Higher Fear of Falling is Associated With More Falls and Decreased Mobility at 6-Month Follow Up

Maya Herzig[1]; Rebecca Rdesinski, MPH, MSW[1]; Ron Blehm, PT[2]; Lisa Miura, MD[1,2]
[1]Oregon Health & Science University, [2]VA Portland Healthcare System

Background

- The Portland VA Fall Assessment Clinic was established in 2013 to provide comprehensive fall risk assessment for VA patients.
- Fall risk is multifactorial including: movement and balance disorders, mood and cognitive disorders, and fear of falling.
- The Falls Efficacy Scale International (FES-I) was developed to measure fear of falling, defined as "low perceived self-efficacy at avoiding falls during essential, nonhazardous activities of daily living." (Tinetti 1990)

		None	A Little	Medium	A Lot
		No Concern	Somewhat Concerned	Fairly Concerned	Very Concerned
1.	Getting dressed or undressed	1	2	3	4
2.	Taking a shower or bath	1	2	3	4
3.	Getting in or out of a chair	1	2	3	4
4.	Going up or down stairs	1	2	3	4
5.	Reaching for something above your head or on the ground	1	2	3	4
6.	Walking up or down a slope	1	2	3	4
7.	Going out to a social event (religious service, family gathering, club meeting)	1	2	3	4
	Total				

Adapted from the Prevention of Falls Network Europe. Falls Efficacy Scale International Kempen GIJM, Yardley L, Haastregt JCM van, Zijlstra GAR, Beyer N, Hauer K, Todd C

- Prior research correlated FES-I scores and 12-month history of falls as well as objective assessment of balance in older people with age-induced instability. (del-Rio-Valerias 2016)
  - Score of 7-14 was useful in distinguishing patients in a "low concern" group of up to three falls
  - Score of 15-28 was "high concern" suggesting at least four falls.
  - Higher baseline FES-I scores were also associated with increased incidence of mobility disability at 2-year follow up. (Auais 2018)
- This short 7-item FES-I score has good sensitivity to change in older adults with and without cognitive impairment undergoing a standardized intervention. (Hauer 2011)

Methods

Participants in the study:
- Portland Veteran Affairs Medical Center (PVAMC) patients
- Ages 50+
- Referred to the VA Fall Assessment Clinic (FAC) by their primary care or specialty care provider.
- Attended a follow up visit in the clinic and have agreed to participate by signing a consent form.
- Ambulatory without acute fall injuries.

Baseline assessment and 6-month follow up including a thorough history and physical exam, chart review for falls history (admissions and ED visits), gait and balance functional tests, and an interprofessional falls risk assessment and plan for fall prevention and exercises are provided to the patient.

Table 1. Participant baseline characteristics. High fear of falling (FOF) includes participants with baseline FES-I >14 and low FOF baseline FESI 7-14.

	All	High FES-I	Low FES-I
n	157	78	79
Age	76.7	74.9	78.5
Sex	146M; 11F	71M; 7F	75M; 4F
Baseline FES-I	15.3	19.9	10.7*
BADL	5.1	4.8	5.5*
IADL	5.4	4.5	6.3*
Falls in Past Year	14.2	19.4	8.7*
PHQ2	1.4	2.2	0.7*
Mini-Cog	3.2	3.2	3.1
Comorbidities	6.4	7.0	5.8

- P<0.05 between High FOF and Low FOF groups by T-test or Mann-Whitney U Test.
- FES-I (Falls Efficacy Scale International): 28 most concerned; BADL (Basic Activities of Daily Living): 6 maximum; IADL (Instrumental Activities of Daily Living): 8 maximum; PHQ2 (Patient Health Questionnaire 2): 6 most depressed; Mini-Cog: 0 most cognitively impaired.

Results

- A total of 157 participants completed the FES-I at their baseline visit and 6-month follow up (mean follow up = 5.9 months).
- Participants had an average of 6.3 recommended interventions after the first visit.
- 43% of participants had increased fear of falling, 43% had decreased fear of falling, and 21 participants had no change in their FES-I at 6 month follow-up.
- There was a non-significant linear correlation between change in FES-I and number of falls at 6-month follow up (Chart 1).

Table 2. Participant follow-up results. Increased fear of falling (FOF) includes participants with change in FES-I from baseline to follow up >0 and decreased FOF change in FESI <0. P values by T-test or Mann-Whitney U Test.

	Increased FES-I (n=68)	Decreased FES-I (n=68)	P
Age	76.2	76.1	0.832
Baseline FES-I	13.7	17.6	**<0.05**
Follow Up FES-I	17.5	12.5	**<0.05**
Change in FES-I	+ 3.85	- 5.12	**<0.05**
Baseline BADL	5.0	5.2	**0.045**
Baseline IADL	5.1	5.6	0.728
Baseline Falls	14.8	15.5	0.440
Follow Up Falls	4.8	2.1	**0.016**
PHQ2	1.3	1.7	0.361
Mini-Cog	3.3	3.2	0.927
Comorbidities	6.5	6.5	0.860
Change in TUG	+ 3.57s	- 2.52s	0.392
Change in Gait Speed	+ 0.1 m/s	+ 0.06 m/s	0.183

- P values by T-test or Mann-Whitney U Test.
- FES-I (Falls Efficacy Scale International): 28 most concerned; BADL (Basic Activities of Daily Living): 6 maximum; IADL (Instrumental Activities of Daily Living): 8 maximum; PHQ2 (Patient Health Questionnaire 2): 6 most depressed; Mini-Cog: 5 most cognitively impaired; TUG (Timed Up and Go).

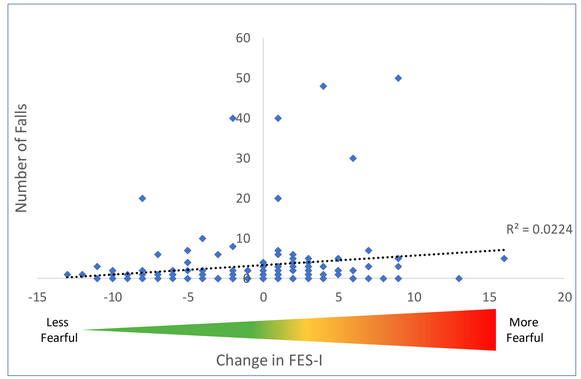

Chart 1. Change in FES-I at 6-month follow up from baseline versus number of self-reported falls since baseline.

Conclusions

- Participants with increased fear of falling at 6-months had:
  - Significantly more falls
  - An average greater decrease in functional mobility as measured by longer Timed Up and Go (TUG).
- The FES-I is easily implemented in a brief visit and would be valuable to know increase in FES-I scores may suggest to a clinician that a patient is functionally declining in situations where a more detailed fall risk assessment may be limited by time factors.
- Possible empiric interventions to include CBT, Tai chi, and postural control exercises that have been shown to reduce fear of falling. (Duenas 2019, Parry 2016)
- Future analysis should include sub-group analyses of the magnitude of change in FES-I

Contact

Maya Herzig
OHSU SOM
Email: herzig@ohsu.edu

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