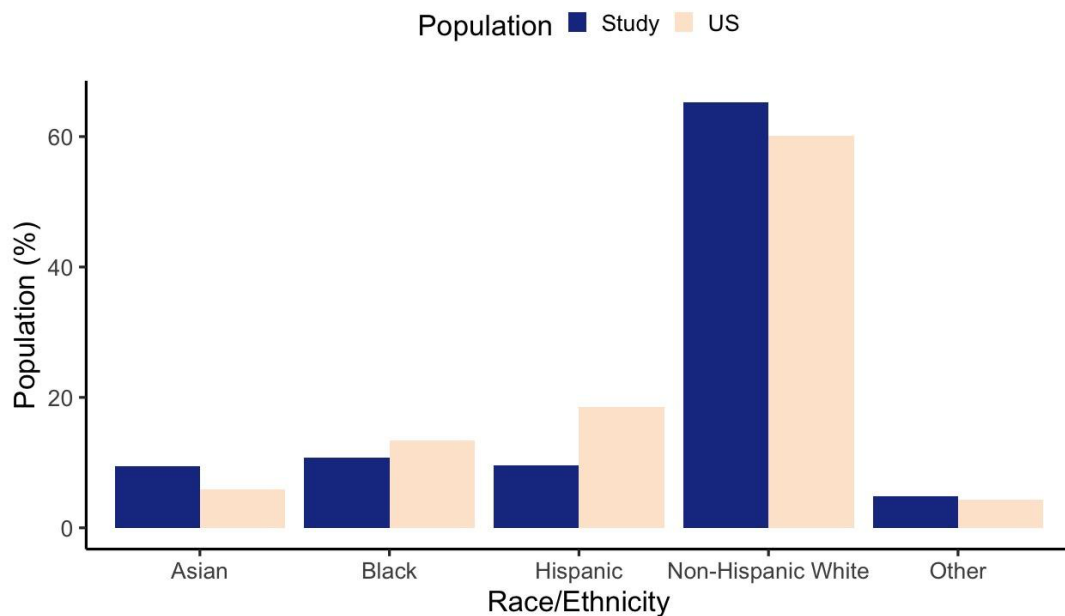


Supplementary Material

Racial differences in outcomes of a 12-week digital rehabilitation program for musculoskeletal pain: a prospective longitudinal cohort study

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Supplementary Figure 1. Comparison of the patients self-reported race/ethnic groups to the US general population. Left columns: study cohort (n=9550); Right columns: 2020 US census (n=297,600,338)[44]

Supplementary Table 1. Baseline characteristics for the patients that completed the 12-week program (Completers), and those that did not (Noncompleters)

Characteristic	Noncompleters	Completers	P value
Number	2601	6949	NA
Age	47.8 (13.4)	50.0 (12.7)	<.001
Gender (N,%)			
Woman	1497 (57.6)	4092 (58.9)	0.298
Man	1094 (42.1)	2835 (40.8)	
Non-binary	6 (0.2)	18 (0.3)	

Prefers not to answer	4 (0.1)	4 (0.1)	
BMI	29.9 (6.9)	29.0 (6.6)	<.001
Therapy Area (N, %)			
Ankle	105 (4.0)	247 (3.6)	<.001
Elbow	50 (1.9)	141 (2.0)	
Hip	209 (8.0)	608 (8.7)	
Knee	304 (11.7)	971 (14.0)	
Low back	1185 (45.6)	2912 (41.9)	
Neck	232 (8.9)	650 (9.4)	
Shoulder	354 (13.6)	1077 (15.5)	
Wrist/hand	98 (3.8)	237 (3.4)	
Employment status (N, %)			
Employed Full Time	2054 (79.0)	5599 (80.6)	0.443
Employed Part Time	114 (4.4)	313 (4.5)	
Not Employed	129 (5.0)	285 (4.1)	
Prefers not to Answer	38 (1.5)	101 (1.5)	
Retired	230 (8.8)	566 (8.1)	
Seeking opportunities	18 (0.7)	48 (0.7)	
Student	18 (0.7)	37 (0.5)	
Education level (N,%)			
Some elementary or middle school	1(0.1)	2(0.1)	<.001
Some High school	8(0.6)	12(0.7)	
High school graduate or GED (includes technical/vocational training)	191(14.5)	198(10.8)	
Some college (some community college, associate degree)	445(33.9)	469(25.5)	
Four year college degree/bachelor's degree	378(28.8)	622(33.8)	
Some postgraduate or professional schooling, no postgraduate degree	46(3.5)	65(3.5)	
Postgraduate or professional degree	229(17.4)	446(24.2)	
Prefers not to answer	15(1.1)	26(1.4)	
Race and Ethnicity			
Asian	237 (9.1)	673 (9.7)	0.258
Black	276 (10.6)	749 (10.8)	
Hispanic	277 (10.6)	636 (9.2)	

