

The enduring effects of severe early institutional deprivation on young adult functioning

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BIGSPD Annual Conference 2019

RUNNING ORDER

- **Deprivation** – Experiences assumed essential for normal development were denied to the Romanian “orphans”.
- **Development?** – What were the neuro-developmental consequences?
- **Mechanisms?** – Did deprivation create extreme/enduring neuroplastic responses overriding genetic effects?
- **Mental health cascades?** – Do neuro-developmental effects have down-stream consequences for adult mental health?
- **Resilience?** – Does secure attachment improve outcomes?

THE CONDITIONS IN THE ROMANIAN ORPHANAGES WHEN THE CEAUȘESCU REGIME FELL



Severely restricted diet

High rates of communicable disease

Little social/cognitive stimulation

**No personalised care – no chance to
establish selective attachments**

How did this actually impact development?

THE ENGLISH AND ROMANIAN ADOPTEES STUDY



Professor Sir Michael Rutter FRS
Founding Investigator - ERA study

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- **Dennis Golm**
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- **Nuria Mackes**
- **Ted Barker**
- **Jonathan Hill**
- **Jonathan Mill**

ERA STUDY – RATIONALE AND DESIGN OF A UNIQUE NATURAL EXPERIMENT

ADOPTION OF PROFOUNDLY DEPRIVED INFANTS FROM THE ROMANIAN ORPHANAGES PRE-1990's

RADICAL AND PRECISELY TIMED CHANGE



**SEVERELY RESTRICTED DIET - LITTLE
SOCIAL OR COGNITIVE STIMULATION**

1 TO 43 MONTHS

ADOPTION



**NURTURING, SUPPORTIVE
FAMILY**

22 TO 25 YEARS

165 of 324 children processed by the Home Office between Feb '90 & Sept '92. 21 straight from families no institutional deprivation. 52 UK adoptees.

Followed up at ages 4, 6, 11 and 15 and in young adulthood.

ERA – NUMBERS TESTED AT YOUNG ADULTHOOD

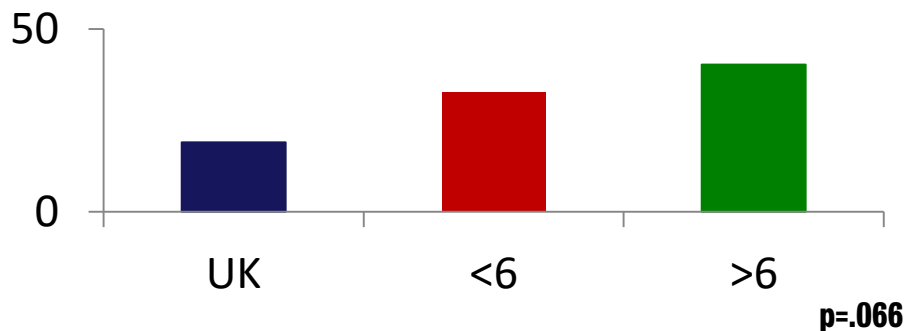
| | <i>N</i> | % |
|--------------------------------------|------------|-------------|
| Young Adult & Parent | 130 | 59.9 |
| Parent only | 23 | 10.6 |
| Young adult only | 11 | 5.1 |
| <i>Participants with data</i> | 164 | 75.6 |

