

Impact of fear of falling and physiological fall risks on ambulatory activity in people with cognitive impairment

Aim

In this study, we characterized **gait impairments** and **ambulatory activity** in people with cognitive impairment, categorized in four groups according to their physiological and psychological fall risks (1).

- Vigorous**- low physiological fall risk and low psychological fall risk
- Anxious**- low physiological fall risk and high psychological fall risk
- Stoic**- high physiological fall risk and low psychological fall risk
- Aware**- high physiological fall risk and high psychological fall risk

We hypothesized that people with greater fear of falls walk slower and have shorter steps than those with lower fear of falls as they might tend to walk more cautiously.

Introduction

People living with mild cognitive impairment have greater cognitive decline in cognitive function than normal ageing, but activities of daily living are not significantly affected. Mild cognitive impairment is regarded as a precursor to dementia.

People with mild cognitive impairment and dementia experience problems with physical mobility and have high prevalence of falls because of cognitive decline. With falls in older adults becoming a major public health concern, preventing falls has become an important dementia research area.

Studies have been proposed that gait performance can reflect cognitive functions that gait assessments can be used to screen cognitive dysfunction and at the same time gait and ambulatory activities is associated with fall risks. Increasing evidence shows that gait parameters can be used to predict fall risks, although it is not certain which specific characteristics can best predict falls in people.

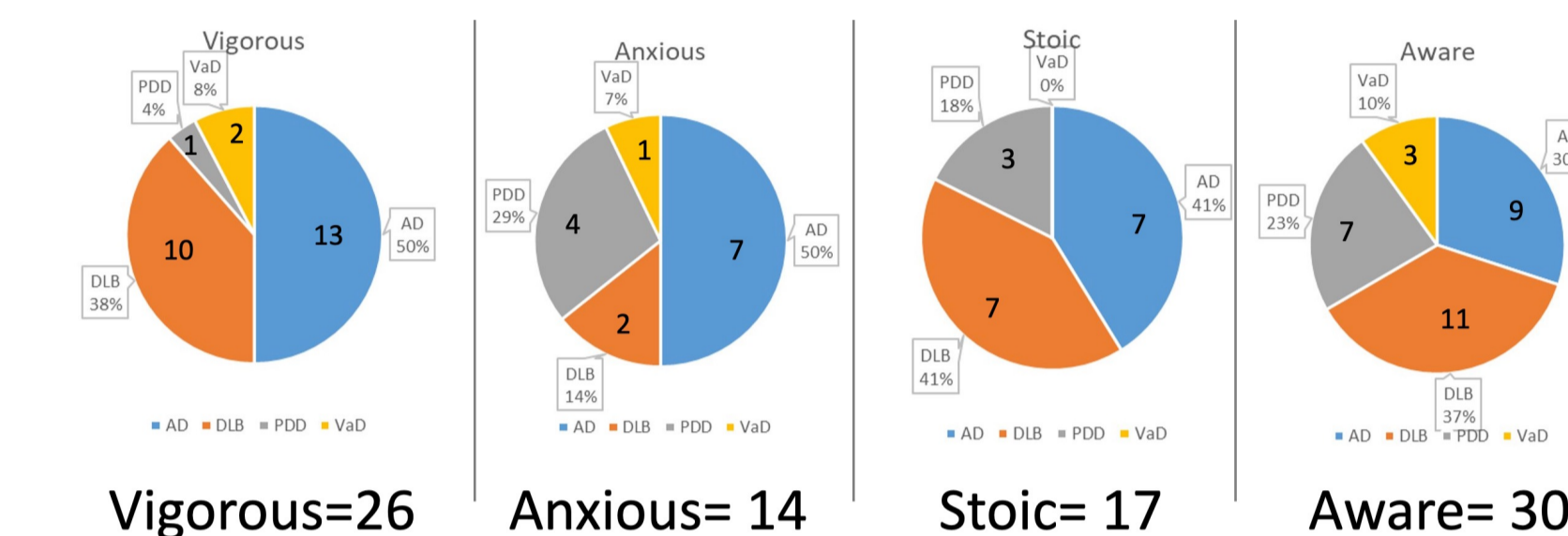
The cause of falls usually associated with multiple factors and should be assessed using falls risk factors. Risk factors can be categorized as intrinsic- dementia, cognitive impairment, and extrinsic- environmental impact. The risk of falling increases with the number of risk factors.

Fear of falling has been recognized as a major problem in elderly who have fallen and also in those who do not have a history of falling. It can impact both physical and mental health and contribute to reduced physical activities and increase the risk of falling. Many interventions to reduce fear of falling have been proved effective but the imbalance between physical ability (physiological fall risks) and fear of falling (psychological fall risks) might lead to overconfidence which even increase their risk of falling.

