Title: Personality, chronic defensive coping and S100B – new insights into the brain-heart link: The SABPA prospective cohort study.

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Background: Defensive coping (DefS) disability has been associated with poorer cardiac health. Personality traits such as neuroticism (characterised by affective instability, depression and anxiety) and low conscientiousness might explain DefS disability and cardiac ischaemia, reflected through S100 calcium-binding protein B (S100B) and cardiac troponin T (cTnT) release.

Objective: To investigate associations of personality traits with 3-year changes in S100B and cTnT in a bi-ethnic sex cohort habitually utilising DefS.

Methods: A South African black and white sex cohort of teachers (n=378) participating at both phases of the Sympathetic activity and Ambulatory Blood Pressure in Africans (SABPA) study, was followed for 3-years. Beta-blocker users and cases with a history of myocardial infarction, stroke and left ventricular hypertrophy were excluded. Coping (Coping Strategy Indicator) and personality (Basic Traits Inventory) scores were determined. Fasting serum samples for S100B and cTnT were obtained.

Results: Interaction effects ($p<0.05$) for personality traits determined stratification of participants into bi-ethnic sex groups who had DefS scores ≥26. Higher neuroticism scores with consistent raised S100B and cTnT were apparent in blacks but not in whites over 3-years. Consistent raised cTnT levels were positively associated with neuroticism (Adjusted $R^2=0.29$, $\beta=0.26$), but inversely with consistent S100B levels ($\beta=-0.30$) in DefS black men only. Again, in black men, conscientiousness predicted a previously-defined cTnT cut-point of ≥ 4.2ng/L

(Odds ratio 1.13, p=0.040). These associations were not evident in their female or white counterparts.

Conclusions: Neuroticism and less conscientiousness may explain an ineffective defense response or DefS failure in a black male teachers' cohort. DefS failure and consistently raised cardiac ischaemia may accelerate ischaemic heart disease progression.