Final sample was representative of original sample

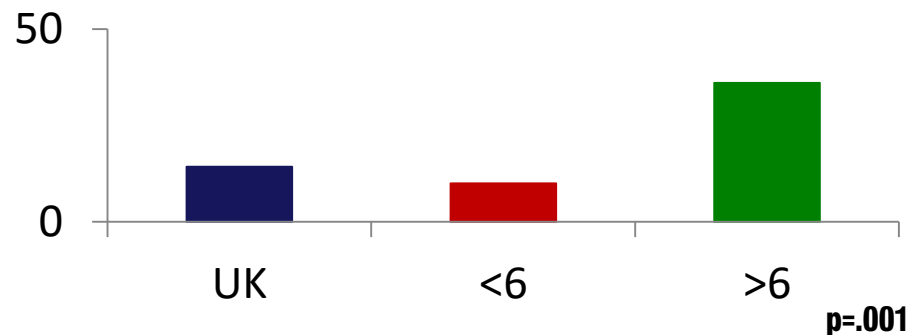
CIRCUMSTANCES IN YOUNG ADULTHOOD

LIVING ARRANGEMENTS, EDUCATION AND EMPLOYMENT

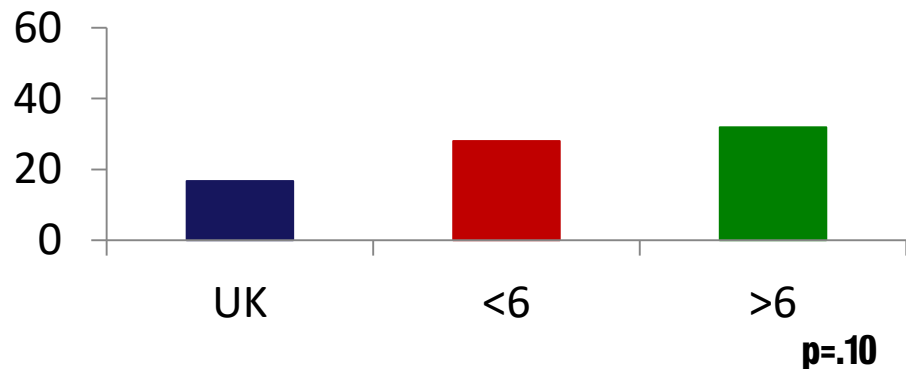
% NO EDUCATION POST GCSE



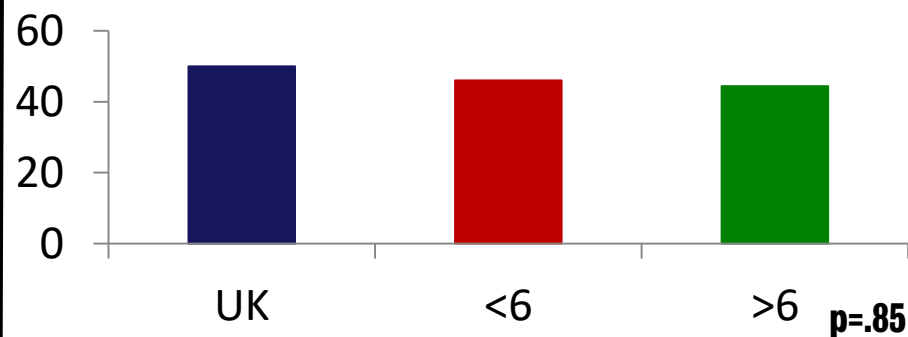
% UNEMPLOYED



% STILL AT HOME



% IN STABLE RELATIONSHIP

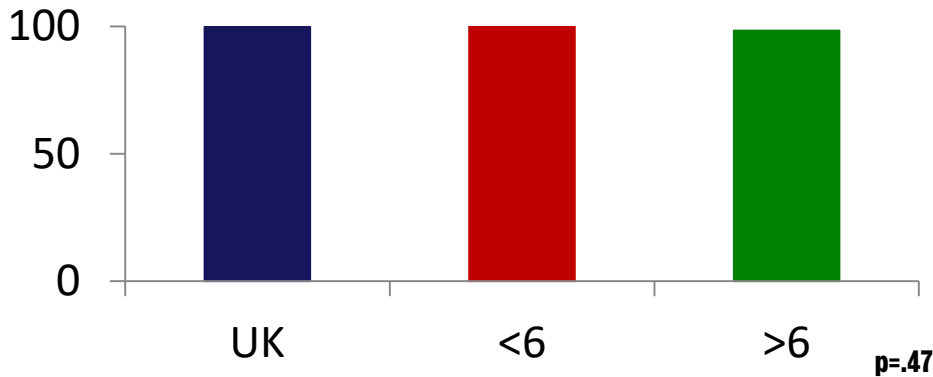


Similar in many ways – however – major risk for unemployment

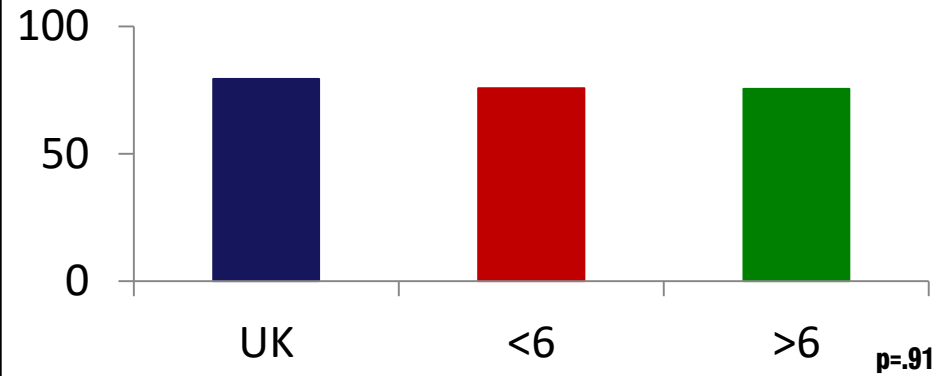
CIRCUMSTANCES IN YOUNG ADULTHOOD

RELATIONSHIPS

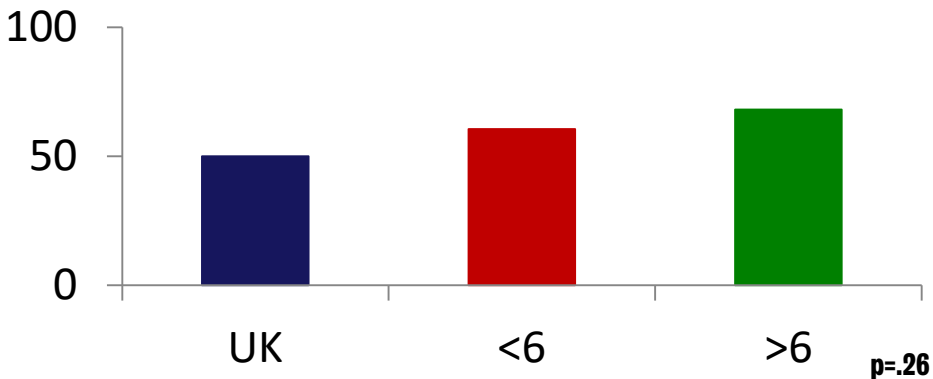
SUPPORT FROM PARENTS (PARENT REPORT) %



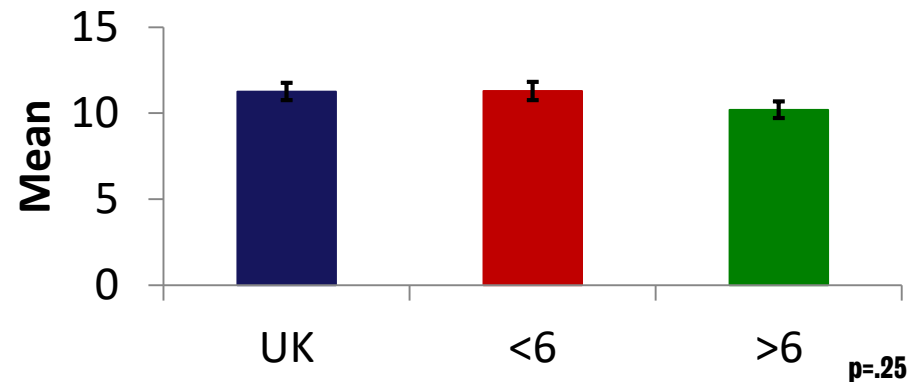
SUPPORT FROM PARENTS (SELF REPORT) %



POSITIVE RELATIONSHIP WITH PARENTS (SELF REPORT) %



SUPPORT FROM FRIENDS

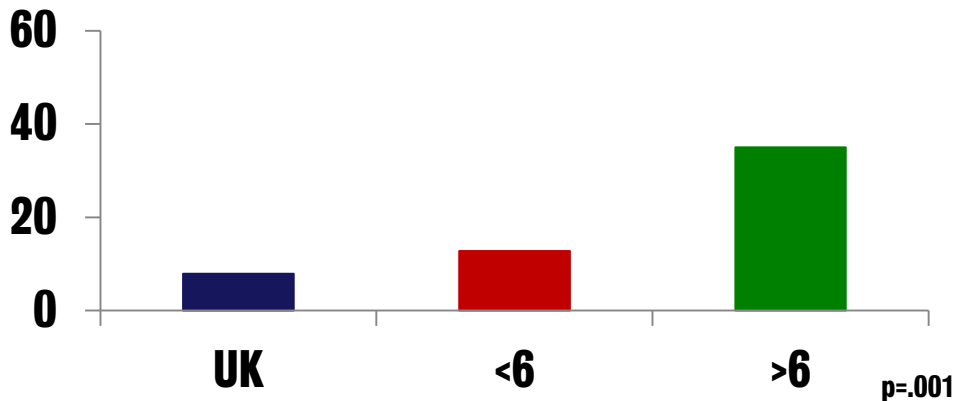


Families remained supportive and many relationships good.

