SELF-RATED HEALTH, PHYSICAL ACTIVITY, MEASURES OF PHYSICAL FUNCTIONING AND MORTALITY AMONG OLDER U.S. ADULTS

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INTRODUCTION

Poor general health, inactivity, and functional limitations are three of the stronger predictors of mortality in older adults. Furthermore, the predictive power of functional limitation can depend on the specific measure assessed.

PURPOSE

The objective of this study was to determine if different measures of physical functioning (PF) can predict mortality independent of self-rated health (SRH) and physical activity (PA).

METHODS

A baseline sample of 6,173 adults 65+ years of age were included from the 2001-2018 NHANES.

A SRH variable was created with categories of excellent/very good, good, fair, and poor. PA status was based on participants reporting either no (inactive) or at least some (active) recreational PA. Seven different PF measures were used and included a 19-item total PF score (PFT), activities of daily living (ADL), instrumental activities of daily living (IADL), leisure and social activities (LSA), general physical activities (GPA), lower extremity mobility (LEM), and an IRT-derived total PF score (PFIRT). All PF measures were scored so larger values represented greater PF limitation.

Seven Cox regression models were employed each with a different PF measure and adjusted for age, sex, race, income, SRH, PA, BMI, BSI, smoking, alcohol consumption, and comorbidities.

RESULTS

A total of 2,103 deaths occurred during a median follow-up of 10.3 years. Risk of death decreased for 1st (HR=0.70, 0.60-0.82), 2nd (HR=0.77, 0.64-0.93), and 3rd (HR=0.82, 0.72-0.94) PFIRT quartiles (reference: 4th), increased for poor (HR=2.11, 1.51-2.97), fair (HR=1.82, 1.54-2.15), and good (HR=1.20, 1.07-1.35) SRH (reference: excellent/very good), and increased for inactive (HR=1.27, 1.12-1.43) PA status (reference: active).

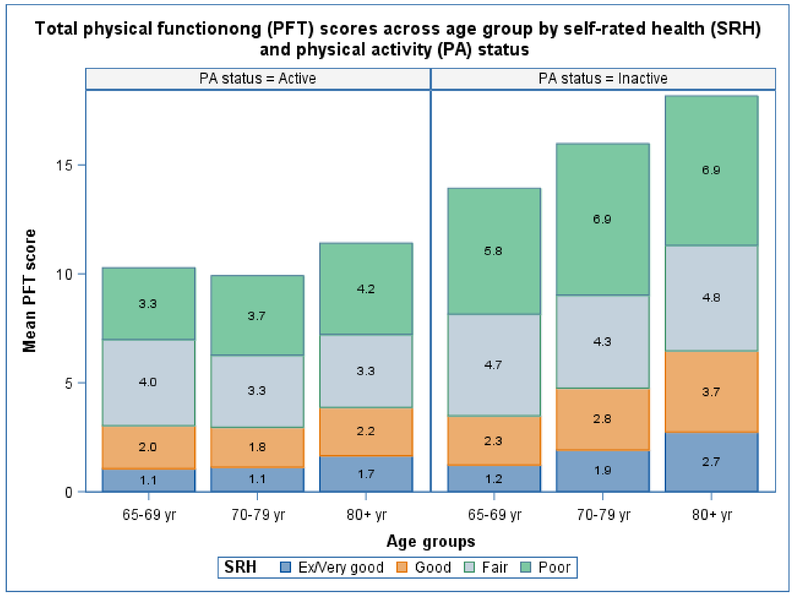
RESULTS

All PF models saw similar results less LSA where LSA lost its predictive ability.

