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Rebecca Brown MS2
USF MCOM- LVHN Campus

Marna R. Greenberg DO, MPH, FACEP
Lehigh Valley Health Network, marna.greenberg@lvhn.org

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Vulnerable Elder Survey as a Predictor of Falls in the Emergency Medicine Setting

Rebecca Brown, Marna Greenberg, DO, MPH

Lehigh Valley Health Network, Allentown, PA

Introduction/Background

In 2005, more than 2 million fractures from low impact falls occurred in older adults in the US, costing nearly 17 billion to the US health system. This highlights the importance of developing targeted interventions to reduce fall risk among older adults. A variety of effective fall prevention strategies exist, with some of the most effective strategies requiring the greatest resources. In order to maximize impact, it is critical to identify those most vulnerable and most-likely to benefit from intensive intervention. It can be hypothesized that elders with greater health deterioration and functional decline are more likely to fall than those whose health is stable. The Vulnerable Elder Survey (VES-13) is a validated screening tool used to assess health deterioration and functional decline, but it has not yet been reported in the literature as a direct predictor of falls.

Problem Statement

The purpose of this study is to systematically evaluate whether VES-13 can serve as a predictor of falls amongst elder adults within six weeks of screening in the Emergency Department.

Methodology

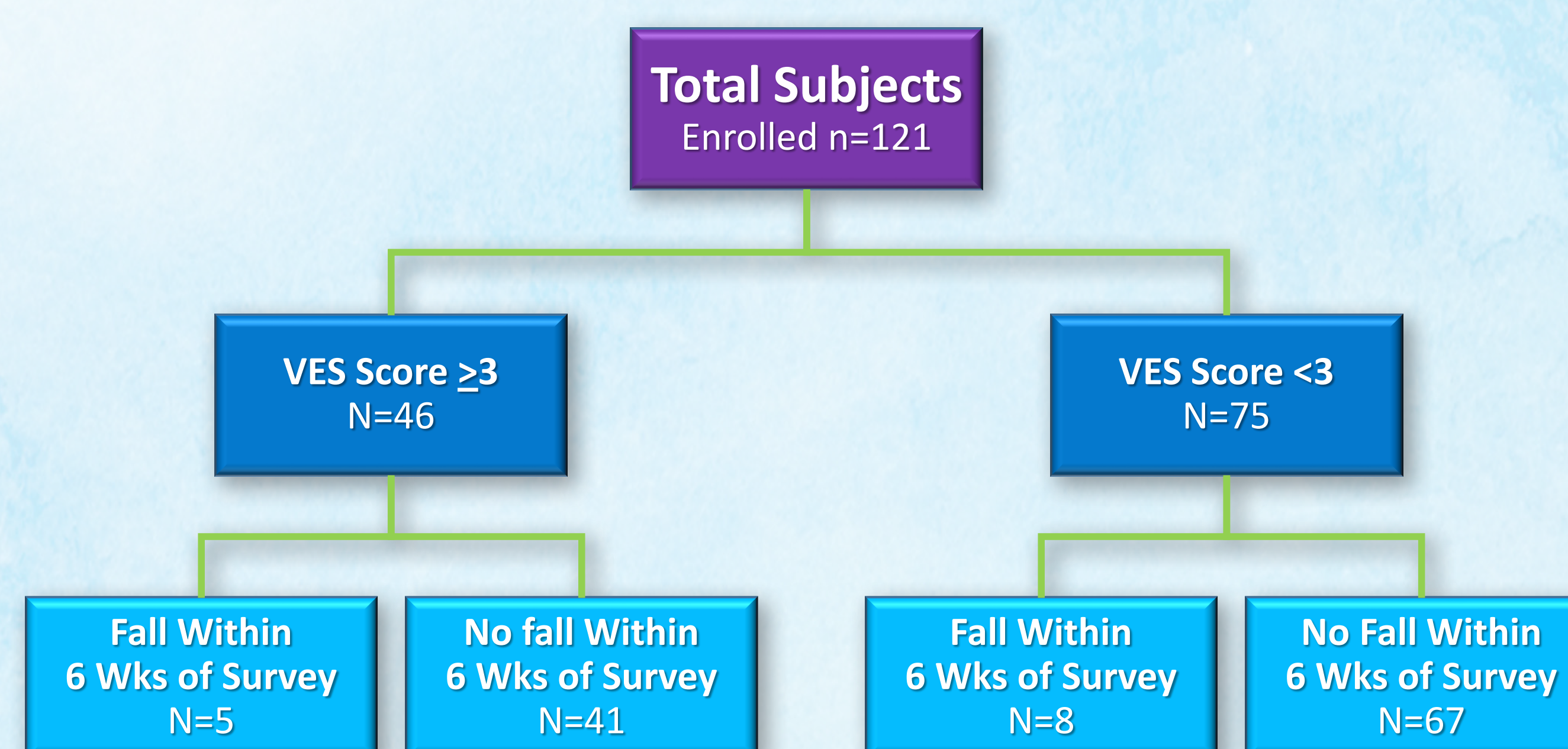
This study is a part of a larger prospective randomized controlled trial at the Lehigh Valley Health Network Emergency Department (ED) aimed at determining if the use of a mechanical fall decision aid at the bedside improves patient participation in the management of future fall prevention. The study was approved by the hospital's institutional review board. ED patients aged ≥ 65 were eligible for the study if they had a mechanical fall risk defined by either falling within the last year, worrying about falling, or feeling unsteady when standing or walking. Demographic data was collected and VES-13 screening was completed for subjects of the control and active arms of the study. A VES-13 score of ≥ 3 was considered a positive screening score for vulnerability. Participants received a telephone follow-up call six weeks after enrollment, where they were asked to answer a standardized questionnaire about their fall history. Fall outcomes were compared amongst "vulnerable" versus "not-vulnerable" groups using pairwise two-sample T-tests and one-way analysis of variance.

Results

All 121 patients who initially consented for the study remained enrolled at six weeks following their ED visit. The mean age of the participants was 74.3 years (standard deviation 7.5). There were 13 patients who reported at least one fall in the six weeks following their ED visit. Of those who had fallen, only 5 had VES-13 scores of ≥ 3 . Of the 108 patients who did not fall, 41 had VES-13 scores of ≥ 3 . A VES-13 score of ≥ 3 had a positive predictive value 10.9% (CI 95, 0.044-0.188) for a fall within six weeks of administration. A score of < 3 had a negative predictive value of 89.3% (CI 95, 0.854-0.942). Subjects who had a VES-13 score of ≥ 3 were 2% more likely to fall than those with a score of < 3 (OR 1.02, CI 0.268-3.765).

Parameter	Sample (N=121) % (N)
Gender, Male	44.6 (54)
Race/Ethnicity	
White	95.0 (115)
Black	<0.1 (2)
Hispanic or Latino	<0.1 (4)
Live alone	30.6 (37)
Prescribed assistive device	25.6 (31)
Use assistive device	29.8 (36)

Figure 1. Consort Diagram



Conclusions and Future Implications

Those with a positive VES-13 screening (≥ 3) were statistically no more likely to have fallen at six weeks than those with a score of < 3 ($p=1.00$). Therefore, VES-13 would not effectively identify those most vulnerable and with the greatest need for intensive intervention. Alternative screening methods should be evaluated in order to guide the allocation of limited resources in preventing falls.



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