MRC Dementias Platform UK

# The effect of childhood adversity on adult behavioural, psychological, cognitive and health outcomes: A UK Biobank & DPUK cross-cohort investigation

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## Background

Childhood adversity is a broad construct which encompasses extreme difficulties and adverse experiences during childhood such as sexual, physical and emotional abuse, deprivation, and family dysfunction (e.g., YoungMinds, 2016).

These adverse childhood experiences (ACEs) are considered highly stressful and traumatic, occur during childhood or adolescence and are independent of the normal stresses which accompany natural childhood growth and development.

Experiencing adversity within childhood alters the life of a child to such an extent that it may change some biological processes which lead to adverse biomedical health outcomes in adulthood (Mehta et al., 2013). Childhood adversity is also associated with adult depression (Liu, 2017), lower adult life satisfaction (Hughes et al., 2016), and dementia (Radford et al., 2017).

1. The principal aim is to investigate associations between childhood adversity and multiple adult health-related outcomes (behavioural, psychological, cognitive and biomedical) utilising retrospective self- report questionnaire data from three UK population cohorts, Whitehall II, UK Biobank and MRC NSHD.
2. The second aim is to evaluate the link between childhood adversity and these multiple health-related outcomes in early adulthood, using a population birth cohort study, ALSPAC.

We present preliminary findings of our first study using UK Biobank.

## Method

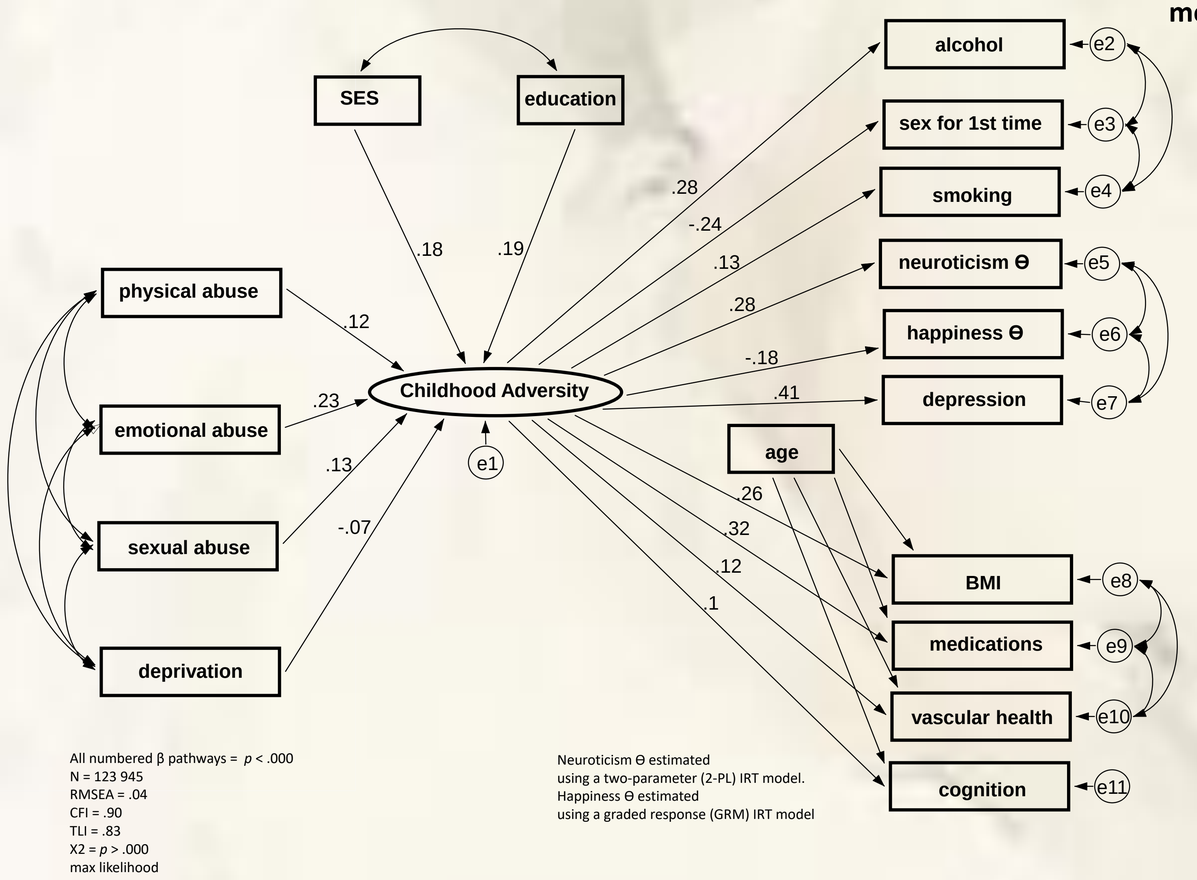
This study was conducted on 123 945 UK Biobank participants who had completed behavioural, psychological, cognitive and health outcome data at baseline (2006-10) and also the on-line mental health questionnaire data (traumatic events) at follow-up (2016-17).

