



Stress and Health Study of Ageing

We are pleased to inform you that the 12th wave of data collection of the Stress and Health Study (widely known as the Whitehall II Study) was completed at the end of 2016; the data have been curated and checked and are now being used for research. A total of 5,632 participants attended either the study's London or regional clinics, were examined at home, or responded via questionnaire or telephone interview. Participation was again very high, involving 80% of those in the study. Many thanks to all of you – we feel really privileged to work with you.

With this valuable new research data, this year has been particularly busy. In January, we published a paper in a major medical journal, *The Lancet*, showing the association between favourable socioeconomic circumstances and longer life expectancy in the Stress and Health Study alongside 47 other studies in Europe, the United States, and Asia. The findings were strikingly similar across these studies, suggesting that the original results from the Stress and Health Study are indeed generalisable globally. We also studied which factors at age 50 were most strongly predictive of both high physical and cognitive functioning in old age. These were higher lung function, normal blood pressure, and physical activity.

Some of our new findings have corrected common misconceptions. For example, so called “metabolically healthy” obesity – that is, high body mass index combined with normal cholesterol, blood pressure and blood glucose – was found to be not so healthy after all in the long-term. Diabetes risk is 4-fold in that group compared to those with a healthy weight. In addition, most people in the “healthy” obesity category convert to “unhealthy” obesity over time, a finding now recognised in the current clinical guidelines for cardiovascular disease prevention.

Our collaborative analyses with the Oxford team, utilising data from the brain magnetic resonance imaging of a subgroup of the Stress and Health Study participants, showed that the protective effects of moderate alcohol consumption on cognition might also be a myth. Atrophy in hippocampi was lowest among those who consumed least alcohol, as we reported in the *British Medical Journal* this June.

Midlife depression has been suggested to increase dementia risk at older ages, but our recent findings published in *JAMA Psychiatry* challenges this hypothesis. The increase in depressive symptoms before onset of dementia seems to be, if anything, a consequence of preclinical dementia rather than a cause. We are now working hard to identify risk and protective factors for dementia.

We want to thank you again for your participation in the study and hope you will participate again in the next data collection period which is planned for 2019. Meanwhile we will keep you updated via our web-page which can be found at www.ucl.ac.uk/whitehallIII.

Professor Mika Kivimaki

Professor Sir Michael Marmot



Proxy respondents: In the most recent phase of data collection, some of you reported completing the questionnaire with the help of a relative or a friend. Thank you for letting us know. If you wish, you can continue to do so in future phases of data collection. While we of course encourage you to attend our research clinic, or take up our offer of a home-based assessment, if poor health prevents you from doing so we would be grateful if a close relative or friend could provide us with some basic information about your health.

We are taking care of your data

All data collected by the Stress & Health Study are securely managed in accordance with the provisions of the Data Protection Act (1998) and the NHS Information Governance requirements. Your personal details and health data are stored securely in our restricted-access computer network and lockable cabinets, and are handled exclusively by the specially trained support team. Biological samples are securely stored and only the clinical team can access them. The personal information we hold about you is only used to contact you, send you clinical results, and perform secure data linkage.



In addition to the collection of questionnaire and clinical data, a crucial aspect of the study is the identification and verification of illnesses and health status, even after incapacity or death. This is achieved by securely linking with electronic health data such as cancer and death registrations, hospital records and mental health data. The linkage has been approved by NHS Digital under a very robust and safe system of provision of health data for research purposes.

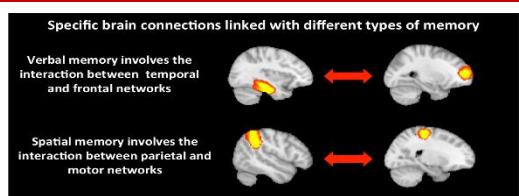
Your data will not identify any particular individual by the time they reach the hands of the researchers. Before research can be done, all of the information we have collected is anonymised by the removal of any personal identifiers such as name, contact details, detailed health diagnoses and dates, etc. Each participant is simply identified with a unique number. The resulting research data are analysed at group level for health-related research purposes only. All data users must be scientists with an established record who conduct high quality, ethical research, and who adhere to our information governance policies and practices.

Please check our website for more information about this: www.ucl.ac.uk/whitehallIII/data-collection/data-processing-faq

How about my driving skills?



