Background

Allostatic load (AL) is a measure of overall physiological wear-and-tear over the lifecourse which could partially be the consequence of adverse early life exposures. AL could be a useful conceptual tool allowing a better understanding of the potential biological pathways involved in the construction of the social gradient on adult health. To explore the impact of early life chronic stress, we used the notion of Adverse Childhood Experiences (ACE), as a set of traumatic and stressful psychosocial conditions during childhood.

Aims

The aim of this study is to explore whether Adverse Childhood Experiences (ACE) are associated with elevated Allostatic Load in mid-life. We will additionally examine whether cumulative socioeconomic conditions and/or health behaviours mediate such a relationship.

Methods

This study used imputed data on 3782 women and 3753 men of the National Child Development Study (NCDS) in Britain followed-up seven times. AL was operationalized using biomedical data collected at age 44 using fourteen parameters representing four biological systems. Each biomarker was dichotomized into high risk versus low risk according to gender specific quartiles. The high risk quartile was the top quartile of all biomarkers, except for those for which a low quartile was the top quartile of all biomarkers, except for those for which a low quartile was the top quartile of all biomarkers. ACE were measured using biomarkers, except for those for which a low quartile was the top quartile of all biomarkers. ACE were measured using imputed data on 3782 women and 3753 men of the National Child Development Study (NCDS). The NCDS is a longitudinal study of children born in London in 1958. The study was approved by the Research Ethics Committee of the Medical Research Council (MRC) at the University of London. All participants gave written informed consent. The study was registered with the National Research Register (NRR) and the International Standard Randomized Controlled Trial Number (ISRCTN) registry.

Conclusions

These results based on a path analysis approach show that childhood adversity is associated with physiological wear-and-tear in mid-life as measured by Allostatic Load. This relationship is mediated, but not fully explained by later life variables. The path analysis suggests that childhood adversities are associated with an increased AL score in mid-life for men via health behaviours, education and wealth, and for women via wealth, education, smoking and BMI.