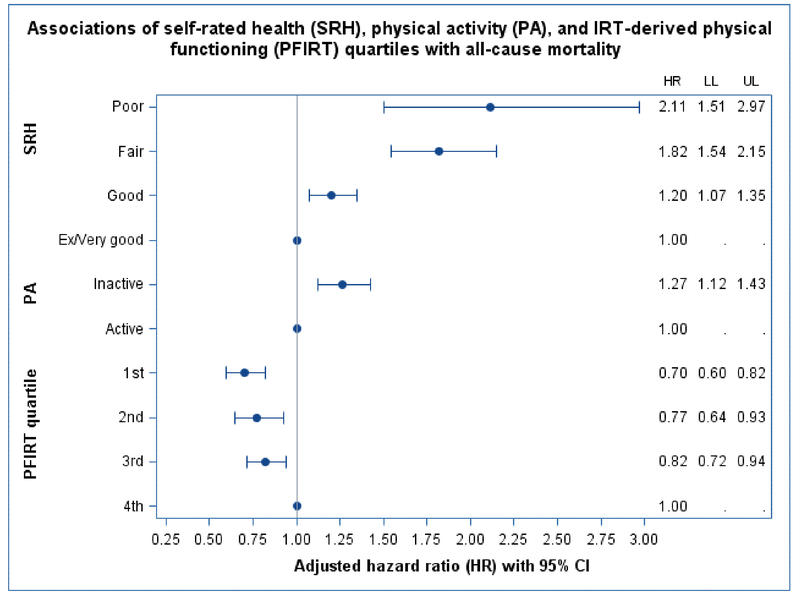
Table 1. Weighted percentages of physical functioning (PF) levels across sample characteristics.

	Physical functioning (PFT) categories									
	None (0) (N = 2,565)			Moderate (1 to 3) (N = 2,048)			High (4+) (N = 1,560)			χ^2
Characteristic	%	*LL*	*UL*	%	*LL*	*UL*	%	*LL*	*UL*	*p*
Overall	41.7	39.74	43.75	33.46	31.75	35.17	24.8	23.31	26.29	<.0001
Sex										<.0001
Female	36.0	33.83	38.25	33.85	31.84	35.85	30.1	28.07	32.16	
Male	48.7	45.92	51.47	32.98	30.32	35.64	18.3	16.32	20.32	
Age (yr)										<.0001
65 to 69	48.8	45.23	52.42	29.10	26.22	31.98	22.1	19.68	24.48	
70 to 79	40.3	37.76	42.78	35.24	32.87	37.62	24.5	22.44	26.54	
80+	29.5	26.67	32.30	38.60	35.54	41.65	31.9	28.75	35.09	
Race/Ethnicity										.4070
White	41.3	38.98	43.60	33.73	31.74	35.73	25.0	23.30	26.65	
Black	46.4	42.95	49.77	31.86	28.38	35.34	21.8	18.86	24.70	
Hispanic	41.8	38.11	45.57	32.49	28.96	36.02	25.7	22.92	28.41	
Other	43.3	37.27	49.24	31.74	25.65	37.82	25.0	18.08	31.93	
Income quartile										.0479
1st	34.0	30.78	37.24	31.24	28.11	34.37	34.7	31.44	38.06	
2nd	37.9	34.76	41.09	32.83	29.89	35.77	29.2	26.40	32.10	
3rd	42.0	38.48	45.46	33.00	29.39	36.60	25.0	22.22	27.85	
4th	47.5	42.88	52.06	35.22	31.53	38.91	17.3	14.65	19.98	
BMI category										<.0001
Underweight	45.2	32.39	57.98	28.54	16.17	40.92	26.3	13.95	38.60	
Normal weight	48.1	44.96	51.22	32.36	29.58	35.13	19.6	16.81	22.29	
Overweight	43.9	40.72	47.12	33.87	31.02	36.72	22.2	19.82	24.60	
Obese	33.7	30.98	36.39	34.07	31.08	37.07	32.2	29.27	35.21	
Has a disease										<.0001
No	56.8	53.90	59.69	30.55	27.89	33.20	12.7	10.84	14.48	
Yes	32.5	30.21	34.87	35.24	33.16	37.32	32.2	30.24	34.20	

Note. N = 6,173. PFT is a total PF score from all 19 PF items. p-values are from the Rao-Scott chi-square (X^2) statistic. % is the weighted estimate. LL and UL are the lower and upper limits, respectively, of the 95% confidence interval (CI) estimating the %.



RESULTS



CONCLUSIONS

PF was clearly more problematic in physically inactive adults with inferior self-rated health. LSA was the only PF measure that could not provide survival benefit above SRH and PA. These findings indicate that SRH, PA, and PF are robust independent predictors of all-cause mortality in older adults. Finally, PA may provide a social benefit that protects this population from all-cause mortality.

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