A future project that the Stress and Health team are planning will involve working with a team based at Oxford University to look at how well people drive. If this study secures funding, we would be looking for volunteers who drive to take part. It would involve plugging in a small dongle device into the cigarette lighter socket/charger in your car and completing a short questionnaire. Watch this space!



Oxford Brain Imaging Sub-Study

We are pleased to announce that 800 study members have received magnetic resonance imaging (MRI) brain scans at the University of Oxford, completing this phase of the imaging sub-study. We are now investigating how a range of lifestyle factors like diet and exercise

can influence brain health in older ages. Within the imaging study, we have found that higher mobility levels and faster walking speeds are associated with better cognition and brain structure. On the other hand, alcohol consumption is linked with adverse brain outcomes and memory decline. Using the latest brain modelling methods, we have also mapped out the connections in the brain that are involved in different types of memory. Studying how the strength of these connections change as we get older can lend valuable insights into the neural underpinnings of memory decline. *British Medical Journal*, 2017, June, 357:j2353. *Frontiers in Aging Neuroscience*, 2017, May, 9:155. *NeuroImage*, 2017, October, 159:122-130.



What did we do with your hair?

At the last two clinics we collected hair samples from all participants. This is the first time that hair samples have been collected from so many people in any study. Hair samples have been validated as a way to measure long-term levels of hormones, like cortisol, in the human body. Cortisol is a steroid hormone produced by our bodies in response to stress. Although surveys have examined cortisol before, through blood or saliva samples, these samples were usually collected over one day and so could not tell us about cortisol levels over a longer period of time. We have found that these long-term cortisol levels, measured from hair samples, are linked to both physical and mental health. *Psychoneuroendocrinology* 2016; 73: 148-156

Research news from the Stress and Health Study



Research on dementia in the Stress and Health Study.

Dementia is a syndrome characterised by impairment of multiple cognitive capacities that are severe enough to interfere with daily functioning. Alzheimer's disease (AD) is the most common cause of dementia, accounting for up to 70 % of all dementia cases. Besides age, a range of social, behavioural and cardio-metabolic risk factors are thought to increase risk of dementia. However, it is likely that damage to the brain starts decades before symptoms emerge. This very long latency period has made the identification of risk and protective factors challenging. The Stress and Health Study is an important resource to study dementia as many of the putative risk and protective factors have been assessed since 1985, and data from the NHS provide information on dementia status of participants. Our recent findings suggest a protective association of high employment grade, an adverse association with obesity in midlife and atrial fibrillation, and no association of dementia with physical activity or depressive symptoms. *Please see the website for more information. www.ucl.ac.uk/whitehall/publications/2017-publication*

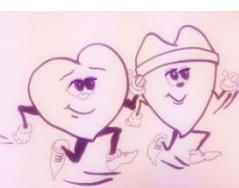


What is the future for dementia in England and Wales?

For individuals, the risk of developing dementia at any given age is declining over time, meaning people are older when they are diagnosed with the illness. This means an 80 year old today is at lower risk of dementia than an 80 year old 10 years ago. Our study forecasts that, if life-expectancy continues to improve and the number of older people is increasing, the overall number of people living with dementia in England and Wales will increase from 800,000 in 2017 to 1.2 million in 2040. This increase would be much larger, however, reaching 1.9 million by 2040, if rates of dementia do not continue to decline. *The British Medical Journal 2017;358:j2856*

Midlife risk factors for impaired physical and cognitive functioning at older ages

Blood pressure control, adequate physical activity, and maintenance of lung function could be key to tackling probably the two largest unsolved health problems of our ageing society: dementia and disability later in life. We investigated the later influences on physical and mental functioning of 12 separate risk factors recorded when participants were 50 years old. The findings need to be confirmed in other studies to ascertain if these three risk factors are consistently found to be important. *Journals of Gerontology: Medical Sciences 2017 Feb; 72: 237-242*



Eat a healthy diet and try to move more

We have shown that regular physical activity and a healthy diet are associated with better health in later life. One of our studies used data from an accelerometer worn on the wrist for nine days, to show that successful agers (people with good cognitive, motor, and respiratory functioning and no physical disabilities, mental health problems or major chronic diseases) were more likely to be doing regular moderate to vigorous physical activity. A second study showed that improving dietary behaviour or maintaining a healthy diet (one high in whole grains, fruits, nuts and vegetables but with a low intake of saturated fat, found in red meat and dairy products, and trans-fat, found in processed or fried foods) may reduce the risk of long-term inflammation as measured in the blood. Inflammation is thought to play a major role in the development of chronic diseases such as cardiovascular disease, depression and cognitive aging. *Nature 2017 Apr, Scientific reports, 7:45772; The American Journal of Medicine 2015 Feb; 128: 152-160*

