



Clinical and sociodemographic characteristics associated with physical function trajectories among participants in the E2C2 pragmatic trial

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BACKGROUND

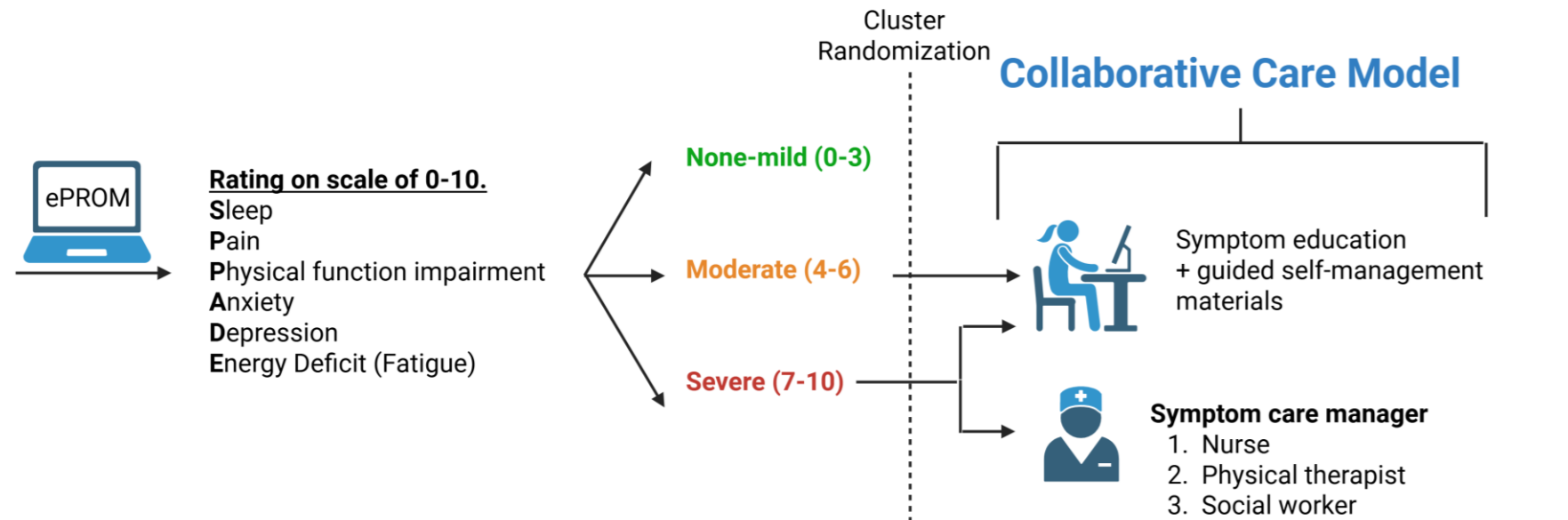
Prevalent disablement among patients with cancer may be prevented or mitigated, yet a minority of patients receive the needed services, and many only after problematic delays. Reports identify characteristics associated with impending functional decline but are based on small and limitedly representative cohorts. The Enhanced EHR-facilitated Cancer Symptom Control (E2C2) cohort cluster-randomized, pragmatic trial compared the effectiveness of electronic PROM (ePROM) surveillance and collaborative care intervention to ePROM surveillance in reducing symptoms among patients managed in the oncology clinics of a multi-state health system. Patients were enrolled irrespective of cancer treatment, phase, or type. SPPADE symptoms (Sleep interference, Pain, impaired Physical function, Anxiety, Depression, and Energy deficit/fatigue) were assessed with 0-10-point numerical rating scales (NRSs). From March 2019 to January 2023, 50,207 patients were enrolled in the trial and administered ePROMs in association with oncology visits. Among these, 14,590 provided symptom NRS scores at least three times during the first year of surveillance. Latent trajectory remodeling was used to characterize patterns of change in physical function NRS scores during this interval.

Four distinct trajectory patterns were identified that may permit patient selection for proactive delivery of services to maintain and enhanced function.