Other	125 (4.8)	337 (4.8)	
Non-Hispanic white	1686 (64.8)	4554 (65.5)	
Clinical Outcomes (mean, SD)			
Pain level	5.0 (2.0)	4.9 (2.0)	<i><.001</i>
Surgery Intent>0	27.1 (26.3)	23.5 (23.9)	<i><.001</i>
Surgery Intent	11.7 (21.8)	9.8 (19.3)	<i><.001</i>
GAD-7 ≥5	9.4 (4.3)	8.7 (4.0)	<i><.001</i>
GAD-7	3.7 (5.0)	3.0 (4.4)	<i><.001</i>
PHQ-9 ≥5	10.3 (4.8)	9.1 (4.2)	<i><.001</i>
PHQ-9	3.1 (5.1)	2.3 (4.2)	<i><.001</i>
WPAI Overall>0	31.5 (19.9)	29.5(19.8)	<i>0.003</i>
WPAI Overall	19.1 (21.9)	17.2 (20.9)	<i><.001</i>
WPAI Work>0	30.7 (19.1)	28.4 (18.6)	<i><.001</i>
WPAI Work	18.3 (21.1)	16.2 (19.9)	<i><.001</i>
WPAI Time>0	29.6 (34.0)	24.0 (28.3)	0.02
WPAI Time	3.4 (14.8)	2.7 (12.0)	0.033
WPAI Activity>0	39.2 (23.0)	37.0 (22.4)	<i><.001</i>
WPAI Activity	31.1 (25.9)	28.6 (25.1)	<i><.001</i>

Data represents mean ± standard deviation or the number of patients and % of total where listed. *P* values represent comparison between completers and non-completers with statistically significant *P* values italicized. Abbreviations: BMI, body mass index; GAD-7, Generalized Anxiety Disorder 7-item scale; PHQ-9, Patient Health 9-item questionnaire; WPAI, Work Productivity and Activity Impairment questionnaire.

Supplementary Table 2. Baseline and 12-week estimated outcome metrics following an intention-to-treat (ITT) and per-protocol (PP) analysis for each of the race/ethnic groups using unfiltered data

		Asian		Black		Hispanic		Non-Hispanic white		Other	
Outcome	Time	ITT	PP	ITT	PP	ITT	PP	ITT	PP	ITT	PP
Pain Level	Baseline	4.6 (4.5; 4.8)	4.6 (4.5; 4.8)	5.6 (5.4; 5.7)	5.5 (5.4; 5.7)	5.3 (5.1; 5.4)	5.3 (5.1; 5.5)	4.8 (4.7; 4.8)	4.7 (4.6; 4.7)	4.8 (4.6; 5.0)	4.7 (4.5; 4.9)
	12-week	2.6 (2.4; 2.8)	2.6 (2.4; 2.8)	3.2 (3.0; 3.5)	3.2 (2.9; 3.5)	2.7 (2.5; 3.0)	2.7 (2.4; 2.9)	2.8 (2.8; 2.9)	2.8 (2.7; 2.9)	2.9 (2.6; 3.2)	2.8 (2.5; 3.1)
	<i>P</i> value	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>	<i><.001</i>
Surgery Intent	Baseline	1.3 (6.3; 8.2)	6.6 (5.5; 7.7)	12.8 (11.4; 14.2)	12.5 (10.9; 14.1)	10.8 (9.5; 12.1)	10.8 (9.2; 12.4)	10.3 (9.8; 10.7)	9.6 (9.1; 10.2)	8.0 (6.4; 9.7)	8.0 (6.1; 9.8)

