

Vascular Burden And Medial Temporal Lobe Atrophy As Independent Determinants Of Functional Disability In Cognitive Impairment

Julian Fernandez Boccazzi, MD¹⁻², Maria Belen Martin Escandell, MD¹, Josefina Escobar, MD¹, Ignacio Flores, MD¹, Noelia Pontello, MD¹, Galeno Rojas, PhD¹ and Santiago O'Neill, MD¹

(1) Favaloro Foundation University Hospital, Buenos Aires, Argentina, (2) Ineco, Buenos Aires, Argentina

STUDY DESIGN & COHORT

Retrospective observational study in a memory clinic

Cognitive impairment (CDR 0.5–1)

Functional status: Pfeffer's FAQ

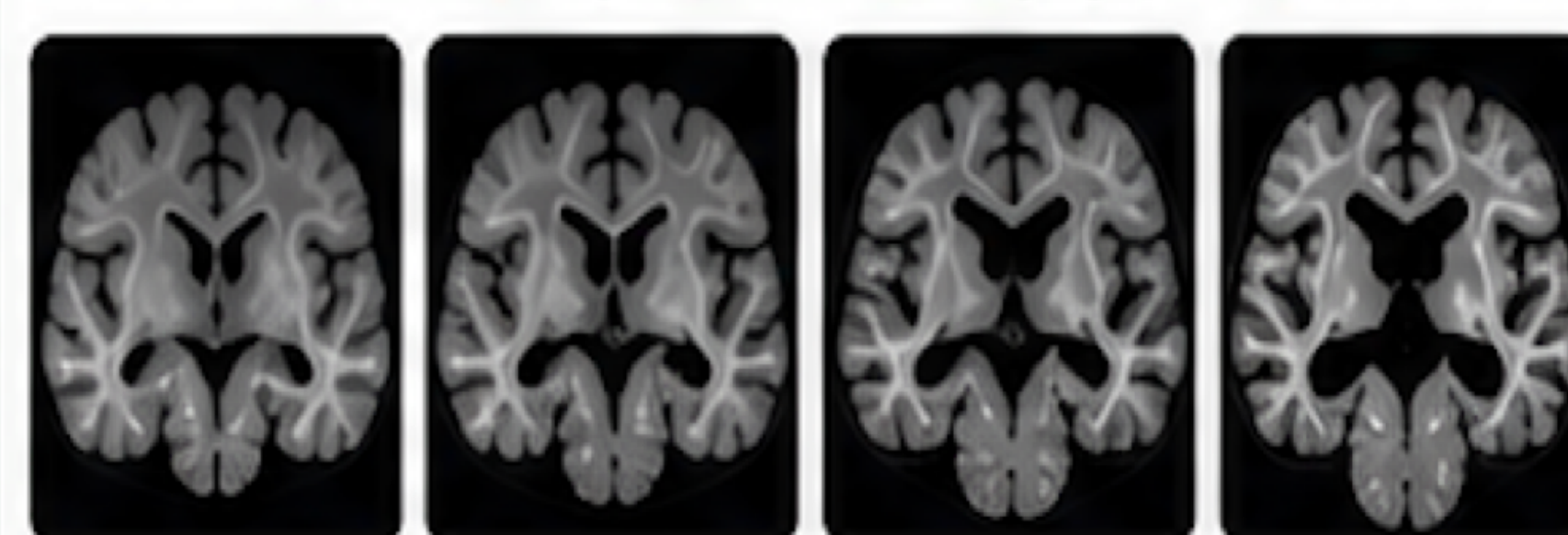
MRI 1.5T
• MTA (Scheltens 0–4)
• WMH (Fazekas 0–3)

Global cognition: ACE-III

n = 149
patients

NEURODEGENERATION

Medial Temporal Lobe Atrophy (MTA)



