Final Report

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Title of Project: Quantifying the accuracy of a subjective cognitive concern: to what extent are subjective concerns in older adults indicative of dementia risk?'

Summary: (approximately 1,000 words)

A recent study conducted by Dr Rachel Buckley and Ms Gemma Laming at the University of Melbourne (Melbourne School of Psychological Sciences) investigated the reliability of memory concerns to predict genetic risk factors for Alzheimer's disease (AD) dementia in healthy adults over 60 years of age. The researchers aimed to address the issue of why concerns of poor memory performance was never representative of actual memory performance. We predicted that those with greater accuracy for knowing their own memory performance (termed metamemory accuracy) may exhibit a closer relationship between subjective and actual memory performance. Furthermore, we hypothesized that we might be able to predict those with elevated risk for AD dementia (that is, those carrying the apolipoprotein ε4 allele (APOE4)) using a combination of an individual's memory concern and metamemory accuracy.

135 healthy adults over 60 years of age (range = 61 to 92 years) were given a 2-hour battery of memory and thinking tests and asked to fill in three subjective concern questionnaires. We also collected their saliva in order to gather DNA information relating to their APOE4 carrier status.

Statistical analyses are still ongoing, but preliminary findings suggest that metamemory accuracy is associated with memory concerns (r(133) = 0.18, p=.01, but not with actual memory performance (see Figure 1). That is, poorer metamemory accuracy was found to motivate greater memory concern. We did not find evidence that a combination of metamemory and memory concerns better predicted actual memory performance. Furthermore, we have not yet found evidence that a combination of metamemory accuracy or memory concerns better predicts genetic risk for AD dementia in healthy older adults.

In summary, while we have found that metamemory accuracy and subjective memory concerns align, they do provide a better multiplicative prediction of actual memory performance or genetic risk for AD dementia. Future work will tease these relationships apart further – in particular, by looking at other genetic factors, and by conducting structural equation models to assess interrelationships between these variables. We would like to take this opportunity to thank the Brain Foundation for the opportunity to conduct this research – we are aiming to present this work at the

Alzheimer's Association International Conference in London (July 2017), and are currently working on a manuscript for publication.

Please include any appropriate photos or diagrams.

- APOE4 carrier
- APOE4 non-carrier