	12-week	4.7 (3.2; 6.2)	4.4 (2.9; 5.9)	7.5 (5.6; 9.3)	7.3 (5.4; 9.2)	5.4 (4.0; 6.8)	5.1 (3.6; 6.7)	6.9 (6.2; 7.3)	6.4 (5.7; 7.0)	4.6 (2.4; 6.8)	4.6 (2.3; 6.9)
	<i>P</i> value	0.020	<.001	0.004	<.001	<.001	<.001	<.001	<.001	0.03	0.004
GAD-7	Baseline	2.7 (2.4; 3.0)	2.6 (2.3; 2.9)	3.0 (2.7; 3.3)	2.9 (2.5; 3.2)	4.0 (3.6; 4.3)	3.6 (3.2; 4.00)	3.2 (3.1; 3.3)	3.0 (2.9; 3.2)	3.3 (2.9; 3.8)	3.1 (2.6; 3.6)
	12-week	1.5 (1.2; 1.7)	1.4 (1.1; 1.7)	1.8 (1.5; 2.1)	1.7 (1.4; 2.0)	2.4 (2.0; 2.8)	2.2 (1.8; 2.6)	2.1 (2.0; 2.3)	2.0 (1.9; 2.2)	2.1 (1.7; 2.7)	2.0 (1.4; 2.5)
	<i>P</i> value	0.38	<.001	0.04	<.001	0.39	<.001	<.001	<.001	0.09	<.001
PHQ-9	Baseline	1.8 (1.6; 2.0)	1.8 (1.5; 2.0)	2.7 (2.4; 2.9)	2.4 (2.1; 2.7)	2.8 (2.49; 3.1)	2.4 (2.1; 2.8)	2.5 (2.4; 2.6)	2.3 (2.2; 2.4)	2.8 (2.3; 3.2)	2.4 (2.0; 2.9)
	12-week	1.1 (0.9; 1.4)	1.1 (0.8; 1.4)	1.8 (1.5; 2.1)	1.6 (1.3; 2.0)	2.1 (1.7; 2.5)	1.9 (1.5; 2.3)	1.8 (1.7; 1.9)	1.6 (1.5; 1.8)	2.0 (1.5; 2.6)	1.8 (1.2; 2.4)
	<i>P</i> value	0.93	<.001	0.41	<.001	0.28	0.004	.001	<.001	0.92	0.020
WPAI Overall Work Impairment	Baseline	15.9 (14.5; 17.2)	15.5 (14.0; 17.0)	20.4 (18.7; 22.12)	20.5 (18.5; 22.5)	19.3 (17.6; 21.0)	18.7 (16.7; 20.6)	17.2 (16.6; 17.8)	16.6 (15.9; 17.2)	18.5 (16.3; 20.7)	18.4 (16.0; 20.9)
	12-week	10.4 (8.2; 12.6)	9.9 (7.7; 12.2)	10.9 (8.6; 13.2)	10.9 (8.6; 13.3)	12.6 (9.9; 15.3)	12.2 (9.5; 15.0)	11.0 (10.1; 11.8)	10.6 (9.7; 11.4)	14.1 (10.8; 17.5)	13.5 (10.2; 16.8)
	<i>P</i> value	0.03	<.001	0.003	<.001	0.01	<.001	<.001	<.001	0.07	0.004
WPAI Work Impairment	Baseline	14.9 (13.6; 16.2)	14.5 (13.1; 16.0)	19.2 (17.5; 20.8)	19.2 (17.3; 21.1)	18.1 (16.5; 19.7)	17.2 (15.4; 19.1)	16.3 (15.8; 16.9)	15.7 (15.1; 16.3)	17.4 (15.3; 19.4)	17.2 (14.9; 19.5)
	12-week	9.2 (7.2; 11.2)	8.8 (6.8; 10.8)	9.9 (7.8; 12.0)	9.9 (7.7; 12.1)	10.9 (8.5; 13.4)	10.4 (8.0; 12.9)	10.0 (9.2; 10.8)	9.6 (8.8; 10.4)	12.3 (9.5; 15.1)	11.6 (8.8; 14.3)
	<i>P</i> value	0.02	<.001	0.003	<.001	0.01	<.001	<.001	<.001	0.05	<.001
WPAI Time Missed	Baseline	2.2 (1.5; 2.9)	2.3 (1.4; 3.1)	4.9 (3.6; 6.2)	4.4 (3.0; 5.8)	3.8 (2.7; 4.9)	3.8 (2.5; 5.0)	2.3 (2.0; 2.6)	2.1 (1.8; 2.5)	4.8 (3.0; 6.5)	4.5 (2.5; 6.5)
	12-week	2.0 (0.8; 3.1)	2.0 (0.8; 3.2)	2.7 (1.1; 4.3)	2.7 (1.1; 4.4)	3.2 (1.5; 4.9)	3.2 (1.5; 4.9)	2.6 (2.0; 3.2)	2.4 (1.9; 3.0)	5.0 (1.7; 8.2)	5.0 (1.7; 8.4)
	<i>P</i> value	0.97	0.744	0.44	0.060	0.16	0.578	<.001	0.320	0.95	0.797
WPAI Activity Impairment	Baseline	23.1 (21.6; 24.7)	23.1 (21.3; 24.8)	30.0 (28.3; 31.7)	29.9 (27.9; 31.8)	28.7 (27.0; 30.5)	27.6 (25.5; 29.6)	29.8 (29.2; 30.4)	29.0 (28.3; 29.7)	29.8 (27.5; 32.1)	29.3 (26.5; 32.0)
	12-week	12.5 (10.6; 14.5)	12.3 (10.3; 14.4)	16.9 (14.5; 19.4)	16.8 (14.4; 19.3)	15.0 (12.6; 17.3)	14.0 (11.7; 16.3)	17.5 (16.6; 18.4)	17.0 (16.0; 17.8)	19.5 (16.0; 22.8)	18.3 (14.9; 21.6)
	<i>P</i> value	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	.001	<.001

