

**Results:** Prevalence and Impact: 37.5% (6/16) of clinicians reported encountering climate-related anxiety in patients over the past year, with 43.8% (7/16) ranking it as affecting young people “very much” or “quite so”. Conversely, 50% (8/16) deemed it “not a significant issue”.

**Clinical Consideration:** 93.8% (15/16) admitted they do not routinely assess climate-related concerns during patient evaluations.

**Local Industry Context:** Qualitative responses highlighted that Aberdeen’s status as an oil and gas hub may indirectly affect patients through familial job instability, frequent relocations, and eco-guilt (e.g., “Yes, the nature of the work means children face big changes and school moves”).

**Awareness Gaps:** Clinicians acknowledged systemic oversight in addressing climate-related anxiety during assessments.

**Conclusion:** Climate-related anxiety is inconsistently recognised and addressed in CAMHS practice, despite emerging cases and contextual ties to local industry stressors. Clinician responses reflect uncertainty about its significance, compounded by a lack of structured assessment protocols. These findings underscore the need for training to integrate climate-related concerns into routine evaluations, particularly in regions with economic dependencies on environmentally impactful industries. Recommendations include developing evidence-based screening tools, fostering interdisciplinary collaboration with environmental health sectors, and addressing systemic gaps to ensure holistic, context-sensitive care for young people.

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## Hypothalamic Structure and Function in Alzheimer’s Disease and Lewy-Body Dementia: A Systematic Review and Meta-Analysis

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**Aims:** Changes to sleep, weight, and endocrine function are common in Alzheimer’s disease (AD) and Lewy-body dementia (LBD). The cause of these is not known, but they may be related to hypothalamic neurodegeneration. Our aim was to assess whether hypothalamic volume is reduced in people with AD and LBD, and whether hypothalamic volume is associated with these common symptoms. **Methods:** We performed a systematic search of MEDLINE and EMBASE for studies using structural magnetic resonance imaging to examine hypothalamic volume in AD or LBD. The Newcastle–Ottawa scale was used to assess the risk of bias. A random-effects meta-analysis was conducted using the standardised mean difference (SMD) in hypothalamic volume, and a narrative synthesis was used to examine the relationship between hypothalamic volume and sleep, weight, and endocrine function.

**Results:** We screened 6542 articles which identified 12 studies for inclusion, of which 10 had a low to moderate risk of bias. People with mild-moderate AD had a significantly smaller hypothalamus (−0.1%) compared with controls (pooled SMD= −0.49 (−0.86 to

−0.13),  $p=0.018$ ;  $I^2=67\%$  (21.5–86.1%);  $n=454$  (AD), 715 (controls)). The only study in people with LBD found grey matter loss in the hypothalamus compared with controls using voxel-based morphometry. Hypothalamic volume loss in AD was more marked in men and was associated with plasma levels of sex hormones and reduced bone mineral density. Body mass index, appetite and sleep were not associated with hypothalamic volume in AD.

**Conclusion:** Reduced hypothalamic volume is seen early in AD and this may influence endocrine function. A better understanding of hypothalamic degeneration in dementia may help elucidate how pathology relates to symptoms in AD and LBD and reveal new targets for intervention.

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## Is There ANA Risk? A Retrospective Analysis Assessing the Long-Term Psychiatric Outcomes in Patients Testing Positive for Anti-Nuclear Antibodies, in the Absence of an Autoimmune Disease diagnosis

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**Aims:** Antinuclear antibody (ANA) is a sensitive but non-specific blood test frequently undertaken as part of the clinical assessment for a number of autoimmune diseases. While ANA positivity is associated with a number of autoimmune diseases, such as systemic lupus erythematosus (SLE), approximately one fifth of the population will test positive without having or subsequently developing an autoimmune disease. While there is a growing body of evidence demonstrating that patients with an autoimmune disease are more likely to develop psychiatric disorders, such as schizophrenia, the risk in patients who test positive for ANA but who never develop an autoimmune disease has not been established.

**Methods:** We undertook a retrospective cohort analysis using TriNetX, a large real-world population database, consisting of anonymised health records of over 250 million patients across 19 countries. Patients aged 16–90 years, without a recorded ICD diagnosis of an autoimmune disease were identified and divided into two cohorts – those with at least one positive ANA blood test, matched against those with at least one negative ANA blood test in the absence of any positive ANA antibody results. Confounding risk factors were controlled through propensity score matching for age, sex, sociodemographics, clinical characteristics and psychotropic medication use. Primary outcome was the incidence of and hazard ratios for psychiatric diagnoses from 3 months–10 years after the ANA test result.

**Results:** 454,740 patients were included in the primary analysis, 227,370 in the ANA positive group, 227,370 in the ANA negative group. There was no statistically significant difference in the risk of diagnosis of overall F20–29 diagnosis (HR 0.939,  $p=0.0674$ ) and specifically F20 Schizophrenia (HR 0.964,  $p=0.5870$ ).