Underestimation of alcohol content in wine

Glass sizes and wine strength have increased in the UK over the last 25 years. Wines with higher alcohol content from South America and Australasia have grown in popularity, while licensed premises now more commonly serve wine in 175ml and 250ml measures compared to a norm of 125ml in 1990. One of our recent studies has shown how these changes can lead to an underestimation of how much alcohol people are actually drinking, and how this can in turn bias our estimates of alcohol's association with mortality risk, both from all-causes and from cancer specifically. The study will help improve future research into the relationship between alcohol intake and health outcomes. It has highlighted how the collection of more detailed data on drinking behaviours can help ensure greater accuracy in our understanding of the role such intake plays in our long-term well-being. *Alcohol Alcohol 2016; 51: 609-614.*



You asked us...



Why are the results letters sent directly to my GP?

Following guidelines set out in the last ethics approval given by the London-Harrow Research Ethics Committee, we were advised that it is best practice to send the results of your medical examination direct to your general practitioner.

During the consent procedure at the last medical examination you were asked for permission for the results to be sent directly to your GP. Those who did not give consent instead received the letter directly and requested to pass it to their GP.



How is my waist measured?

We take 2 waist measurements after identifying 2 anatomical areas: the top of your hip bone and just below your rib cage. The first measurement is taken below your rib cage while the second is taken half way between the top of your hip bone and below your rib cage. With the tape measure around your waist, a spring balance is attached and pulled to a tension of 600g. We follow this protocol for all participants to standardise the measure for everyone. The measurement you are given in your results letter is the second waist measurement. This is why some of you noticed that this measurement is not the same as the one you would use when buying clothes.

Stress and Health Study website

Our Stress and Health study (Whitehall II Study) website covers the history of the Whitehall studies, current research projects and recent findings and details all our publications. Please visit the site for further details

www.ucl.ac.uk/whitehallII



Keep in touch...

Now more than ever, we want you to stay in touch, particularly if you have retired, or have moved out of the area, even if you live, or are about to move, abroad. With this newsletter we enclose a change of address card, which will allow you to provide us with your up-to-date details. If there is no card in your pack, or if you prefer simply to ring us, please

Call us on **0800 068 1562** (free of charge from a landline), or e-mail shstudy@ucl.ac.uk

Just for fun...

Find in this grid 23 words related to your experience as a participant at a Stress and Health clinic – horizontal, vertical or diagonal in any direction. Answers below.

R	A	W	T	L	S	S	T	P	O	B	V	E	Z	N
E	K	P	H	R	E	R	E	T	A	W	R	H	C	Z
C	N	H	P	H	A	N	T	H	G	I	E	W	H	S
E	X	W	C	O	C	E	R	T	A	S	R	H	O	E
P	I	N	O	I	I	E	H	N	T	Q	R	N	L	H
T	I	K	L	G	S	N	N	E	Q	T	A	L	E	C
I	P	H	L	E	B	O	T	O	M	I	S	T	S	I
O	A	H	A	N	I	H	U	M	C	S	M	H	T	W
N	G	R	U	T	O	X	S	I	E	G	S	G	E	D
I	C	R	S	S	Q	S	N	H	Z	N	W	I	R	N
H	S	E	C	X	K	H	Y	F	F	U	T	E	O	A
E	U	O	L	A	C	I	D	E	M	L	R	H	L	S
Q	P	R	R	E	T	E	M	O	M	R	E	H	T	O
E	T	M	T	V	A	C	U	T	A	I	N	E	R	M
K	I	D	N	E	Y	L	E	V	A	R	T	Z	E	F

Don't look now! Answers for word search

Appointment, Cholesterol, Gown, Heart, Height, Inches, Kidney, Lungs, Medical, Nurse, Pencil, Phlebotomist, Questionnaire, Reception, Research, Sandwiches, Stethoscope, Technician, Thermometer, Travel, Vaccinator, Water, Weight.

Please send or email your questions, comments or change of address to:

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