Supplementary Table 3. Intention-to-treat Latent Growth Curve analysis

Intention-to-treat						
White						
Outcome	Intercept - White		Slope - White		Curve - White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	4.75	< .001	-0.38	< .001	0.02	< .001
Surgery Intent >0	24.06	< .001	-2.68	< .001	0.15	< .001
Surgery Intent	10.25	< .001	-0.85	< .001	0.05	< .001
GAD-7 ≥5	8.82	< .001	-0.79	< .001	0.04	< .001
GAD-7	3.20	< .001	-0.15	< .001	0.01	< .001
PHQ-9 ≥5	9.52	< .001	-0.98	< .001	0.05	< .001
PHQ-9	2.50	< .001	-0.12	< .001	0	< .001
WPAI Overall >0	29.00	< .001	-3.04	< .001	0.16	< .001
WPAI Overall	17.19	< .001	-1.29	< .001	0.06	< .001
WPAI Activity >0	37.08	< .001	-3.47	< .001	0.17	< .001
WPAI Activity	29.83	< .001	-2.40	< .001	0.11	< .001
WPAI Work >0	28.02	< .001	-3.03	< .001	0.16	< .001
WPAI Work	16.32	< .001	-1.27	< .001	0.06	< .001
WPAI Time >0	22.97	< .001	-3.16	< .001	0.16	< .001
WPAI Time	2.31	< .001	0.03	0.682	0	0.941
Asian						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	-0.1	0.146	-0.05	0.078	0	0.164
Surgery Intent >0	-5.42	< .001	-0.48	0.243	0.05	0.152
Surgery Intent	-3	< .001	-0.18	0.348	0.02	0.193
GAD-7 ≥5	-0.75	0.001	-0.11	0.375	0.01	0.598
GAD-7	-0.5	< .001	-0.03	0.431	0	0.626
PHQ-9 ≥5	-1.28	< .001	-0.02	0.894	0	0.99
PHQ-9	-0.69	< .001	0.01	0.81	0	0.877
WPAI Overall >0	-1.54	0.099	-0.4	0.338	0.03	0.493
WPAI Overall	-1.31	0.08	-0.15	0.591	0.02	0.48
WPAI Activity >0	-4.31	< .001	-0.66	0.069	0.05	0.07
WPAI Activity	-6.69	< .001	0.12	0.703	0	0.937
WPAI Work >0	-1.72	0.053	-0.31	0.436	0.02	0.629
WPAI Work	-1.41	0.047	-0.11	0.675	0.01	0.552
WPAI Time >0	-3.98	0.16	-0.16	0.874	0.04	0.666
WPAI Time	-0.13	0.73	-0.27	0.064	0.02	0.133
Black						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	0.82	< .001	-0.09	0.009	0	0.146
Surgery Intent >0	4.76	< .001	-1.54	0.003	0.11	0.013
Surgery Intent	2.59	< .001	-0.63	0.02	0.04	0.073
GAD-7 ≥5	0.42	0.108	-0.14	0.213	0	0.626