OBJECTIVE

1. Characterize physical function trajectories among the diverse E2C2 trial cohort.
2. Describe the distribution of trial participants across the trajectories.
3. Estimate associations of demographic-, cancer-, and social determinants of health-related factors with

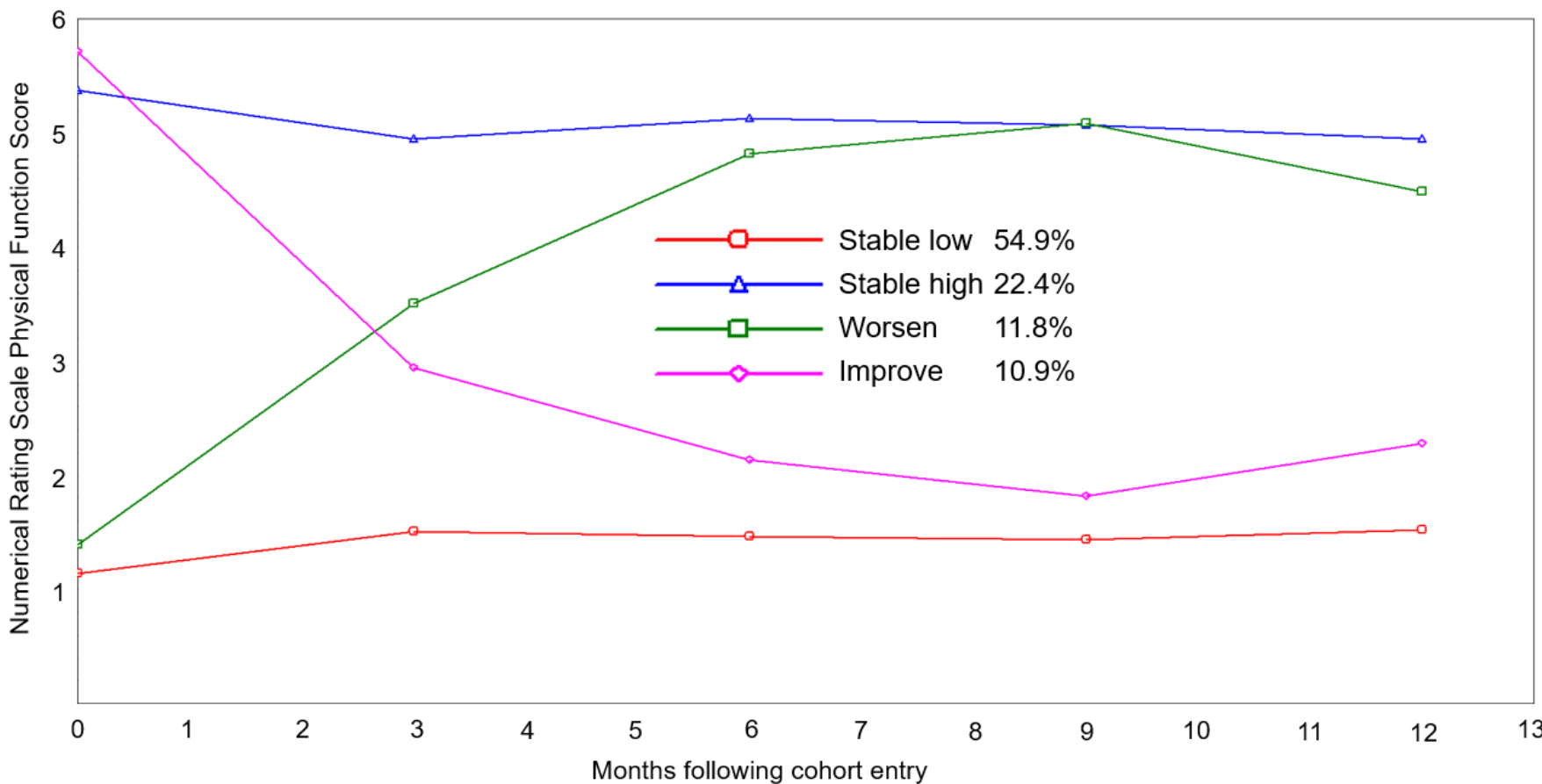
METHODS



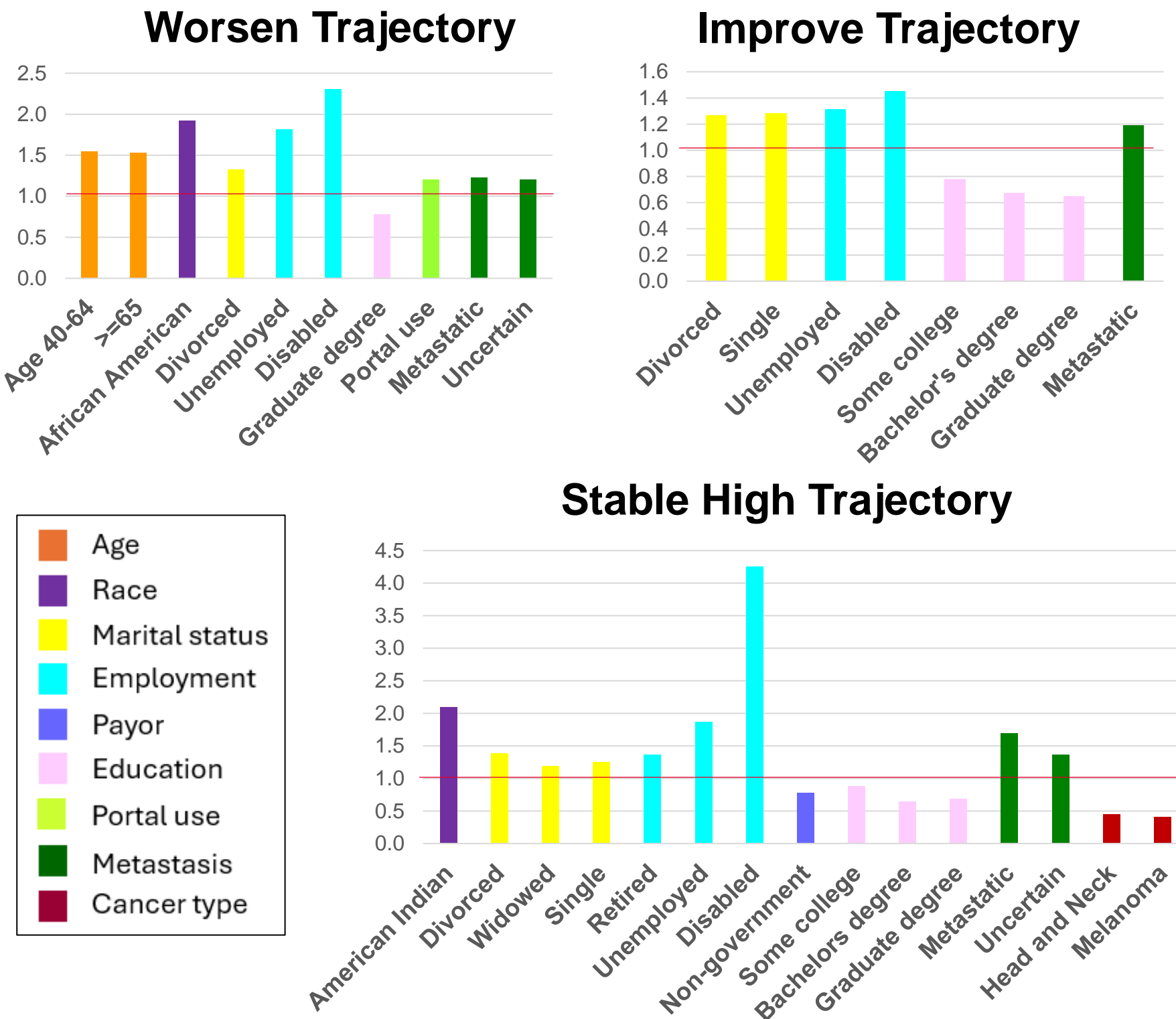
DISTRIBUTION OF PARTICIPANT FACTORS

Characteristic	Trajectory (Cluster)										p (χ²)
	Cohort		Stable Low		Stable High		Worsen		Improve		
	N	Row %	(Row %)		(Row %)		(Row %)		(Row %)		
N	14590	100%	8271	57%	3281	22%	1567	11%	1471	10%	
Age											<0.0001
< 40	926	100%	583	63%	158	17%	72	8%	113	12%	
40-64	6593	100%	3841	58%	1381	21%	712	11%	659	10%	
>= 65	7071	100%	3847	54%	1742	25%	783	11%	699	10%	
Sex											<0.0001
Female	8378	100%	4895	58%	1778	21%	834	10%	871	10%	
Male	6212	100%	3376	54%	1503	24%	733	12%	600	10%	
Ethnicity											0.0487
Not Hispanic or Latino	14409	100%	8180	57%	3235	22%	1549	11%	1445	10%	
Hispanic or Latino	132	100%	60	45%	41	31%	15	11%	16	12%	
Unknown	49	100%	31	63%	5	10%	3	6%	10	20%	
Race											0.0045
White	13935	100%	7939	57%	3119	22%	1477	11%	1400	10%	