0

1

2

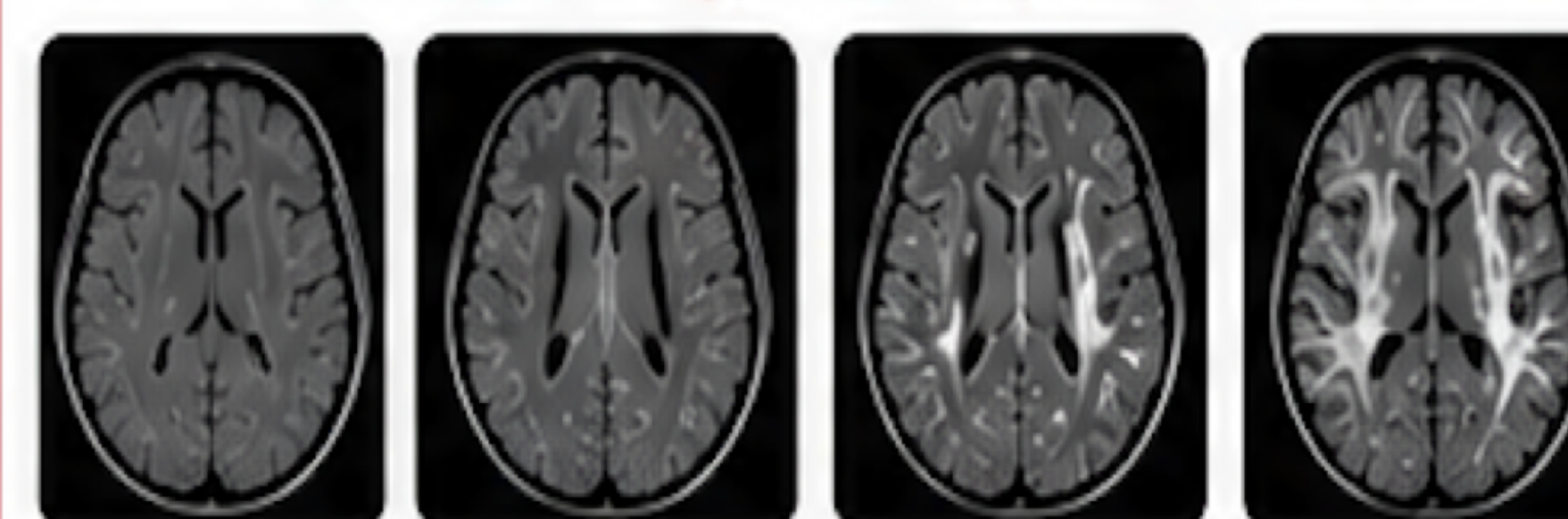
3–4

Less atrophy

More atrophy

VASCULAR BRAIN INJURY

White Matter Hyperintensity (Fazekas)



0

1

2

3

Lower WMH burden

Higher WMH burden

FUNCTIONAL DISABILITY

Pfeffer's Functional Activities Questionnaire (FAQ)

Higher FAQ score = Greater disability

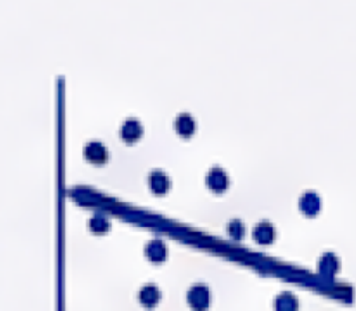
CORRELATION ANALYSES (SPEARMAN)



MTA vs FAQ
 $\rho = 0.25$
 $p = 0.0018$



Fazekas vs FAQ
 $\rho = 0.36$
 $p < 0.01$



ACE-III vs FAQ
 $\rho = -0.56$
 $p < 0.01$

KEY TAKE-HOME MESSAGES



Both MTA and vascular brain injury are **independently** associated with greater functional disability.



In fully adjusted models, MTA and Fazekas remain independent predictors of higher FAQ scores.



At comparable levels of MTA, higher WMH burden is associated with **worse functional outcomes**.

