

# Cognitive frailty and arterial stiffness – findings from the FRAXI study

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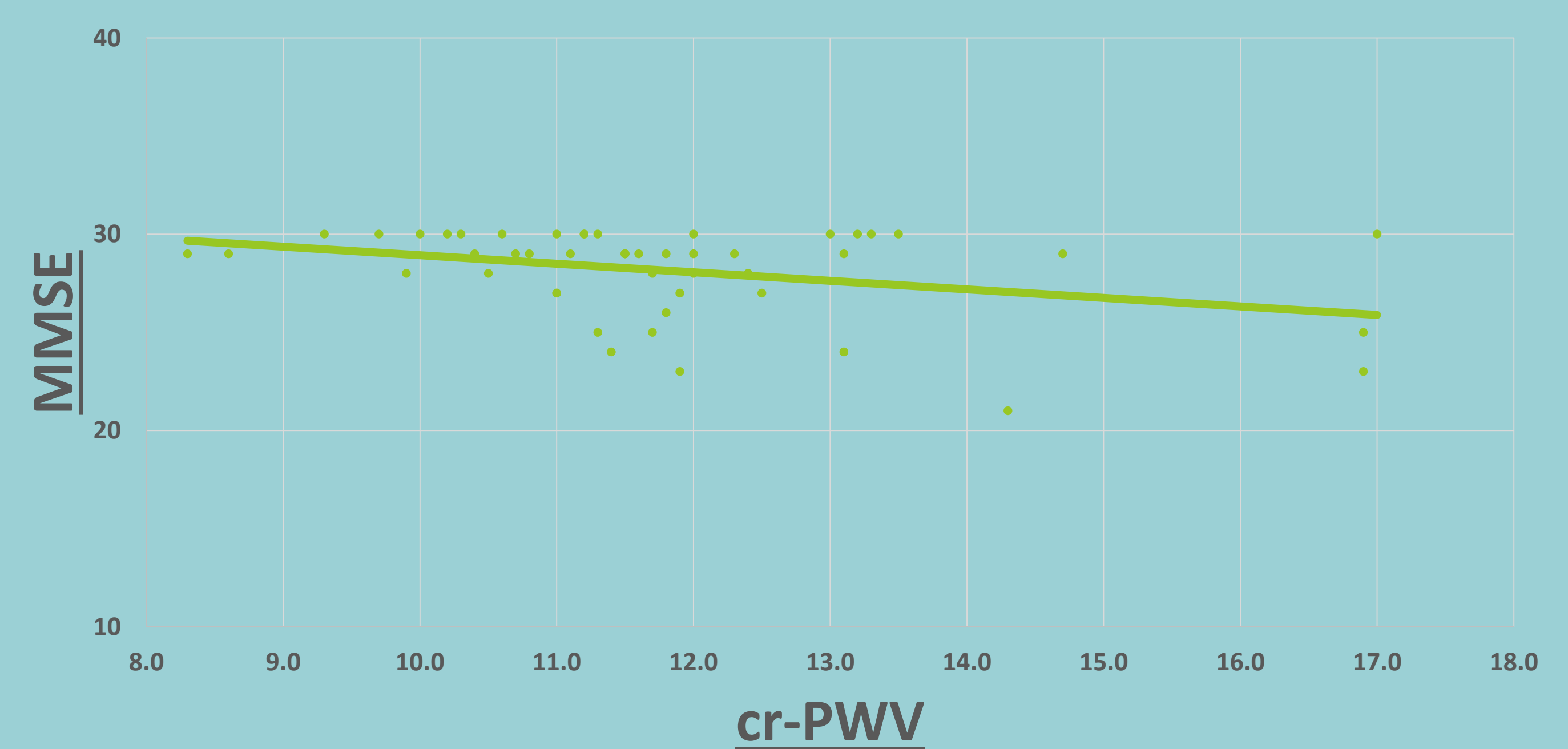
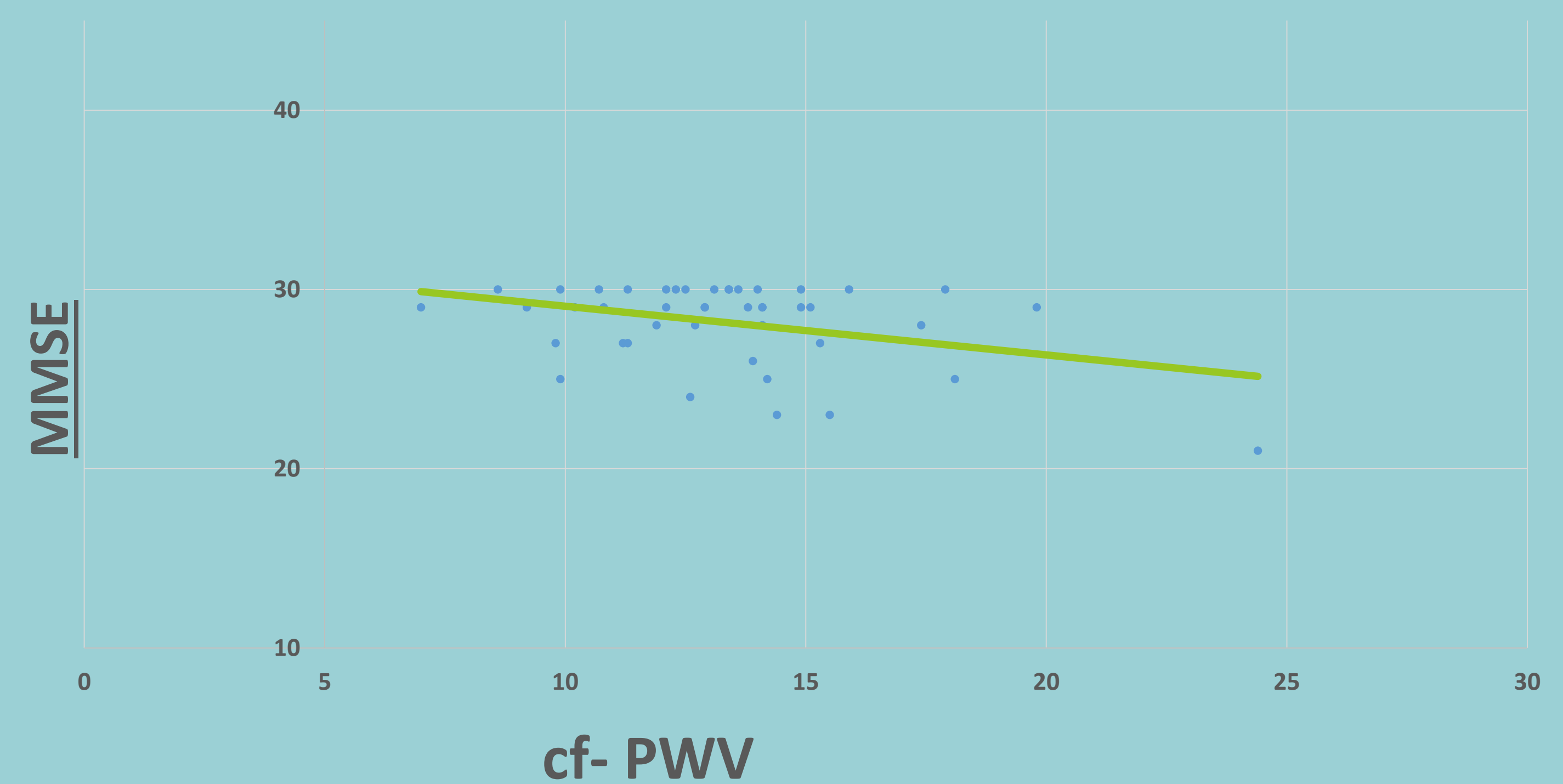
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## Introduction