**Conclusion:** A positive ANA blood test in the absence of an autoimmune disease was not associated with an increased long-term risk of psychiatric disorders. This result suggests that clinical testing of ANA in patients presenting with psychiatric disorders without

features suggestive of a systemic autoimmune disease may be unwarranted.

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## Brain Health Scotland (BHS) – a Pioneering Brain Health Service in Aberdeen, Scotland

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**Aims:** Brain Health Scotland (BHS) is a pioneering nationwide initiative aimed at preventing, assessing, and treating dementia. A collaboration between the Scottish Government (SG), Alzheimer Scotland (AS) and NHS Public Health, the service supports people of any age to understand dementia risk factors, provides early diagnosis, and offers brain health personalised action plans. Aberdeen hosts a 2 year pilot of a Brain Health Service in Scotland, with co-location of AS and NHS Grampian Public Health staff (Psychiatrist/Mental Health Nurse) in a city centre AS building. A unique feature is a self-referral route for people concerned about memory function. Stage 1 of the service involves a risk discussion with an advisor and the provision of a Personalised Action Plan. If the service-user reports memory impairment they enter Stage 2 (Nursing assessment, including ACE) and if more detailed assessment is required they enter Stage 3 (Psychiatrist). GPs can refer patients with mild memory impairment to Stage 2–3. A SG commissioned independent evaluation has issued an interim report.

**Methods:** We analysed qualitative and quantitative data from the project's first year including service-user comments in the evaluation interim report and data from an audit of NHS patients.

**Results:** 142 people accessed the service (99 by self-referral) and received a brain health assessment, including evaluation of risk factors for dementia and provision of a personalised action plan. 102 people reported memory impairment and were seen in the NHS clinic. The average age was 64 and the average Addenbrooke's (ACE) score was 87. 29 patients had Mild Cognitive Impairment, 21 had psychological difficulties, 6 had dementia, substance misuse and severe mental illness respectively and the others had a wide range of problems including Motor Neurone Disease (n=1), Lyme disease (n=1), Functional Cognitive Disorder (n=1) and ADHD (n=1). Patients were referred for investigations such as brain scans (including CT, MRI, SPECT) and Neuropsychological assessment as appropriate.

**Conclusion:** The Aberdeen Brain Health Service demonstrates excellent collaboration between the NHS and 3rd Sector and incorporates Public Health and Mental Health principles. Service-user satisfaction is high for all stages of the service. An independent evaluation will inform discussions with the SG about potential service models of Brain Health Services across Scotland.

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## NeuroSwipe: Crowdsourcing the Brain–Citizen Science in Neuroimaging Research

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**Aims:** Large-scale neuroimaging projects rely on automated pipelines to reconstruct white matter tracts from diffusion MRI (dMRI) data. However, these reconstructions are not always accurate and often require labour-intensive manual review to identify artefacts. To address this challenge and extend the reach of science engagement beyond traditionally accessible groups, we developed NeuroSwipe: a web-based platform designed to involve the public in evaluating the quality of dMRI data. This initiative also aimed to enhance participants' understanding of brain imaging techniques and the scientific process, fostering broader public involvement in research.

**Methods:** The initial concept was developed by a multidisciplinary team of computational neuroscientists, physicists, science engagement specialists, and clinical researchers. The NeuroSwipe prototype was created by students at the National Software Academy, Cardiff University, and co-designed with ten citizen scientists during a co-production workshop held at the Cardiff University Brain Research Imaging Centre (CUBRIC). The platform included a short interactive training module to guide participants. Users were tasked with approving or rejecting anonymised dMRI images based on their quality. To ensure diverse participation, we partnered with Diverse Cymru, a charity that facilitated engagement with BAME and traditionally harder-to-reach populations. User decisions were recorded and compared with expert classifications. A post-test questionnaire assessed usability, knowledge gains, and engagement.

**Results:** A total of 89 individuals, identified through community organisations, tested the NeuroSwipe platform over three months. Of these, 82 completed the training module before rating images. Classifications by citizen scientists showed high consistency with expert evaluations, with no significant differences observed. Post-test feedback indicated that 72% of participants found the platform 'easy' or 'very easy' to use, and 63% thought the training module provided 'about the right amount of information', although 9% felt it was insufficient. Importantly, 92% described the platform as 'engaging' or 'informative'. Free-text comments revealed increased understanding of brain imaging techniques and a sense of contribution to scientific research. The project was later publicised by BBC News and Wales Online, further amplifying its reach.

**Conclusion:** This project highlights the potential of engaging citizen scientists in neuroimaging research through a web-based platform like NeuroSwipe. The findings demonstrate that citizen scientists can meaningfully contribute to assessing dMRI data quality while enhancing their understanding of brain imaging research. Future developments could include scaling the platform to incorporate other imaging modalities and integrating more advanced training modules to further expand public participation in neuroimaging research.

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