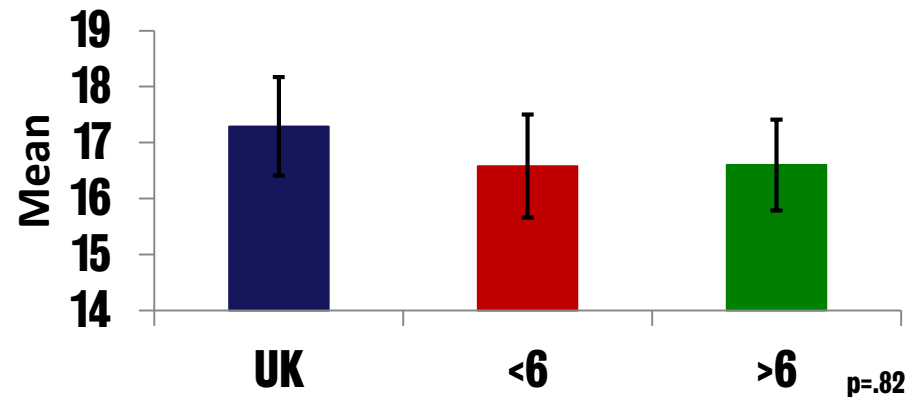
CIRCUMSTANCES IN YOUNG ADULTHOOD

FUNCTIONING

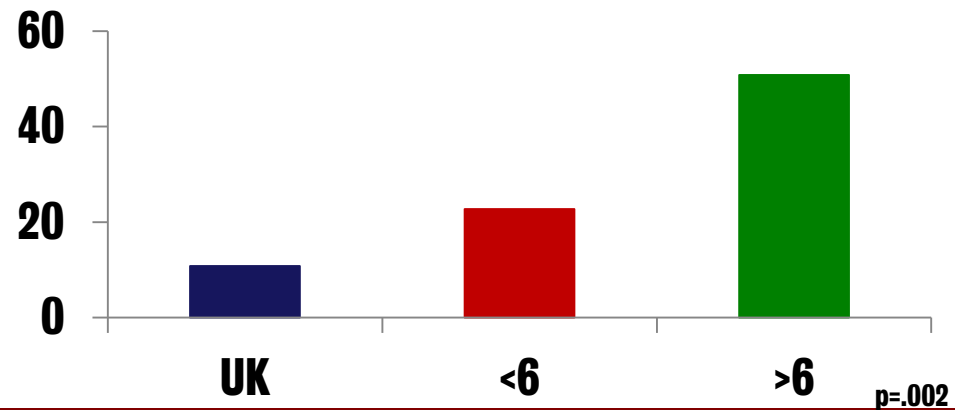
GENERAL IMPAIRMENT (CONNERS SCALE) %



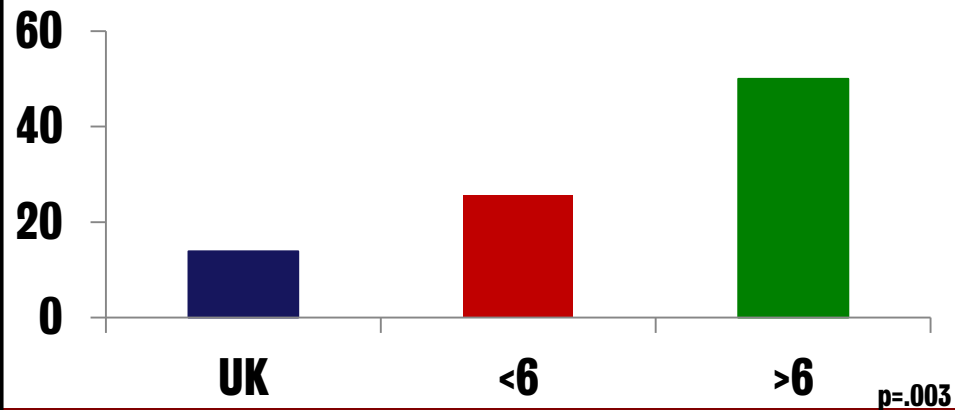
LIFE SATISFACTION



SOCIAL IMPAIRMENT (WORK) %

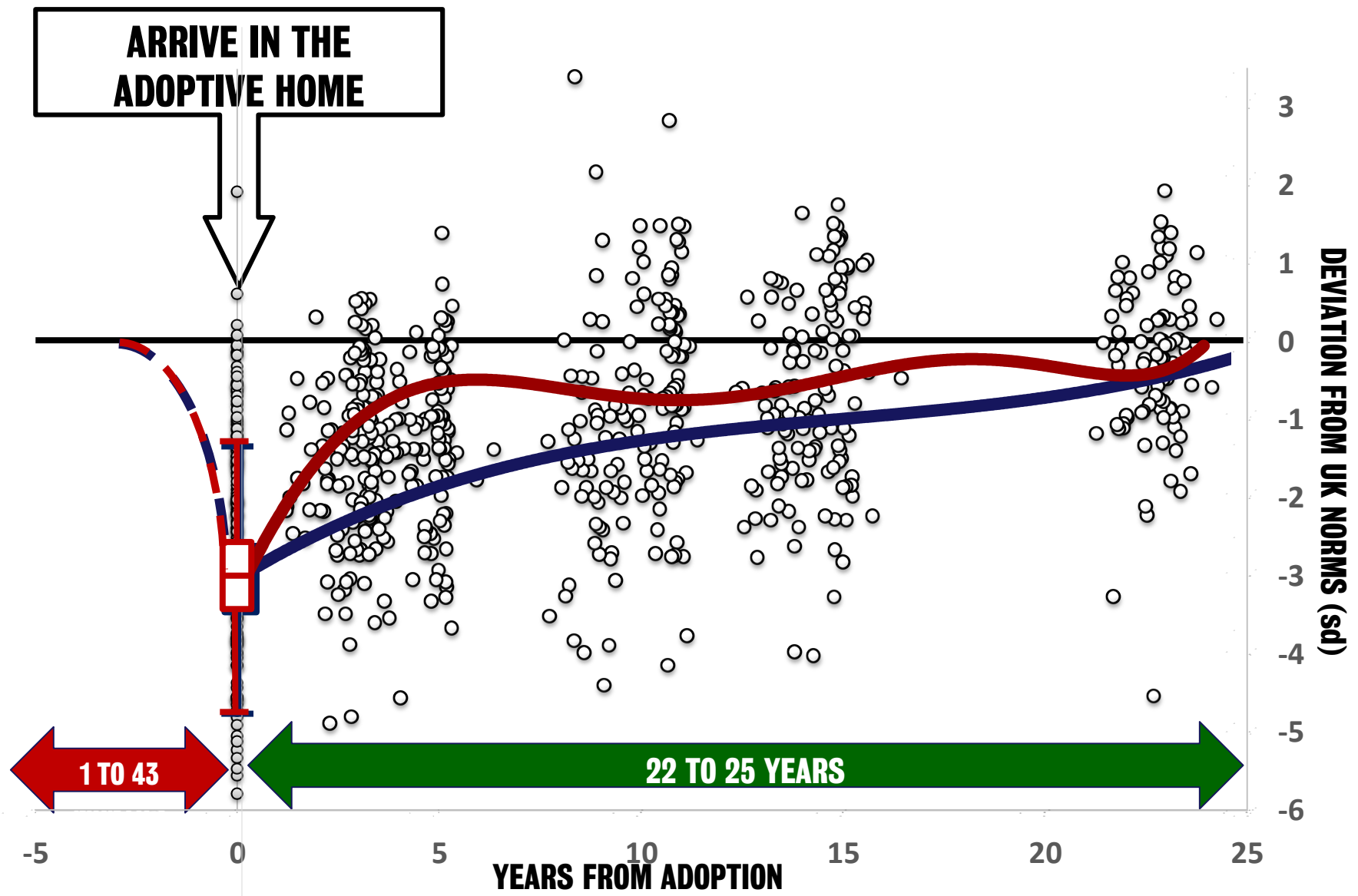


SOCIAL IMPAIRMENT (FREINDSHIP) %

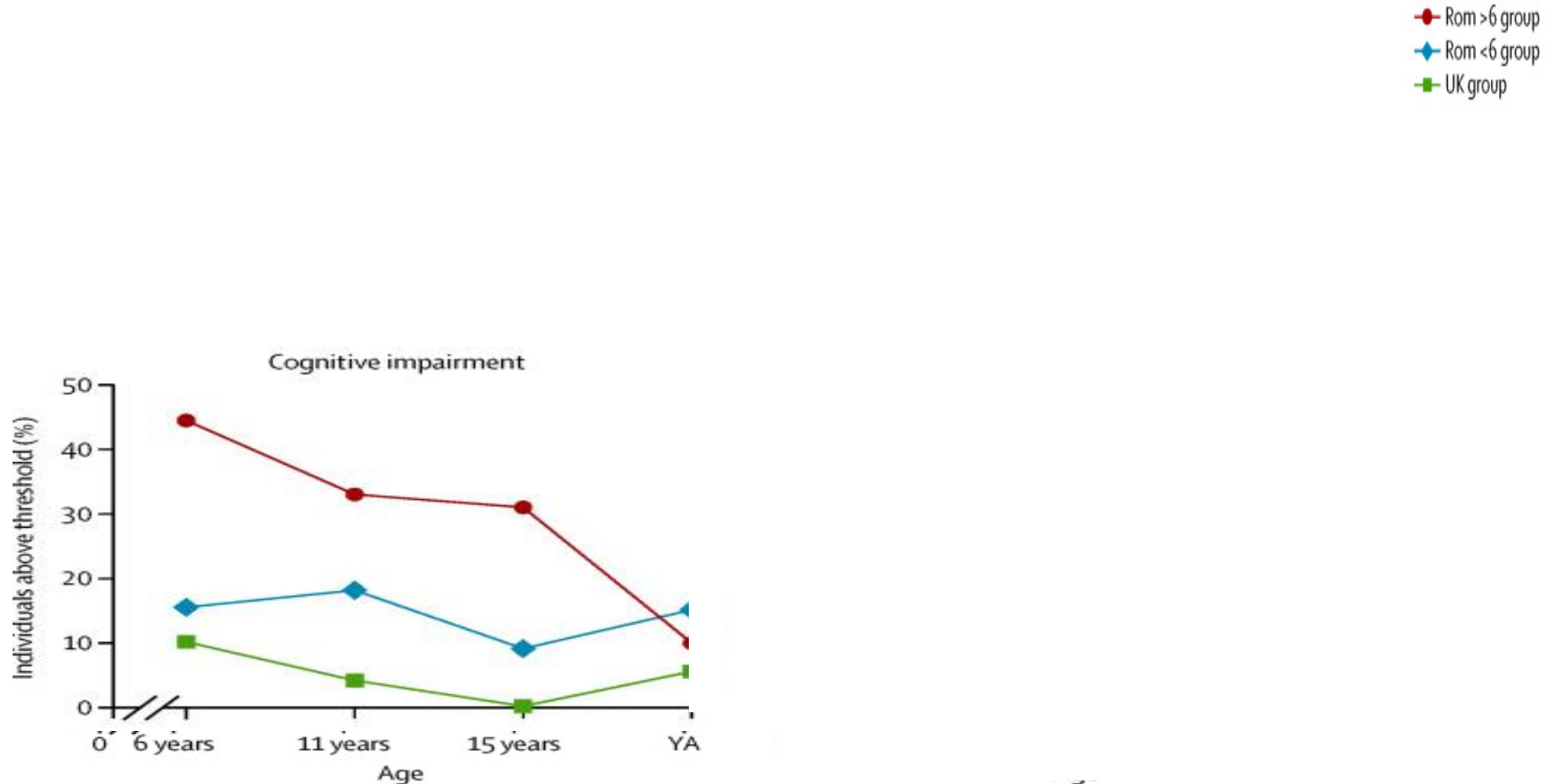


Generally felt positive but recognised significant impairment.

