more closely associated with gradients in these biomarkers. Here, we examine how immune and neuroendocrine activity are cross-sectionally and longitudinally nested in meso-level socioeconomic characteristics. Participants, male and female, aged ≥50, were recruited from the English Longitudinal Study of Ageing (ELSA). Neighbourhood (Index of Multiple Deprivation [IMD]) and individual (Wealth/Education/Occupational) factors were drawn from wave 4 (baseline; 2008). Immune and neuroendocrine biomarkers (indexed by C-reactive protein [CRP; $n=3,968$]; fibrinogen [$n=3,932$]; white blood cell counts [WBCC; $n=4,022$]; insulin- like growth factor-1 [IGF-1; $n=4,056$]) were measured at baseline and 4-years later (wave 6; 2012). Covariates at baseline included demographic, clinical, and lifestyle variables. Lower socioeconomic status was associated with heighted inflammation and lower neuroendocrine activity unadjusted both cross-sectionally and longitudinally. With few exceptions, cross- sectional associations remained significant after full adjustment. Prospectively, low IMD remained associated with higher CRP and WBCC; wealth with WBCC; and education and occupation with fibrinogen and WBCC. IMD-biomarker associations were reduced when wealth was simultaneously taken into account. Lifestyle accounted for the greatest variance in associations between socioeconomic indicators and inflammation (≤42.11%), but demographics were more salient to neuroendocrine activity (≤88.46%). Neighbourhood-contextual factors were stronger indicators of aberrant biomarker activity than individual-compositional factors in cross- sectional analyses but were largely explained by wealth differences prospectively. Therefore, immune and neuroendocrine changes depended on the composition of the population living in an area, rather than the area itself.

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#3
- No evidence for a link between childhood (6-10 y) cellular aging and brain morphology (12 y) in a preregistered longitudinal study

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Background: Animal studies show that early life environmental factors, such as stress and trauma, can have a significant impact on a variety of bodily processes, including cellular aging and brain development. However, whether cellular wear-and-tear effects are also associated with individual differences in brain structures in humans, remains unknown.

Methods: In this pre-registered study in a community sample of children (N = 95, Mean age = 12.78), we prospectively investigated the predictive value of two markers of cellular aging in childhood (age 6 and 10) for brain morphology in early adolescence (age 12.5). More specifically, we associated buccal cell telomere length and epigenetic age in childhood to individual differences in adolescent whole-brain grey matter volume (GMV) including volumes of three regions of interest that have been found to be sensitive to effects of early life stress (i.e. amygdala, hippocampus, (pre)frontal cortex (PFC)).

Results and Conclusion: Multiple regression analyses revealed no significant associations between childhood cellular aging (at 6 and 10 years) and adolescent brain morphology.

Exploratory Bayesian analyses indicated moderate to strong evidence for the null-findings. These results point at the lack of a relation between markers of cellular aging and brain volume during childhood. Future work should investigate whether these effects are similarly absent in large samples, in samples with a higher risk profile and in samples looking at different developmental trajectories.

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#4
- Neural habituation during acute stress signals a blunted endocrine response and poor resilience

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Background: A blunted hypothalamic-pituitary-adrenal (HPA) axis response to acute stress is associated with psychiatric symptoms. Although the prefrontal cortex and limbic areas are important regulators of the HPA axis, whether the neural habituation of these regions during stress signals both blunted HPA axis responses and psychiatric symptoms remains unclear. In this study, neural habituation during acute stress and its associations with the stress cortisol response, resilience, and depression were evaluated.

Methods: Seventy-seven participants (17–22 years old, 37 women) were recruited for a ScanSTRESS brain imaging study, and the activation changes between the first and last stress blocks were used as the neural habituation index. Meanwhile, participants' salivary cortisol during test were collected. Individual-level resilience and depression were measured using questionnaires. Correlation and moderation analyses were conducted to investigate the association between neural habituation and endocrine data and mental symptoms. Validated analyses were conducted using a Montreal Image Stress Test (MIST) dataset in another independent sample (48 participants; 17–22 years old, 24 women).

Results: Neural habituation of the prefrontal cortex and limbic area was negatively correlated with cortisol responses in both datasets. In the ScanSTRESS paradigm, neural habituation was both positively correlated with depression and negatively correlated with resilience. Moreover, resilience moderated the relationship between neural habituation in the ventral medial prefrontal cortex and cortisol response.

Conclusions: This study suggested that neural habituation of the prefrontal cortex and limbic area could reflect a motivation dysregulation during repeated failures and negative feedback, which might further lead to maladaptive mental states.

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#5
- Exploring the Effect of Organophosphate (OP) Pesticide Exposure on the Development of the Autonomic Nervous System in the Children of Agricultural Workers

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Background: Exposure to organophosphate (OP) pesticides has been shown to cause a variety of adverse developmental changes in children.