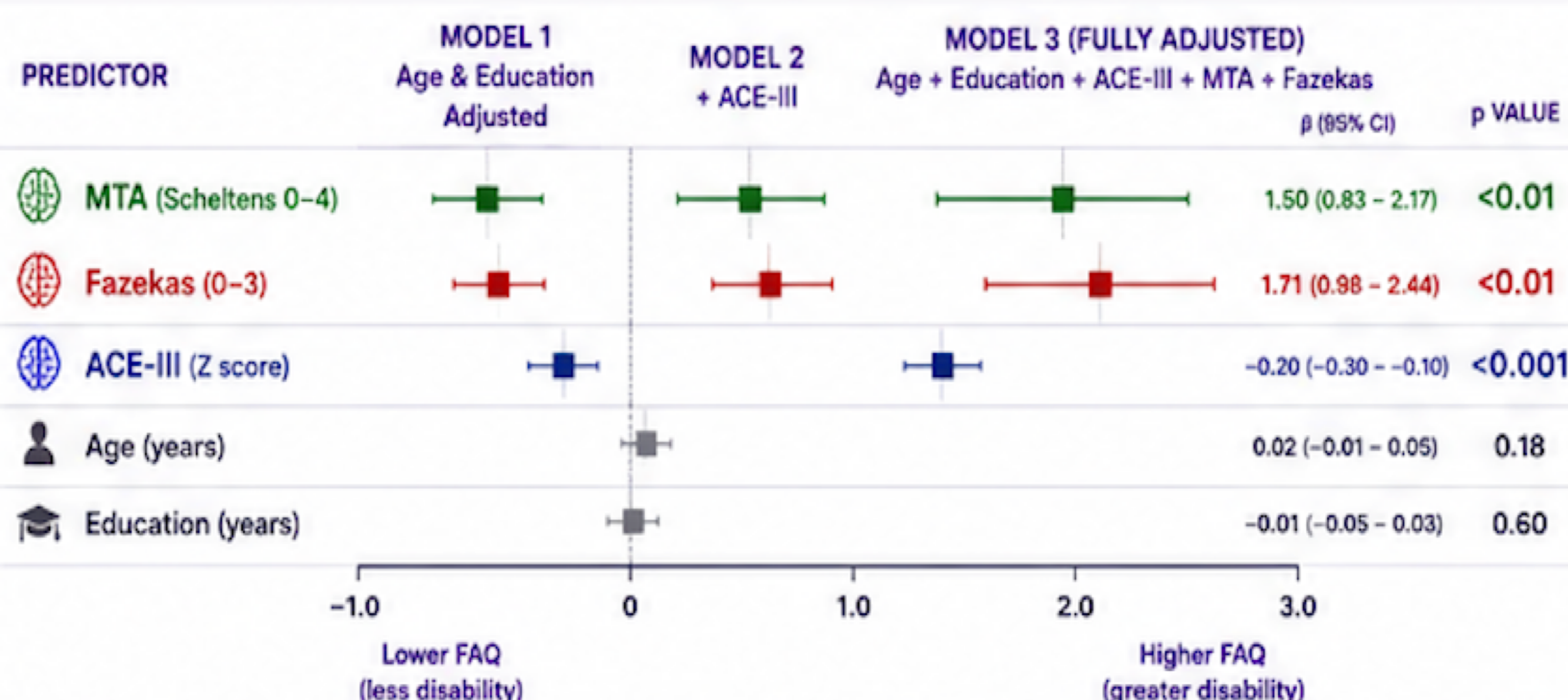


Better global cognition is associated with lower disability.