INITIAL DEVASTATING EFFECTS OF DEPRIVATION FOLLOWED BY REMARKABLE CATCH UP



REMISSION OF COGNITIVE IMPAIRMENT BUT PERSISTENCE OF OTHER NEURO-DEVELOPMENTAL DISORDERS



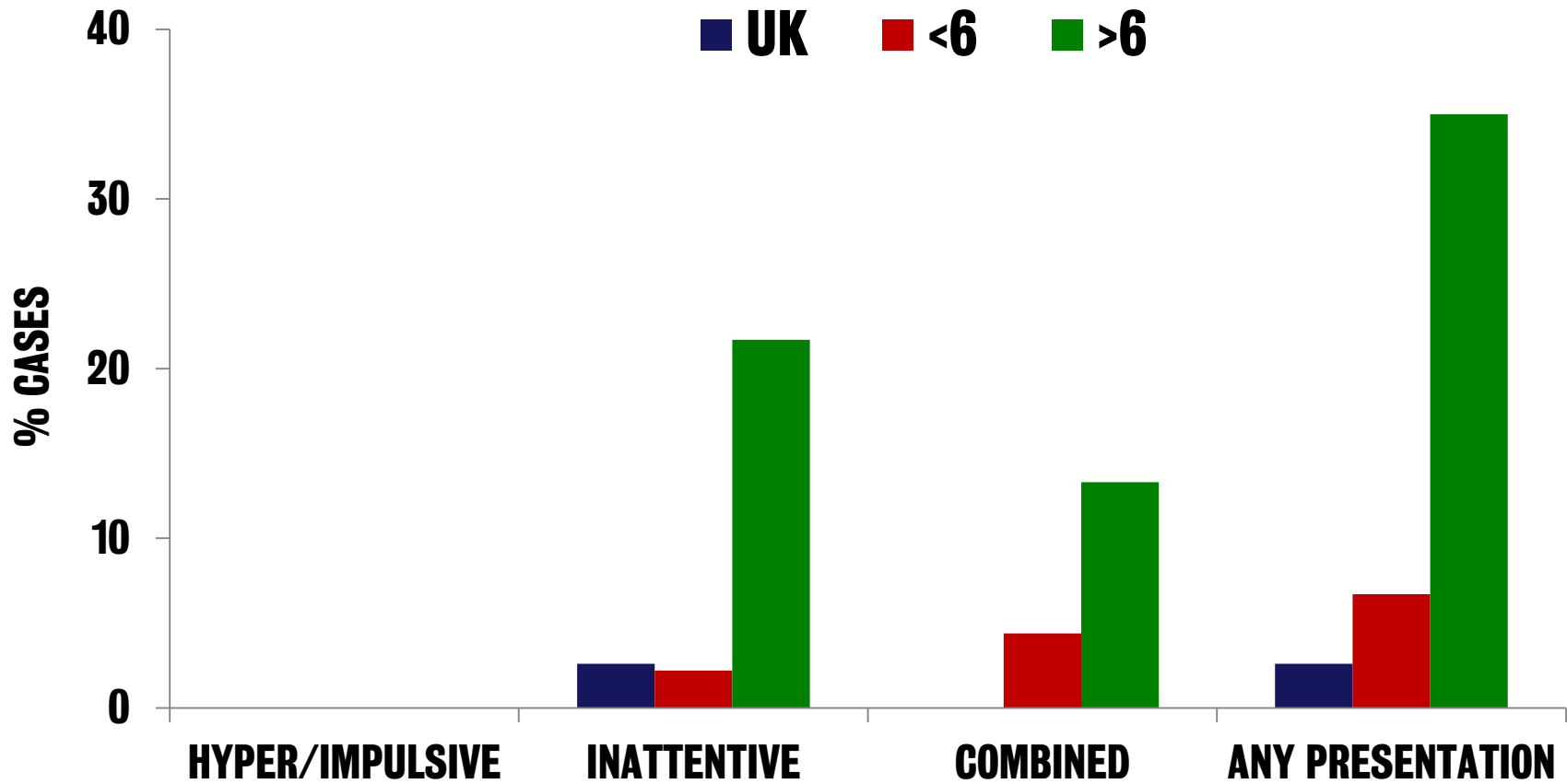
Child-to-adult neurodevelopmental and mental health trajectories after early life deprivation: the young adult follow-up of the longitudinal English and Romanian Adoptees study