GAD-7	-0.22	0.152	0.03	0.528	0	0.343
PHQ-9 ≥5	-0.03	0.916	0.06	0.722	-0.01	0.556
PHQ-9	0.17	0.274	-0.02	0.676	0	0.849
WPAI Overall >0	6.58	< .001	-1.23	0.033	0.06	0.254
WPAI Overall	3.23	< .001	-0.2	0.591	-0.01	0.844
WPAI Activity >0	4.97	< .001	-1.04	0.017	0.06	0.092
WPAI Activity	0.16	0.859	0	0.995	0	0.866
WPAI Work >0	6.17	< .001	-1.4	0.011	0.07	0.113
WPAI Work	2.84	0.001	-0.32	0.368	0.01	0.826
WPAI Time >0	14.46	< .001	-0.41	0.676	-0.03	0.678
WPAI Time	2.59	< .001	0.39	0.158	-0.05	0.031
Hispanic						

Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>
Pain Level	0.52	< .001	-0.02	0.448	0	0.305
Surgery Intent >0	1.87	0.169	-0.06	0.915	-0.02	0.662
Surgery Intent	0.55	0.442	-0.03	0.896	-0.01	0.582
GAD-7 ≥5	1.05	< .001	-0.04	0.741	0	0.665
GAD-7	0.76	< .001	-0.05	0.255	0	0.797
PHQ-9 ≥5	0.52	0.142	0.13	0.435	-0.01	0.666
PHQ-9	0.31	0.075	0	0.982	0	0.967
WPAI Overall >0	4.52	< .001	0.63	0.275	-0.07	0.19
WPAI Overall	2.1	0.021	0.3	0.398	-0.03	0.367
WPAI Activity >0	2.41	0.014	-0.11	0.777	-0.02	0.547
WPAI Activity	-1.12	0.236	0.39	0.221	-0.04	0.106
WPAI Work >0	4.07	< .001	0.4	0.477	-0.04	0.365
WPAI Work	1.77	0.041	0.18	0.581	-0.02	0.459
WPAI Time >0	5.56	0.115	-0.87	0.44	0.03	0.746
WPAI Time	1.5	0.011	0.1	0.7	-0.01	0.508
Other						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>
Pain Level	0.02	0.792	-0.02	0.579	0	0.554
Surgery Intent >0	-2.51	0.166	0.32	0.656	-0.03	0.578
Surgery Intent	-2.21	0.01	0.41	0.215	-0.03	0.211
GAD-7 ≥5	0.7	0.063	0	0.986	0	0.823
GAD-7	0.15	0.515	0.04	0.579	0	0.44
PHQ-9 ≥5	0.47	0.323	-0.02	0.889	0.01	0.579
PHQ-9	0.28	0.233	-0.03	0.605	0	0.627
WPAI Overall >0	0.4	0.771	0.13	0.833	0	0.986
WPAI Overall	1.34	0.245	0	0.995	0.01	0.73
WPAI Activity >0	0.66	0.592	0.15	0.77	0	0.919
WPAI Activity	-0.07	0.954	0.22	0.61	0	0.9
WPAI Work >0	0.14	0.914	0.16	0.78	0	0.923
WPAI Work	1.04	0.336	0.12	0.785	0	0.979
WPAI Time >0	6.55	0.152	0.09	0.955	-0.07	0.552
WPAI Time	2.46	0.007	-0.29	0.354	0.02	0.382