African-American	132	100%	61	46%	36	27%	23	17%	12	9%	
American Indian/Alaska Native	63	100%	27	43%	23	37%	10	16%	3	5%	
Asian/Pacific Islander	251	100%	140	56%	49	20%	31	12%	31	12%	
Other/Unknown	209	100%	104	50%	54	26%	26	12%	25	12%	
Marital status											<0.0001
Married/Partnered	10526	100%	6172	59%	2220	21%	1096	10%	1038	10%	
Divorced/Separated	1300	100%	640	49%	357	27%	160	12%	143	11%	
Widowed	1177	100%	625	53%	315	27%	134	11%	103	9%	
Single	1564	100%	823	53%	383	24%	173	11%	185	12%	
Unknown	23	100%	11	48%	6	26%	4	17%	2	9%	
Employment											<0.0001
Employed	5985	100%	3814	64%	993	17%	576	10%	602	10%	
Retired	6934	100%	3745	54%	1727	25%	764	11%	698	10%	
Not Employed/Student	1108	100%	534	48%	297	27%	153	14%	124	11%	
Disabled	553	100%	172	31%	264	48%	71	13%	46	8%	
Unknown	10	100%	6	60%	0	0%	3	30%	1	10%	
Portal use	10972	100%	6355	58%	2436	22%	1112	10%	1069	10%	<0.0001
Metastasis											<0.0001
Not metastatic	4942	100%	3126	63%	843	17%	488	10%	485	10%	
Metastatic	6708	100%	3490	52%	1789	27%	749	11%	680	10%	
Uncertain	2940	100%	1655	56%	649	22%	330	11%	306	10%	
Cancer type											
Breast	3503	100%	2220	63%	597	17%	327	9%	359	10%	<0.0001
Endocrine	909	100%	507	56%	232	26%	82	9%	88	10%	0.0740