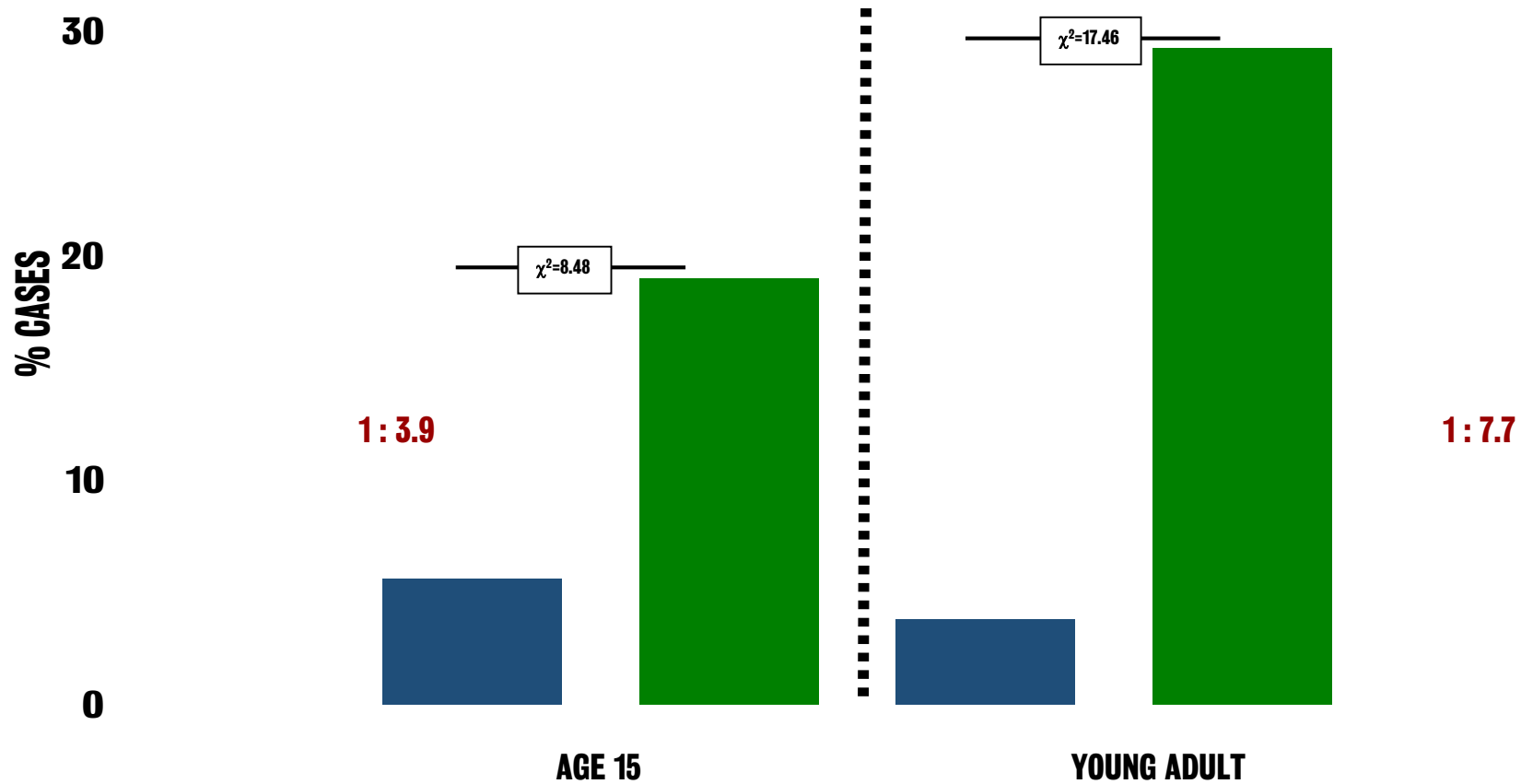
THE LANCET



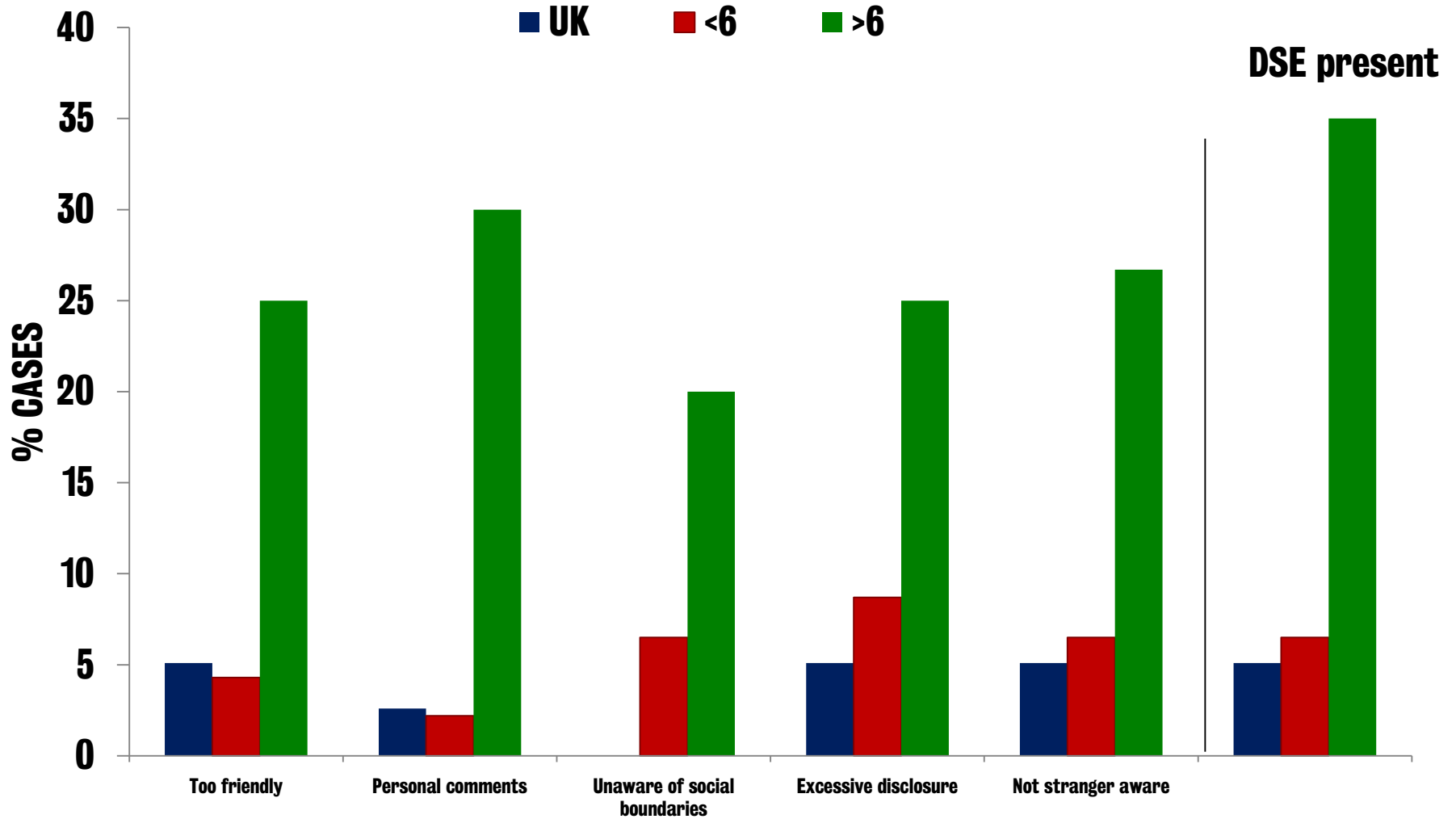
YOUNG ADULT ADHD PRESENTATION



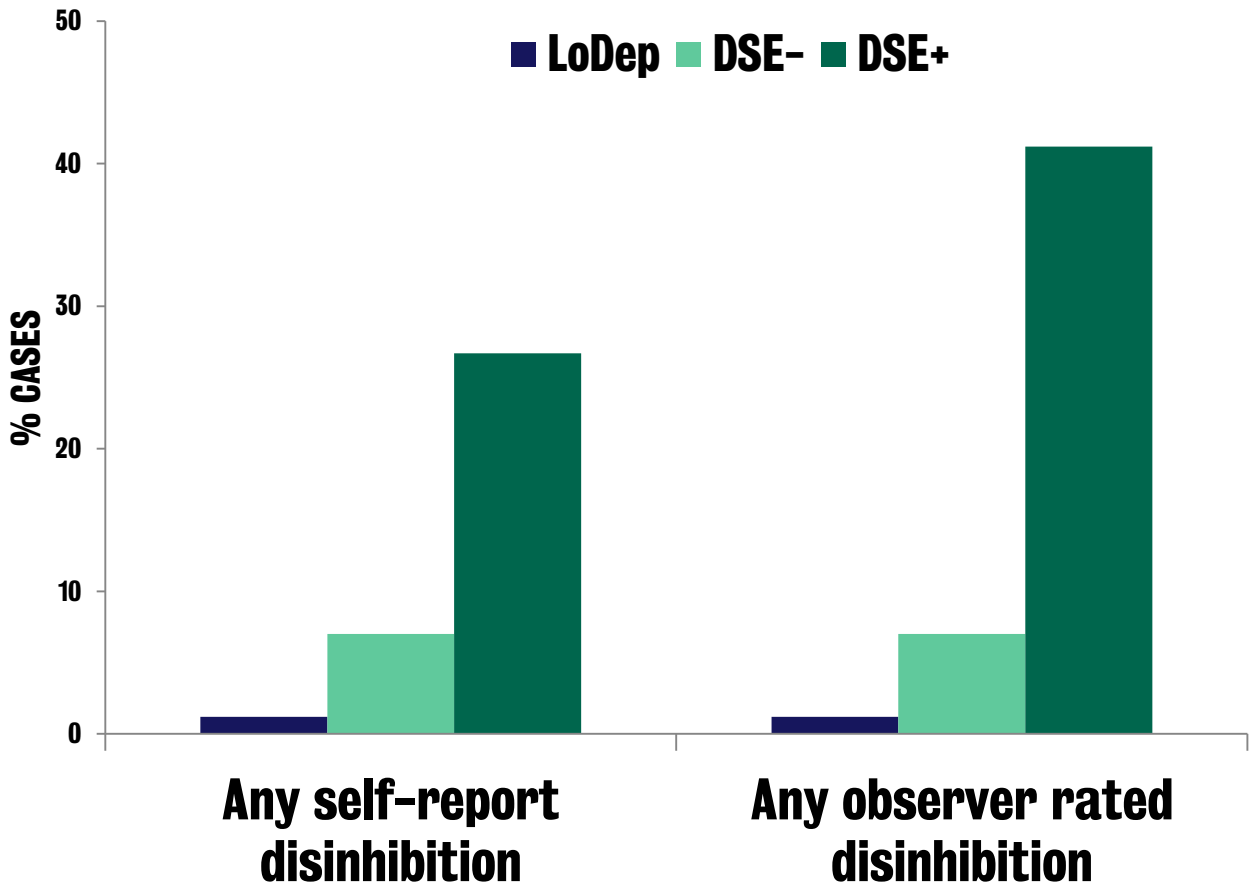
ADOLESCENT & YOUNG ADULT COMPARISON



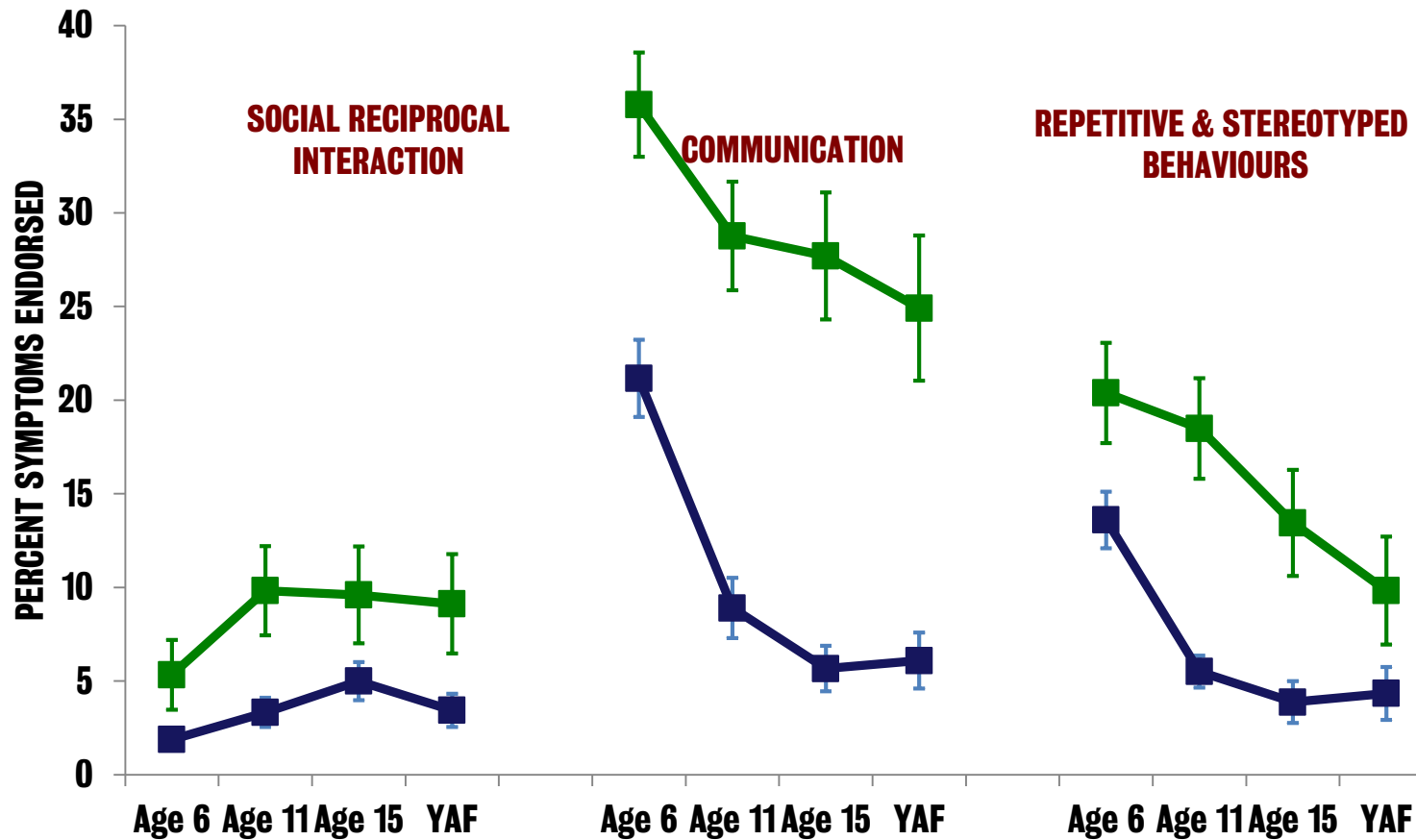
DSE IN ADULTHOOD



IS YOUNG ADULT DSE STILL OBSERVABLE? ARE DISINHIBITED ADULTS AWARE OF THEIR SOCIAL STYLE?



HAS THE QUASI-AUTISM PRESENTATION CHANGED?



A p=.006 G p=.019

A p<.001 G p<.001 A x G p=.010

G p<.001

MECHANISM

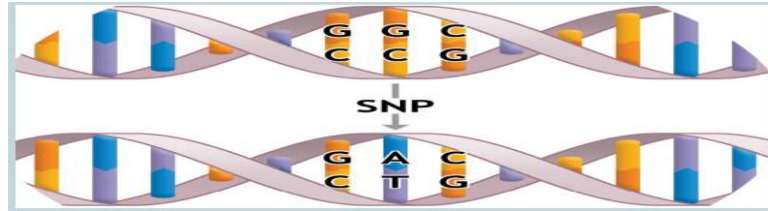
Is it simply that the most deprived were at the highest genetic risk so had more problems?