Results

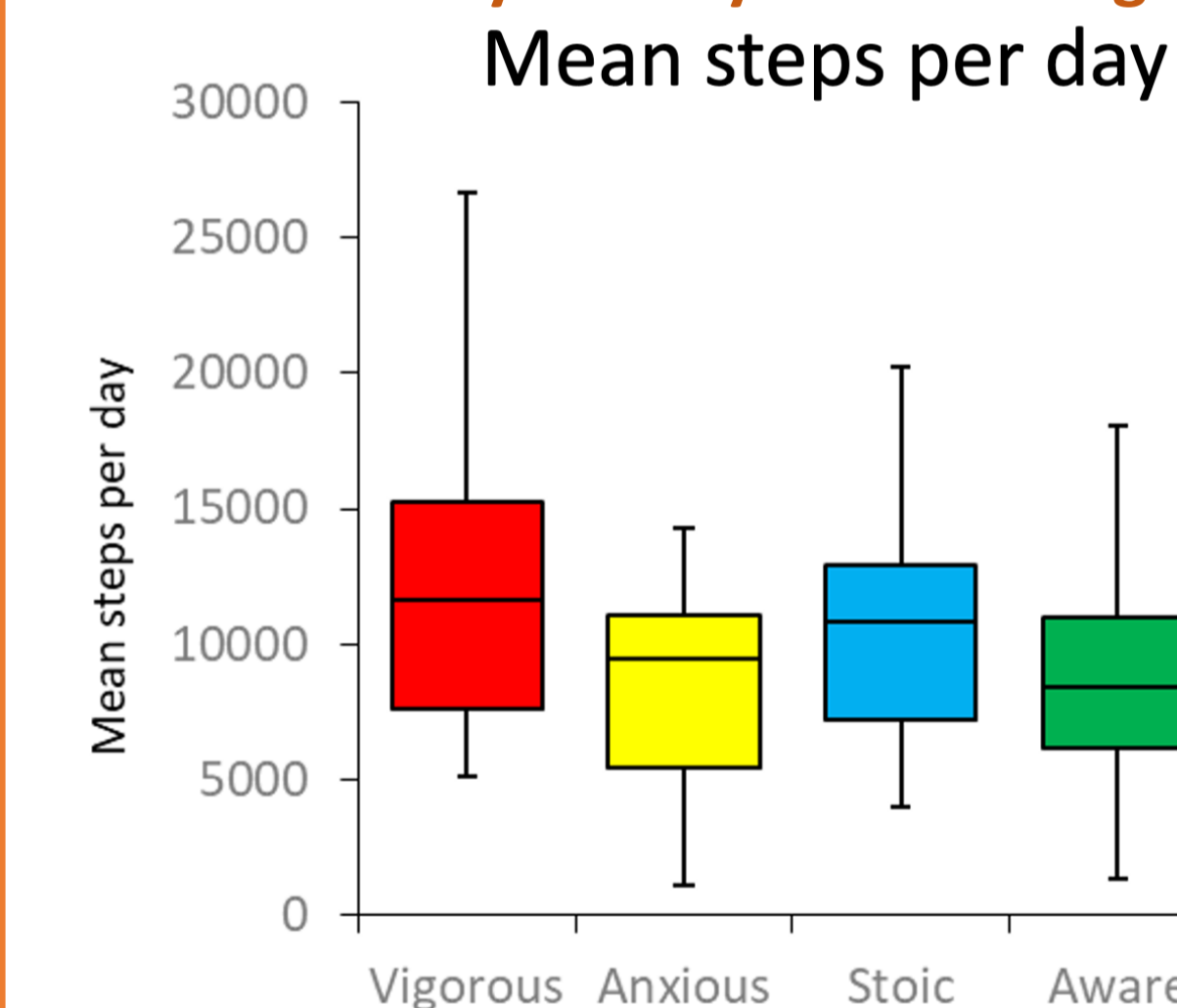
Demographic Information

Most people have congruent physiological and psychological fall risks (Low physiological fall risks with low psychological fall risks High physiological fall risks with high psychological fall risks)