GI	3804	100%	2105	55%	845	22%	478	13%	376	10%	0.0004
GU	1998	100%	1019	51%	555	28%	231	12%	193	10%	<0.0001
Gyn	1272	100%	726	57%	262	21%	118	9%	166	13%	0.0006
Head and Neck	872	100%	530	61%	162	19%	92	11%	88	10%	0.0283
Heme	1428	100%	763	53%	372	26%	144	10%	149	10%	0.0053
Lung	2205	100%	1013	46%	697	32%	262	12%	233	11%	<0.0001
Melanoma	678	100%	448	66%	119	18%	59	9%	52	8%	<0.0001
Nervous System	1256	100%	699	56%	297	24%	150	12%	110	9%	0.1497
Sarcoma	913	100%	490	54%	222	24%	107	12%	94	10%	0.2694

TRAJECTORIES



MULTIVARIATE MODEL RESULTS



CONCLUSIONS

1. Sociodemographic factors and social determinants of health associate with physical function trajectories, to an equal or greater degree than cancer-related factors.
2. Patients at risk of persistently poor or worsening physical function trajectories may be identified on the basis of readily ascertainable characteristics.
3. Actionable targets to improve physical function trajectories may include social and domestic support, as well as engagement with patient portals

REFERENCES

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CORRESPONDENCE

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