Could severe deprivation lead to extreme enduring neuroplastic responses that override genetics to produce neuro-developmental disorder?

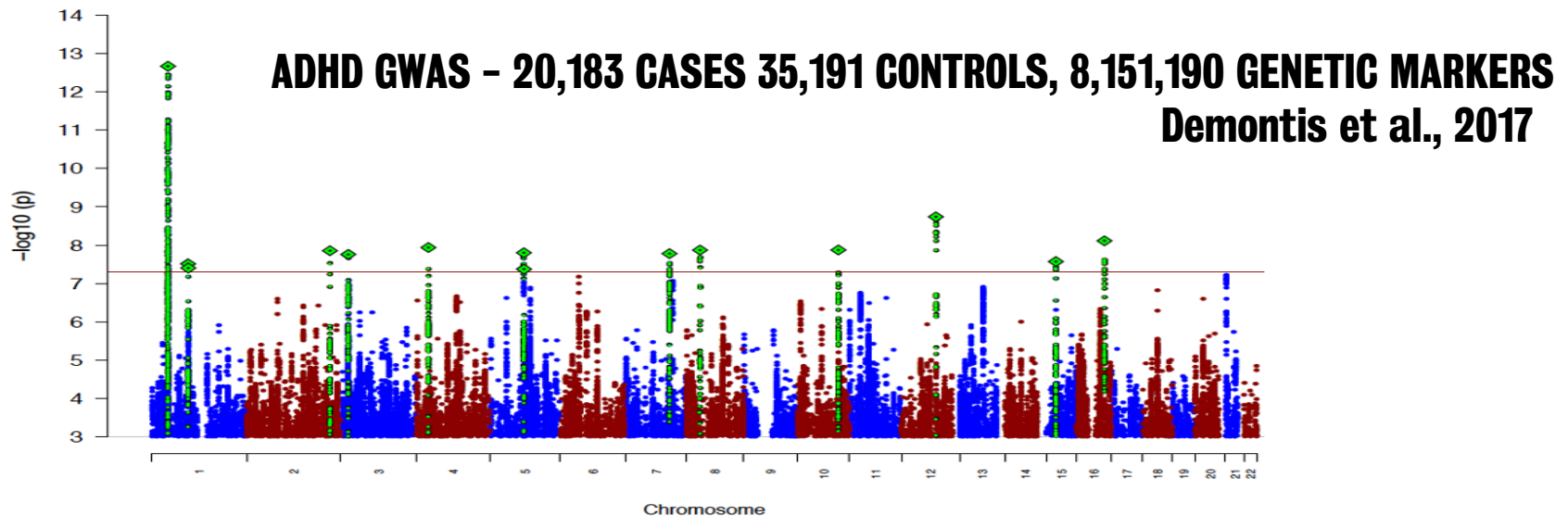
Do these deprivation disorders have down stream effects on mental health?

CALCULATING GENETIC RISK FOR DISORDER IN EACH PERSON

- 1000s of small effect gene variants involved in disorders.
- High through-put methods test 100,000s single nucleotide polymorphisms quickly/cheaply.

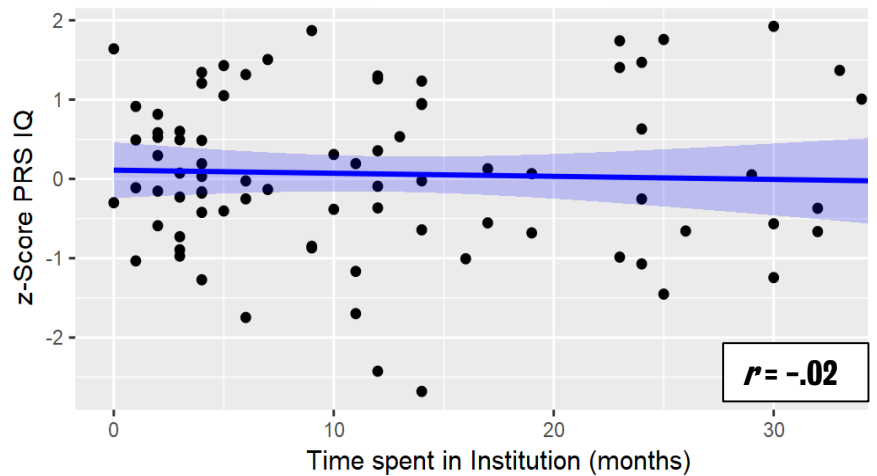


- Statistical correction for multiple tests and small effects - large samples are required.