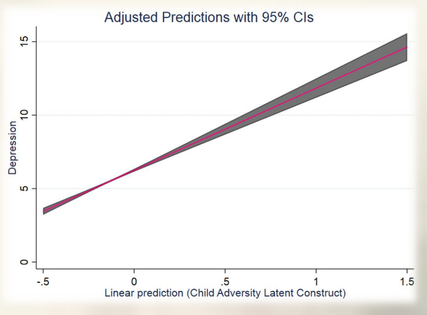
Self-report retrospective questions were selected to extrapolate variable measures of ACEs, e.g., :

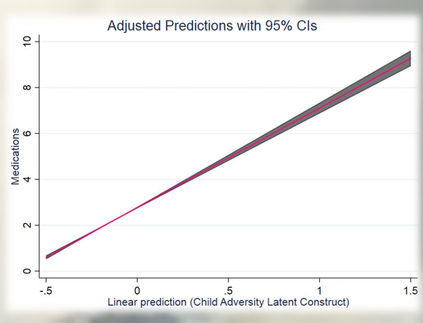
a) People in my family hit me so hard that it left me with bruises or marks (physical abuse)
b) I felt that someone in my family hated me (emotional abuse)
c) Someone molested me sexually (sexual abuse)
d) I had someone to take me to doctor when needed as a child (deprivation)

A structural equation model (SEM) was used to conduct a multivariate statistical analysis across the ACE and adult outcome variables. The individual ACEs variables (questions) were entered into the model as reflexive indicators of the latent construct of childhood adversity (reflecting the underlying latent variable).

The adult outcome variables across behavioural, psychological, cognitive and health categories were selected based on existing literature and data exploration. These were processed and entered individually into the model. Neuroticism and happiness were processed using Item Response Theory and a theta (Θ) construct was utilised for model stability. The model adjusted for socioeconomic status (SES), education and, selectively for age (BMI, medications, vascular health and cognition).




## Results

Childhood adversity significantly predicted (all *p*s < .000) higher frequency of alcohol intake, earlier (age) sexual activity, earlier (age) onset of smoking in current smokers, poorer vascular health, increased medication usage, increased BMI, higher neuroticism, increased self-reported depression and neuroticism, lower levels of overall happiness and increased reaction times (poorer cognition).

These outcomes obtained from utilising extrapolated measures of childhood adversity, from retrospective self-reported scale measures, in a population cohort, suggest that the combined measures of ACEs, even when measured retrospectively, have an adverse impact on current adult behavioural, psychological, cognitive and health, outcomes across multiple measures.

## Conclusions

One-in-three adult mental and physical health conditions are attributed directly to adverse childhood experiences and trauma. Importantly, adversity in younger life may lead to adverse adult outcomes such as dementia and early mortality. Understanding the mechanisms of these future adverse adult outcomes is of utmost importance not only for understanding causality and comorbidities in a future ageing population but also, to simply call attention to the impact of childhood adversity. Only through understanding the pathway mechanisms and implications of childhood adversity will there be hope of policy changes regarding increased funding towards preventative strategies and resourcing earlier interventions to prevent childhood adversity.

The implication of this work is two-fold, that population cohorts may provide important information which is not at first overtly evident but may be extracted through statistical procedures. Secondly, this work highlights the implication of childhood adversity on adult outcomes and the follow-on work using other DPUK cohorts (Whitehall II and NSHD) and ALSPAC will expand on this work further to inform the mechanisms of the relationships and also policy for care and understanding the impact of childhood adversity.

This proposed research exploits the potential of DPUK, and extends the capabilities of population cohort data. All derived variables and code will be returned to cohort owners.

References:

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