Supplementary Table 4. Per-protocol Latent Growth Curve analysis

Outcome	Per-protocol					
	White					
	Intercept - White		Slope - White		Curve - White	
	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>	Mean (SD)	<i>p</i>
Pain Level	4.68	< .001	-0.38	< .001	0.02	< .001
Surgery Intent >0	22.82	< .001	-2.68	< .001	0.15	< .001
Surgery Intent	9.60	< .001	-0.85	< .001	0.05	< .001
GAD-7 ≥5	8.59	< .001	-0.77	< .001	0.04	< .001
GAD-7	3.03	< .001	-0.14	< .001	0.01	< .001
PHQ-9 ≥5	9.21	< .001	-0.95	< .001	0.05	< .001
PHQ-9	2.31	< .001	-0.11	< .001	0	< .001
WPAI Overall >0	28.34	< .001	-2.99	< .001	0.16	< .001
WPAI Overall	16.57	< .001	-1.24	< .001	0.06	< .001
WPAI Activity >0	36.24	< .001	-3.47	< .001	0.17	< .001
WPAI Activity	28.96	< .001	-2.37	< .001	0.11	< .001
WPAI Work >0	27.30	< .001	-2.96	< .001	0.16	< .001
WPAI Work	15.71	< .001	-1.23	< .001	0.06	< .001
WPAI Time >0	21.63	< .001	-3.29	< .001	0.18	< .001
WPAI Time	2.13	< .001	0.01	0.886	0	0.827

Asian						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	-0.08	0.353	-0.05	0.101	0	0.196
Surgery Intent >0	-5.44	< .001	-0.27	0.533	0.03	0.306
Surgery Intent	-3	< .001	-0.08	0.694	0.01	0.393
GAD-7 ≥5	-0.58	0.041	-0.1	0.429	0	0.664
GAD-7	-0.44	0.007	-0.02	0.624	0	0.891
PHQ-9 ≥5	-1.18	< .001	-0.04	0.777	0	0.854
PHQ-9	-0.56	< .001	0.01	0.852	0	0.908
WPAI Overall >0	-1.23	0.248	-0.59	0.168	0.04	0.306
WPAI Overall	-1.07	0.21	-0.28	0.36	0.03	0.315
WPAI Activity >0	-3.05	0.004	-0.78	0.045	0.06	0.06
WPAI Activity	-5.91	< .001	0.05	0.888	0.01	0.841
WPAI Work >0	-1.4	0.168	-0.5	0.229	0.03	0.405
WPAI Work	-1.19	0.14	-0.22	0.452	0.02	0.395
WPAI Time >0	-1.4	0.679	-0.09	0.93	0.01	0.899
WPAI Time	0.13	0.783	-0.29	0.06	0.02	0.121
Black						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	0.86	< .001	-0.09	0.009	0	0.135
Surgery Intent >0	4.89	0.002	-1.49	0.007	0.1	0.019
Surgery Intent	2.87	< .001	-0.66	0.019	0.04	0.051
GAD-7 ≥5	0.4	0.199	-0.15	0.204	0	0.646
GAD-7	-0.18	0.303	0.04	0.402	0	0.229
PHQ-9 ≥5	-0.2	0.555	0.09	0.597	-0.01	0.478
PHQ-9	0.08	0.614	-0.01	0.909	0	0.974
WPAI Overall >0	6.69	< .001	-1.2	0.045	0.06	0.266
WPAI Overall	3.92	< .001	-0.35	0.388	0	0.899
WPAI Activity >0	5.67	< .001	-0.92	0.046	0.05	0.178
WPAI Activity	0.89	0.402	0.02	0.968	-0.01	0.791
WPAI Work >0	6.42	< .001	-1.39	0.016	0.07	0.121
WPAI Work	3.52	< .001	-0.46	0.219	0.02	0.588
WPAI Time >0	11.36	0.007	0.6	0.559	-0.09	0.229
WPAI Time	2.27	0.002	0.54	0.056	-0.06	0.013
Hispanic						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	0.62	< .001	-0.05	0.142	0	0.59
Surgery Intent >0	2.83	0.083	-0.3	0.603	0	0.954
Surgery Intent	1.21	0.16	-0.2	0.459	0	0.984
GAD-7 ≥5	1.17	< .001	-0.05	0.639	0	0.764
GAD-7	0.57	0.006	-0.02	0.623	0	0.829
PHQ-9 ≥5	0.38	0.355	0.16	0.339	-0.01	0.613
PHQ-9	0.13	0.506	0.03	0.481	0	0.592
WPAI Overall >0	4.75	< .001	0.71	0.228	-0.07	0.164
WPAI Overall	2.09	0.051	0.34	0.343	-0.03	0.315
WPAI Activity >0	2.15	0.062	0	0.994	-0.03	0.431
WPAI Activity	-1.39	0.206	0.47	0.153	-0.05	0.061
WPAI Work >0	4.01	0.002	0.53	0.363	-0.05	0.295
WPAI Work	1.5	0.131	0.27	0.435	-0.03	0.351
WPAI Time >0	5.2	0.17	-0.14	0.898	-0.03	0.691
WPAI Time	1.63	0.014	0.09	0.731	-0.01	0.532
Other						
Outcome	Diff Intercept versus White		Diff Slope versus White		Diff Curve versus White	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Pain Level	0	0.984	-0.02	0.683	0	0.721