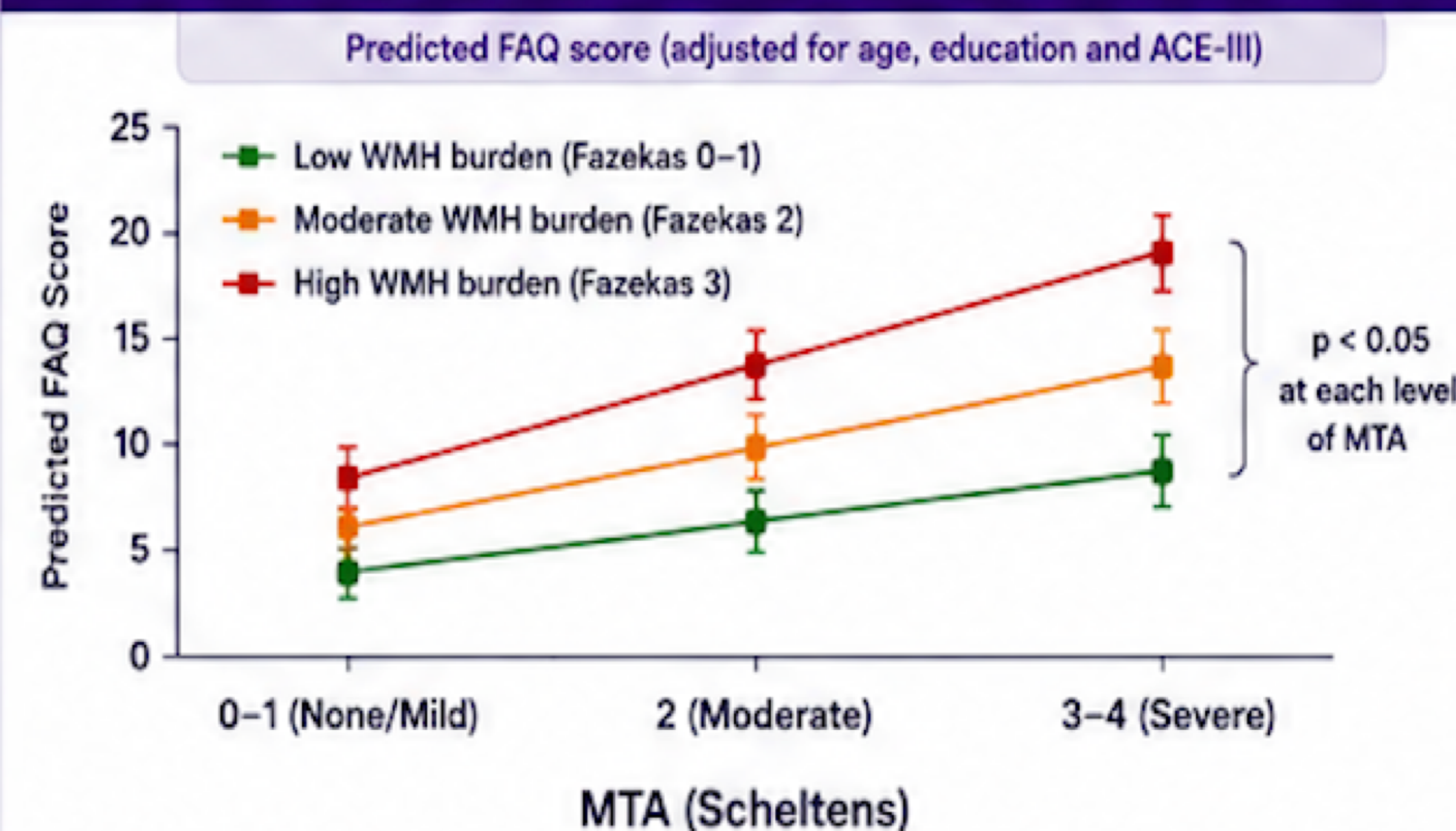


Vascular pathology plays a major modulatory role in daily functioning in cognitive impairment.

DETERMINANTS OF FUNCTIONAL DISABILITY (FAQ SCORE) MULTIVARIABLE LINEAR REGRESSION



AT COMPARABLE LEVELS OF MTA, HIGHER WMH BURDEN IS ASSOCIATED WITH HIGHER FAQ SCORES



Vascular brain burden is a **major** and **independent determinant** of functional disability in cognitive impairment.



At comparable levels of MTA, greater WMH burden is associated with **substantially worse functional outcomes**.



METHODS
(in brief)



Cognitive assessment:
ACE-III



Functional assessment:
Pfeffer's FAQ



Imaging:
1.5T MRI
MTA (Scheltens)
Fazekas (deep subcortical)



Analysis:
Spearman correlations
Multivariable linear regression
(adjusted for age, education,
ACE-III)



Abbreviations:
MTA = Medial Temporal Lobe Atrophy
WMH = White Matter Hyperintensities
FAQ = Functional Activities Questionnaire
ACE-III = Addenbrooke's Cognitive Examination III



jul.fboccazzi@gmail.com