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Introduction

- Falling among older adults is common and can cause chronic health complications
- Fear of falling is strongly associated with falls and falls risk
- Although White older adults fall more, Black older adults have more fall risk factors
- This study investigated factors that explain fear of falling and differences between White and Black community-dwelling older adults in fear of falling and fall risk factors

Methods

- This is a cross-sectional, retrospective design
- Statistical analyses included ordinal logistic regression model to examine which factors predicted fear of falling, one-way ANOVA for continuous variables, the Fisher exact test for categorical variables, the Mann-Whitney-Wilcoxon test for ordinal variables
- Eighty-four diverse community-dwelling older adults (White, n=37; Black, n=47) participated

Table 1: Participant Characteristics

Variables	Sample (n=84)	Black (n=47, 56%)	White (n=37, 44%)	P-Value
	M ± SD	M ± SD	M ± SD	
Age (Years)	69.0 ± 5.2	68.3 ± 5.1	70.0 ± 5.3	0.147
Years of Education (Years)	15.1 ± 2.7	14.4 ± 2.5	16.0 ± 2.7	0.007*
Comorbidities (No.)	2.8 ± 1.9	2.87 ± 1.7	2.8 ± 2.0	0.886
Prescription Medications (No.)	3.15 ± 3.05	2.72 ± 2.68	3.67 ± 3.41	0.159
MoCA [^] (/30)	24.88 ± 3.63	23.77 ± 3.62	26.19 ± 3.23	0.002*
	n (%)	n (%)	n (%)	
Sex (Male/Female)	20 (64)	11 (36)	9 (28)	
Transportation ^a				0.216
Self	65 (77.4%)	34 (72.3%)	32 (86.5%)	
Family	7 (8.3%)	7 (14.9%)	1 (2.7%)	
Service	6 (7.1%)	4 (8.5%)	2 (5.4%)	
Public	7 (8.3%)	4 (8.5%)	3 (8.1%)	
Type of Housing				0.342
Own House	58 (69.1%)	30 (63.8%)	28 (75.7%)	
Senior Residence	26 (54.2%)	17 (36.2%)	9 (24.3%)	
Fear of Falling Median (IQR)	2 (1.75)	1 (1.12)	2.5 (3.0)	
Fear of Falling Rating n(%)				
1	43 (49.4)	30 (57.7)	13 (37.1)	
2	13 (14.9)	9 (17.3)	4 (11.4)	
2.5	9 (10.3)	5 (9.6)	4 (11.4)	
3	4 (4.6)	2 (3.8)	2 (5.7)	
4	15 (17.2)	5 (9.6)	10 (28.6)	
5	2 (2.3)	0 (0)	2 (5.7)	
6	1 (1.1)	1 (1.9)	0 (0)	
ABC ^{^^} Average Score Quartiles, n (%)				
q1	20 (23)	10 (19.2)	10 (28.6)	
q2	23 (26.4)	14 (26.9)	9 (25.7)	
q3	21 (24.1)	10 (19.2)	11 (31.4)	
q4	23 (26.4)	18 (34.6)	5 (14.3)	

Table 1. Values are presented as n (%) or median (IQR) as labeled; ^a People who selected multiple modes were counted multiple times; * Significant at the alpha=0.05 level; [^] Montreal Cognitive Assessment; ^{^^} Activities Specific Balance Confidence; P-values were calculated with Chi-square test.

Results

Table 2. Table 2: Multivariate Logistical Models[^] for Factors Influencing ABC^{***} Score^a

	OR	95% CI	Coeff.	SD	t	p-value
Full Model						
Sex (M/F)	1.06	0.52, 2.13	0.055	0.359	0.153	0.879
Age (Years)	0.97	0.9, 1.06	-0.027	0.041	-0.65	0.516
Number of Falls in Past Year	0.87	0.72, 1.01	-0.139	0.081	-1.72	0.086
Race (B/W) (Ref=W)	0.33	0.11, 0.94	-1.117	0.545	-2.05	0.041*
MoCA ^b score (/30)	1.1	0.95, 1.3	0.1	0.08	1.242	0.214
Preferred Gait Speed (m/s)	7.23	0.22, 245.43	1.978	1.756	1.127	0.26
Backward Gait Speed (m/s)	2.59	0.2, 38.5	0.95	1.328	0.715	0.474
Fast Gait Speed (m/s)	4.77	0.82, 30.39	1.563	0.907	1.723	0.085
Number of Medications	0.94	0.76, 1.16	-0.061	0.108	-0.56	0.575
Number of Comorbidities	0.93	0.71, 1.21	-0.068	0.133	-0.51	0.609
Use of Assistive Device (Y/N) (Ref=Y)	1.59	0.31, 8.24	0.461	0.827	0.557	0.577
Years of Education	1.02	0.81, 1.28	0.021	0.117	0.18	0.857
Physical Component Score (PCS)	1.06	1.0, 1.12	0.055	0.03	1.856	0.063
Mental Component Score (MCS)	1.05	0.99, 1.11	0.047	0.028	1.697	0.09
Reduced Model						
Number of Falls in Past Year	0.88	0.74, 1.01	-0.132	0.073	-1.8	0.071
Race (B/W) (Ref=W)	0.27	0.10, 0.67	-1.308	0.474	-2.76	0.006*
MoCA Score (/30)	1.15	1.0, 1.32	0.136	0.07	1.953	0.051
Preferred Gait Speed (m/s)	13.08	0.73, 254.84	2.571	1.475	1.743	0.081
Fast Gait Speed (m/s)	6.29	1.24, 36.4	1.839	0.851	2.16	0.031*
Physical Component Score (PCS)	1.06	1.01, 1.11	0.054	0.026	2.08	0.038*
Mental Component Score (MCS)	1.05	1.0, 1.1	0.049	0.025	1.991	0.046*