Surgery Intent >0	-1.73	0.404	0.39	0.619	-0.04	0.571
Surgery Intent	-1.65	0.096	0.41	0.248	-0.03	0.241
GAD-7 ≥5	0.49	0.25	0	0.988	0	0.878
GAD-7	0.09	0.73	0.06	0.378	-0.01	0.272
PHQ-9 ≥5	0.26	0.634	0.02	0.906	0	0.753
PHQ-9	0.13	0.615	0	0.974	0	0.945
WPAI Overall >0	0.59	0.703	0.1	0.87	0	0.946
WPAI Overall	1.87	0.152	-0.07	0.877	0.01	0.737
WPAI Activity >0	1.37	0.344	0.14	0.788	0	0.963
WPAI Activity	0.3	0.836	0.21	0.633	-0.01	0.779
WPAI Work >0	0.22	0.877	0.23	0.706	-0.01	0.879
WPAI Work	1.53	0.208	0.05	0.915	0	0.979
WPAI Time >0	5.14	0.316	-0.11	0.94	-0.05	0.676
WPAI Time	2.4	0.02	-0.36	0.236	0.03	0.228

Supplementary Table 5. Model fit for both unfiltered and filtered models

Outcome	Intention-to-treat					Per-protocol				
	Chi-sq (df)	p	RMSEA	CFI	SRMR	Chi-sq (df)	p	RMSEA	CFI	SRMR
Pain Level	215.11 (5)	< .001	0.066	0.95	0.022	204.12 (5)	< .001	0.076	0.95	0.022
Surgery Intent >0	68.8 (5)	< .001	0.056	0.98	0.016	66.57 (5)	< .001	0.065	0.98	0.016
Surgery Intent	24.03 (5)	< .001	0.02	1	0.006	20.84 (5)	< .001	0.021	1	0.006
GAD-7 ≥5	31.86 (5)	< .001	0.043	0.98	0.016	25.71 (5)	< .001	0.045	0.99	0.015
GAD-7	14.78 (5)	0.011	0.014	1	0.004	17.44 (5)	0.004	0.019	1	0.004
PHQ-9 ≥5	26.83 (5)	< .001	0.045	0.98	0.017	22.55 (5)	< .001	0.048	0.98	0.017
PHQ-9	17.13 (5)	0.004	0.016	1	0.005	21.76 (5)	< .001	0.022	1	0.005
WPAI Overall >0	35.82 (5)	< .001	0.037	0.98	0.017	35.64 (5)	< .001	0.044	0.97	0.017
WPAI Overall	15.94 (5)	0.007	0.015	1	0.008	15.77 (5)	0.008	0.018	1	0.008
WPAI Activity >0	63.91 (5)	< .001	0.04	0.98	0.015	57.21 (5)	< .001	0.044	0.98	0.015
WPAI Activity	33.66 (5)	< .001	0.024	0.99	0.009	29.27 (5)	< .001	0.026	0.99	0.009
WPAI Work >0	41.6 (5)	< .001	0.041	0.97	0.019	40.36 (5)	< .001	0.047	0.97	0.019
WPAI Work	19.56 (5)	0.002	0.017	0.99	0.009	19.58 (5)	0.001	0.02	0.99	0.009
WPAI Time >0	7.88 (5)	0.163	0.026	0.99	0.016	11.75 (5)	0.038	0.047	0.98	0.02
WPAI Time	1.57 (5)	0.905	0	1	0.003	2.22 (5)	0.818	0	1	0.003

Note: If a significant chi-square is found for a model, then CFI values > .9, or RMSEA values < .08, or SRMR values < .05 signify models with acceptable fit [45,46].

Supplementary Table 6. P values of outcome differences between race/ethnic groups following a per-protocol analysis

Pain						WPAI Overall >0					
	Asian	Black	Hispanic	NH-white	Other		Asian	Black	Hispanic	NH-white	Other
Asian		0.052	<.001	0.316	0.606	Asian		0.067	0.897	0.390	0.262
Black			0.135	0.001	0.033	Black			0.178	0.002	0.010