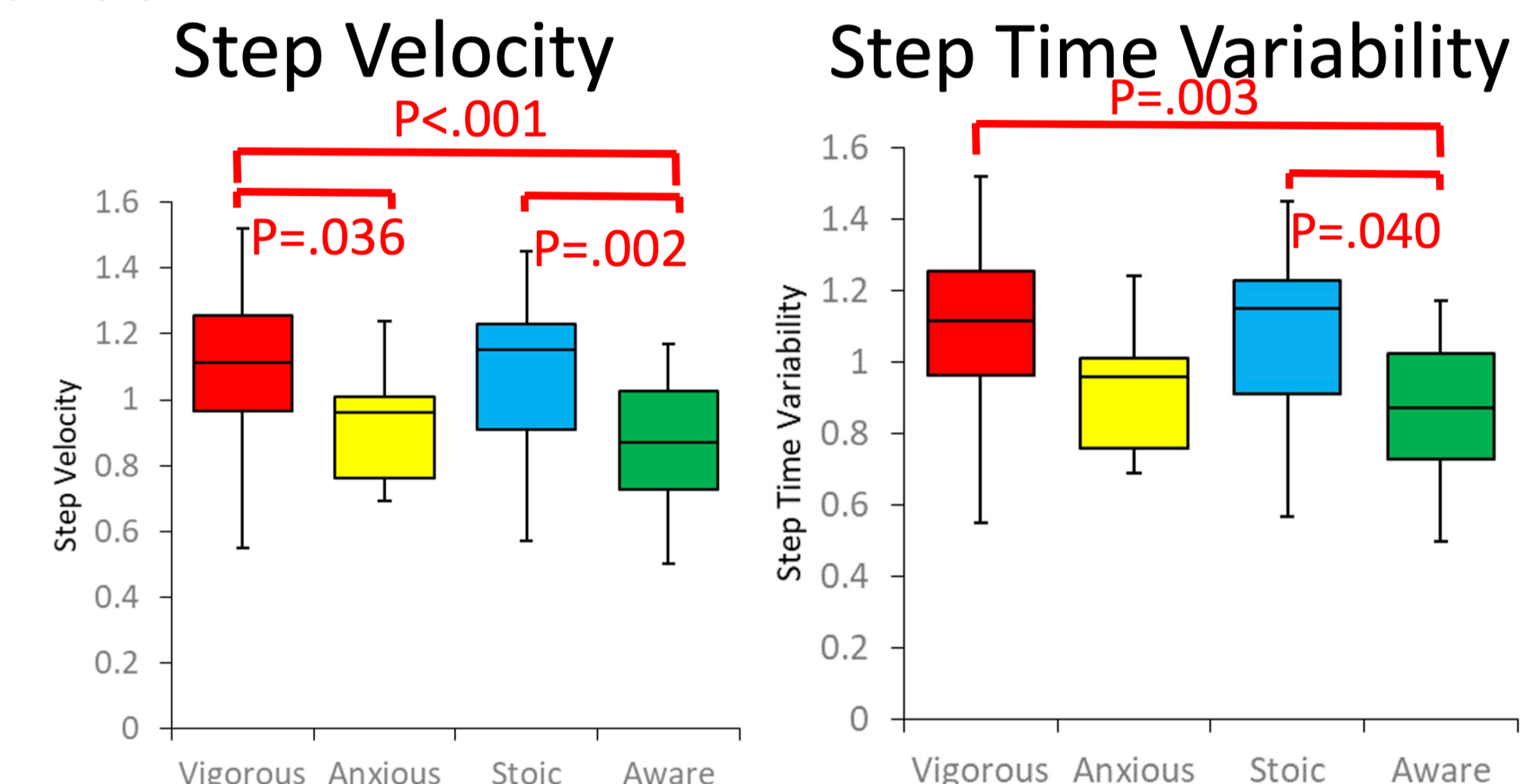
'Vigorous'+ 'Aware'=64% 'Anxious'+ 'Stoic'=36%
A total of 125 participants were recruited to this study, after excluding control group and some other participants, 87 participants were left to proceed to secondary data analysis. Physiological fall risks were determined using faller/non-faller (people who had fallen in the year previous were considered as having high physiological fall risk). Psychological fall risks were determined using Activities-specific Balance Confidence Scale (people with scores<82 were considered as having high psychological fall risk)

Ambulatory activity in free living



No significant difference out of 8 characteristics
In (2), they found Vigorous>Anxious>Stoic>Aware in normal ageing older adults

Gait performance in clinical environment



People with low physiological and psychological fall risks had **better gait performance** than people with high physiological and psychological fall risk
For people with low physiological fall risk, those who don't worry about falling walk faster and have longer step length
For people with high physiological fall risk, those who don't worry about falling walk faster, have longer step length, and greater step time and stance variability [out of 16 gait characteristics]

Conclusions

Most people with low physiological risk of falls do not worry about having a fall
Most people with high physiological risk of falls worry about having a fall

For people with low physiological fall risk, those who don't worry about falling walk faster and have longer step length
For people with high physiological fall risk, those who don't worry about falling walk faster, have longer step length, and greater step time and stance variability

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