Discussion

- Predictive of fear of falling in the regression model, suggesting that these combined factors may interact to provide insight into fear of falling.
- Participants did not differ in number of falls in the past year, although Black adults performed more poorly on fall risk indicators.
- White participants were more worried about falling. Fall risk indicators appear to impact the races differently on fear of falling.
- Slower gait speed is associated with fear of falling and fall risk in older adult populations.

Relevance of Findings

- The ANOVAs indicated that White participants had higher values on the Fear of Falling Single Item, indicating greater subjective FoF than Black participants (p=0.043) (Table 3).
- The ANOVAs indicated that Black participants had slower fast gait speeds (p=0.032) and lower MoCA scores (p=0.002) than White participants (Table 3).
- Reasons for racial differences should be examined further in fear of falling and balance confidence to facilitate the development of patient-centered falls prevention physical therapy programs.

Results

Table 3. Performance on Motor-Cognitive and Executive Function Tasks and SF-12 Surveys between Groups¹

Fall Risk Factors	Group	N	Mean	SD	Tests Statistic	P-Value	
Number of Falls in Past Year ²	White	35	0.54	1.01	Z=0.501	0.617	
	Black	45	0.44	0.76			
	Overall	80	0.49	0.87			
Number of Prescription Medications ²	White	36	3.67	3.41	Z=1.408	0.159	
	Black	43	2.72	2.68			
	Overall	79	3.15	3.05			
Use of Assistive Device ³ (Y/N) (Ref=Yes)	White	37	0.30	0.66	W=904	0.669	
	Black	47	0.34	0.67			
	Overall	84	0.32	0.66			
MoCA [^] (/30) ¹	White	37	26.19	3.23	F=9.87	0.002*	
	Black	44	23.77	3.62			
	Overall	81	24.88	3.63			
Preferred Gait Speed (m/s) ¹	White	37	1.17	0.20	F=3.62	0.06	
	Black	44	1.06	0.29			
	Overall	81	1.11	0.26			
Backward Gait Speed (m/s) ¹	White	37	0.83	0.24	F=1.59	0.211	
	Black	44	0.75	0.30			
	Overall	81	0.79	0.27			
Fast Gait Speed (m/s) ¹	White	37	1.63	0.37	F=4.748	0.032*	
	Black	44	1.44	0.40			
	Overall	81	1.52	0.40			
SF12: Physical Composite Score ¹	White	36	47.37	12.48	F=0.992	0.322	
	Black	47	49.90	10.61			
	Overall	83	48.80	11.46			
SF12: Mental Composite Score ¹	White	36	51.44	8.79	F=0.036	0.849	
	Black	47	51.82	9.14			
	Overall	83	51.66	8.94			
Fear of Falling Factors							
	Activities Specific Balance Confidence (/100)	White	36	89.03	12.31	F=0.251	0.618
		Black	40	86.87	23.05		
Overall		76	87.89	18.66			
Single Item Fear of Falling (/7) ^{3,4}	White	37	2.41	1.39	W=661	0.043*	
	Black	47	1.89	1.49			
	Overall	84	2.12	1.46			

Table 3: Differences by Race in Fall Risk Factors and Fear of Falling; results are presented by mean + standard deviation, and separated by White, Black, and Overall (whole sample); ¹One-way ANOVA analysis for normally distributed continuous variables was performed; ²One-way ANOVA based on negative binomial regression analysis for non-normal continuous variables was performed; ³Mann-Whitney Wilcoxon test for ordinal variables was performed; ⁴Higher=worse

* Significant at the alpha=0.05 level; [^] Montreal Cognitive Assessment

Conclusions

The impact of race should be examined further for differences in perceptions and beliefs related to fear of falling to facilitate the development of patient-centered falls prevention physical therapy programs.

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