Hispanic				<.001	0.001	Hispanic				0.461	0.292
White					0.896	White					0.487

Other					
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Other					
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Surgery Intent >0					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.08	0.02	0.361	0.396
Black			0.731	0.163	0.427
Hispanic				0.028	0.226
White					0.77
Other					

WPAI Work >0					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.080	0.872	0.259	0.186
Black			0.135	0.003	0.008
Hispanic				0.602	0.357
White					0.458
Other					

GAD-7 ≥5					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.345	0.507	0.203	0.763
Black			0.947	0.005	0.381
Hispanic				0.078	0.459
White					0.74
Other					

WPAI Time >0					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.382	0.343	0.953	0.340
Black			0.944	0.196	0.819
Hispanic				0.101	0.762
White					0.235
Other					

PHQ-9 ≥5					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.761	0.272	0.772	0.327
Black			0.189	0.514	0.243
Hispanic				0.28	0.948
White					0.357
Other					

WPAI Activities >0					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.214	0.171	0.566	0.386
Black			0.946	0.046	0.072
Hispanic				0.026	0.057
White					0.534
Other					

Surgery Intent					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.052	0.003	0.245	0.429
Black			0.670	0.074	0.241
Hispanic				0.007	0.101
White					0.946
Other					

WPAI Overall					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.025	0.657	0.745	0.780
Black			0.116	0.009	0.032
Hispanic				0.781	0.532
White					0.565
Other					

GAD-7					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.892	0.440	0.254	0.885
Black			0.378	0.345	0.961
Hispanic				0.081	0.471
White					0.609
Other					

WPAI Work					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.032	0.545	0.760	0.971
Black			0.172	0.013	0.055
Hispanic				0.621	0.565
White					0.772
Other					

PHQ-9					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.581	0.787	0.811	0.965
Black			0.463	0.636	0.740
Hispanic				0.614	0.815
White					0.933
Other					

WPAI Time					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.209	0.792	0.475	0.724
Black			0.397	0.033	0.305
Hispanic				0.403	0.624
White					0.926
Other					

WPAI Activities					
	Asian	Black	Hispanic	NH-white	Other
Asian		0.195	0.099	0.283	0.901
Black			0.116	0.009	0.032
Hispanic				0.781	0.523
White					0.565
Other					