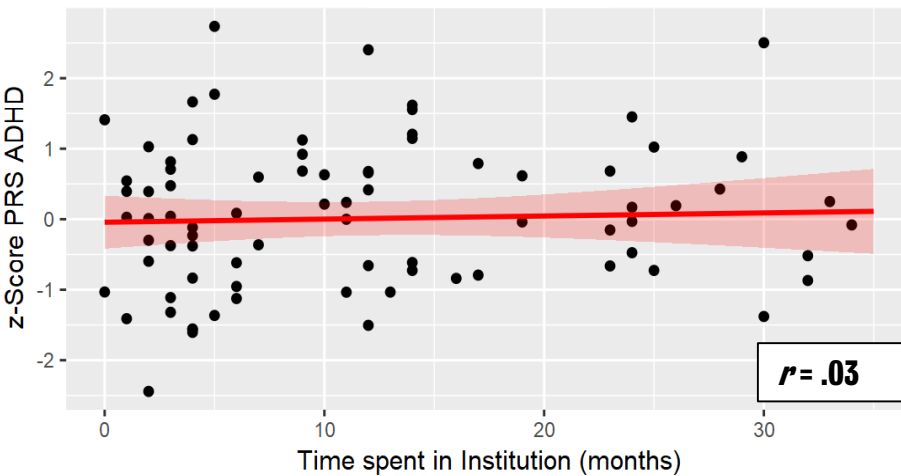


ARE THOSE EXPOSED TO MOST DEPRIVATION AT GREATER GENETIC RISK?

