BODY MASS INDEX, CENTRAL ADIPOSITY AND MIDLIFE COGNITIVE FUNCTION: EVIDENCE FROM A 38-YEAR FOLLOW-UP OF THE 1946 BRITISH BIRTH COHORT STUDY

E. Albanese, R. Hardy, D. Kuh, J. Guralnik, M. Richards

MRC Unit for Lifelong Health and Aging & NIA/NIH, London, UK

Background: Little is known abouton the effect of BMI and waist circumference across adult life on midlife cognitive function, independently of childhood intelligence.

Methods- We used regression analyses in 2,860 British men and women born in 1946 to assess the associations between BMI (at 15, 20, 26, 36, 43 and 53 years), waist circumference (at 36, 43, and 53 years) and verbal memory (word list recall), semantic fluency (animal naming), concentration (letter cancellation) and the National Adult Reading Test at 43 and 53 years. We then controlled for childhood intelligence and previous or midlife BMI as appropriate. We adjusted for: smoking, physical activity level, mental health, dietary fats; blood pressure, cholesterol level, type II diabetes; and education and midlife social class.

Results: From age 15 in women and 20 in men overall those of higher BMI had consistently lower scores on the cognitive tests, except the letter cancellation. Effects were greater in women. We found departures from linearity at 53years: BMI quadratic terms in women (β per SD increase=-0.06SD 95%CI:-0.09, -0.02) and men (β=-0.04SD 95%CI:-0.07 to -0.001) indicated that memory performances were lower at both the lower and upper ends of BMI. Controlling for health and lifestyle factors had little effect but most associations were attenuated by level of intelligence in childhood and confounded by educational attainment. Similar patterns were observed for waist circumference.

Conclusions: Childhood intelligence, education and reverse-causality at 53 years have great significance in the complex association between BMI, central adiposity and cognitive function.