Cognitive frailty known as the presence of physical frailty and cognitive impairment in the absence of dementia, is a common finding among older adults living with frailty. The causative factors for this domain of frailty are not well understood. However, it is known that vascular factors such as arterial stiffness are associated with ageing and frailty, and may underpin cognitive impairment. In this study, we sought to explore the correlation between cognitive frailty as assessed by the mini-mental state examination (MMSE) and clinical frailty score, with arterial stiffness.



Figure 1: Correlation graphs between Clinical Frailty Score (CFS) and IL-6 and CRP at baseline



## Conclusion

Cognitive frailty correlates strongly with measures of vascular ageing, thus arterial stiffness can be used to identify older adults at risk of cognitive impairment.

## Methods

The longitudinal FRAXI study made up of fifty community dwelling older adults  $\geq 70$  years (mean age  $\pm$  standard deviation:  $79 \pm 5$  years, 46% male), with CFS  $\leq 6$  and no malignancy, were followed up for six months. Measures of arterial stiffness such as pulse wave velocity (PWV, Complior<sup>®</sup>) and cardio-ankle vascular index (CAVI<sup>®</sup>) were measured at baseline. All other study measurements such as MMSE, timed up and go test (TUGT), measures of sarcopenia, geriatric depression scale (GDS) and biomarkers such as interleukin-6 (IL-6) and high sensitivity C-reactive protein (hs-CRP) were measured at both time intervals.

## Results

With a gender distribution of M: F (50:50), mean CFS at baseline was 3.5 ( $\pm$ sd 1.4) and at follow up, 4.0 ( $\pm$ sd 1.5). At baseline, MMSE strongly correlated with both functional and phenotypic frailty as assessed by Charlson's Comorbidity index ( $r=-0.3$ ;  $p<0.05$ ) and CFS ( $r=-0.5$ ;  $p<0.001$ ). Similarly, MMSE strongly correlated with measures of arterial stiffness; PWV-carotid femoral ( $r=-0.4$ ;  $p=0.01$ ) and PWV-carotid radial ( $r=-0.4$ ;  $p<0.005$ ). At follow up, MMSE remained strongly correlated with CFS ( $r=-0.3$ ;  $p<0.01$ ).

## References

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