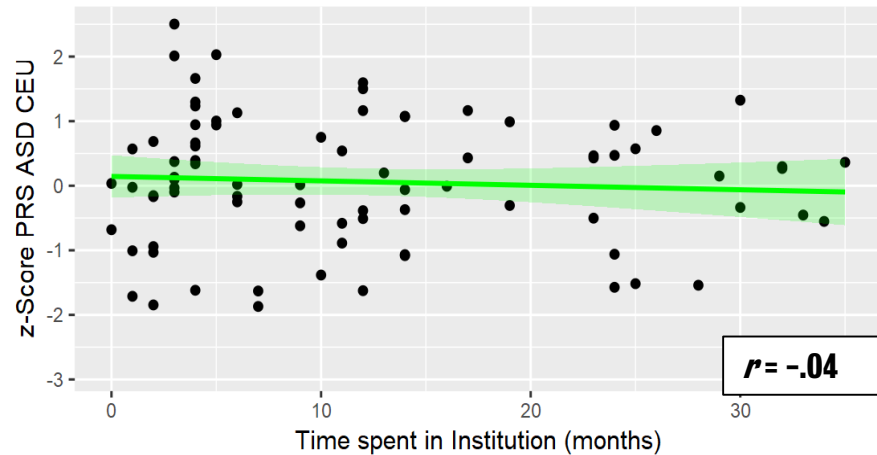
IQ



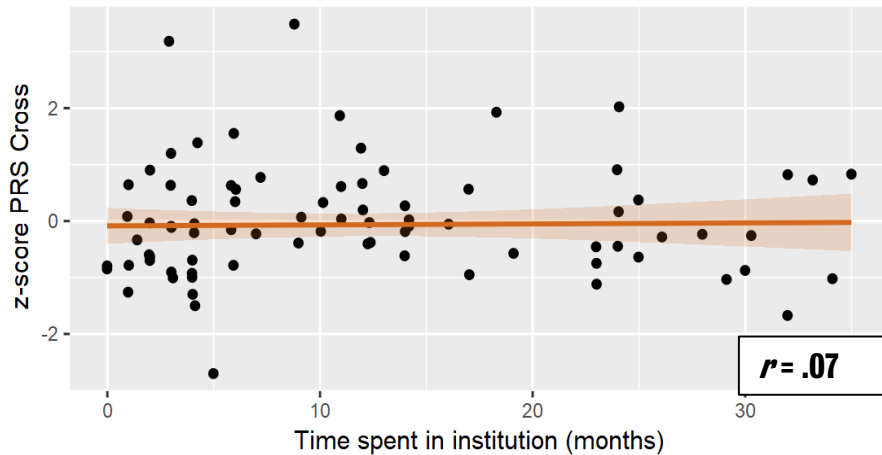
ADHD



ASD

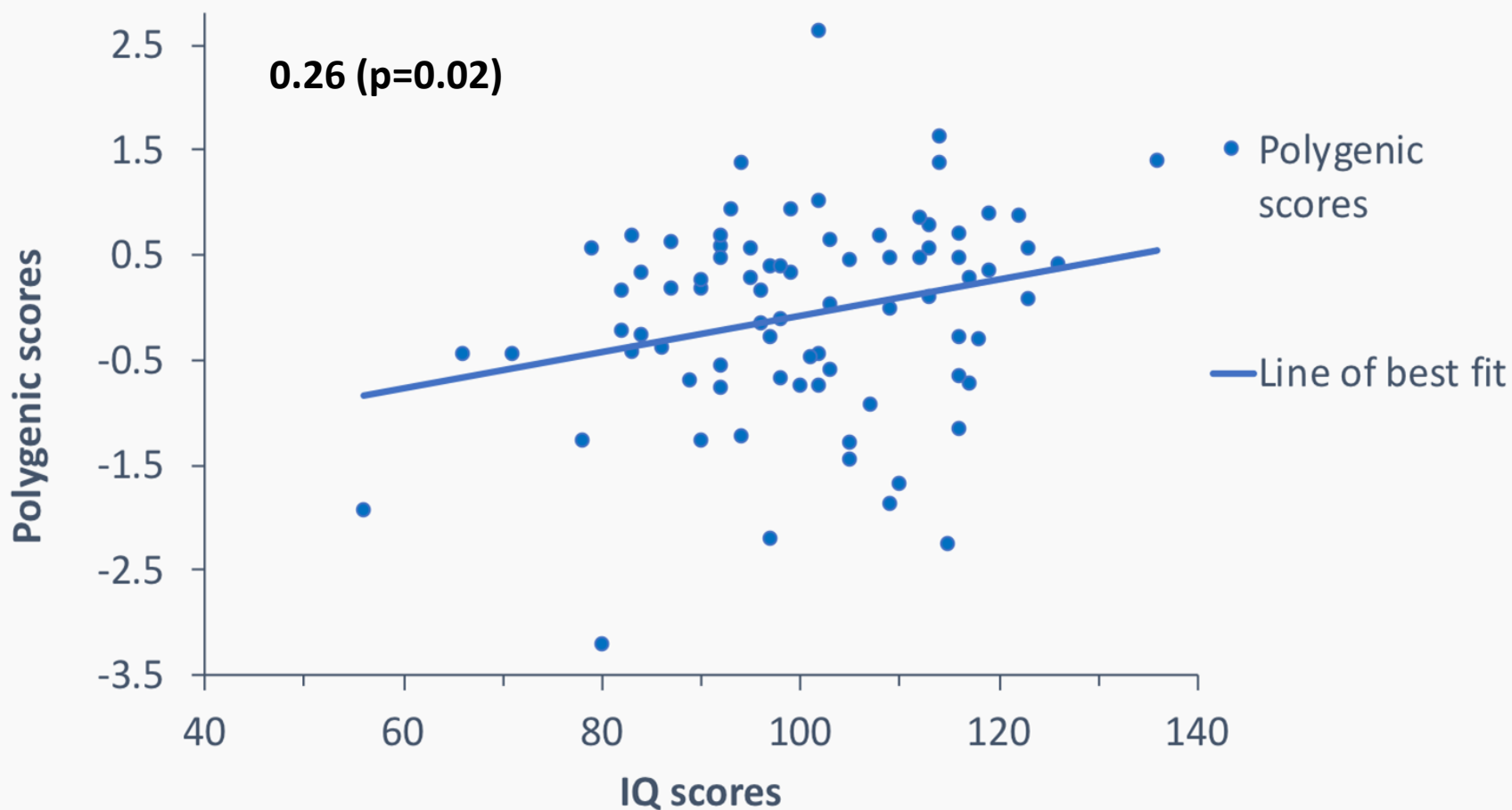


Cross disorder



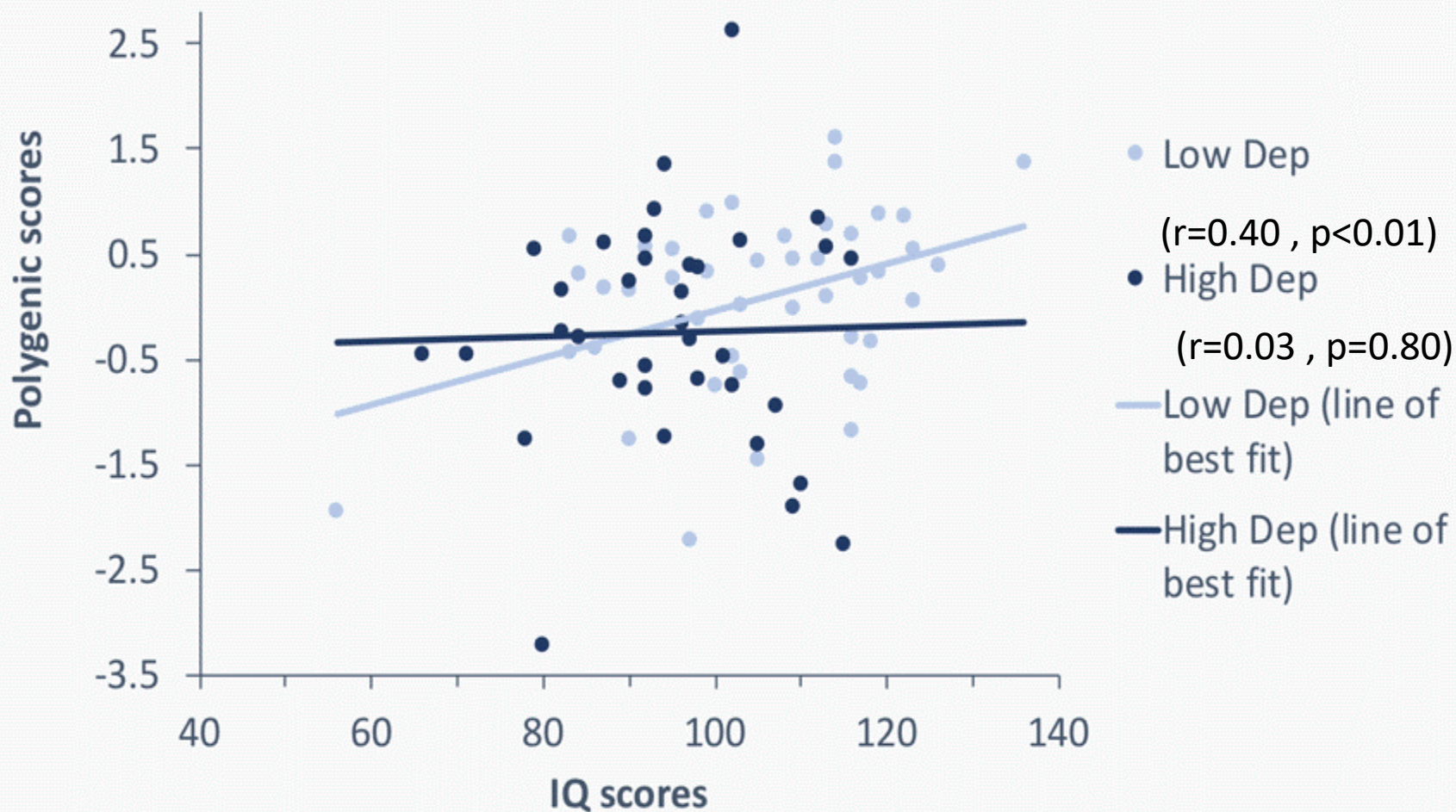
ARE "STANDARD" RISK GENES LESS PREDICTIVE IN THOSE EXPOSED TO EXTENDED DEPRIVATION?

Figure A) IQ PGS and IQ scores in young adulthood

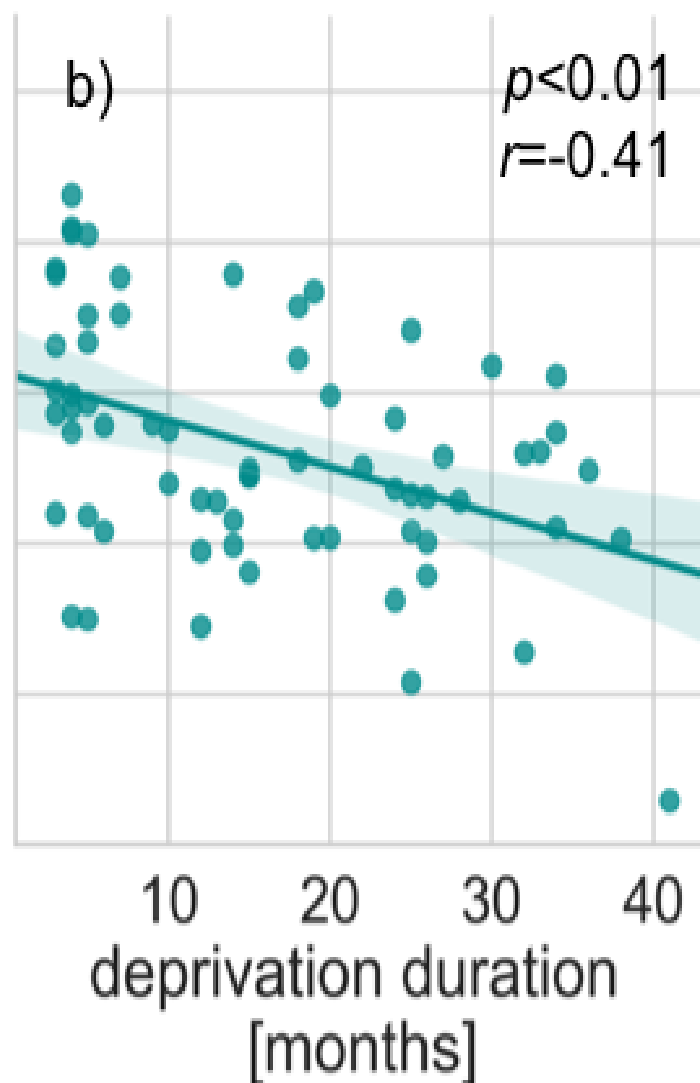
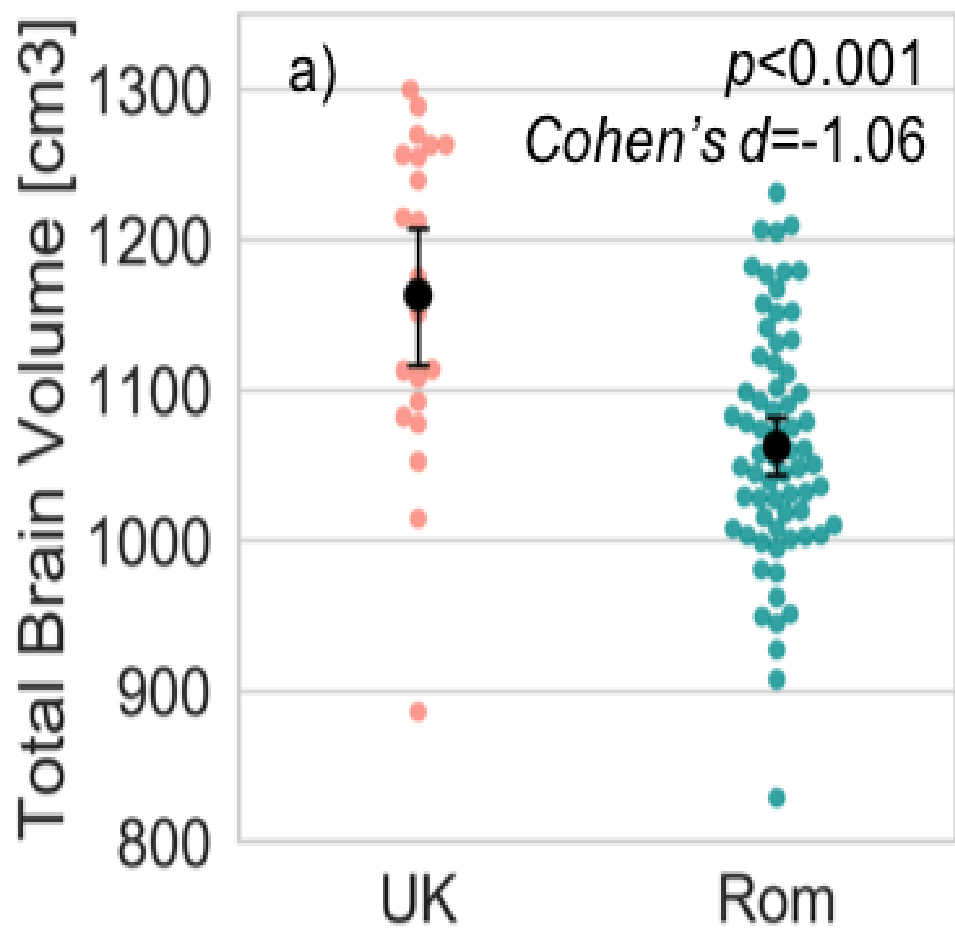


ARE "STANDARD" RISK GENES LESS PREDICTIVE IN THOSE EXPOSED TO EXTENDED DEPRIVATION?

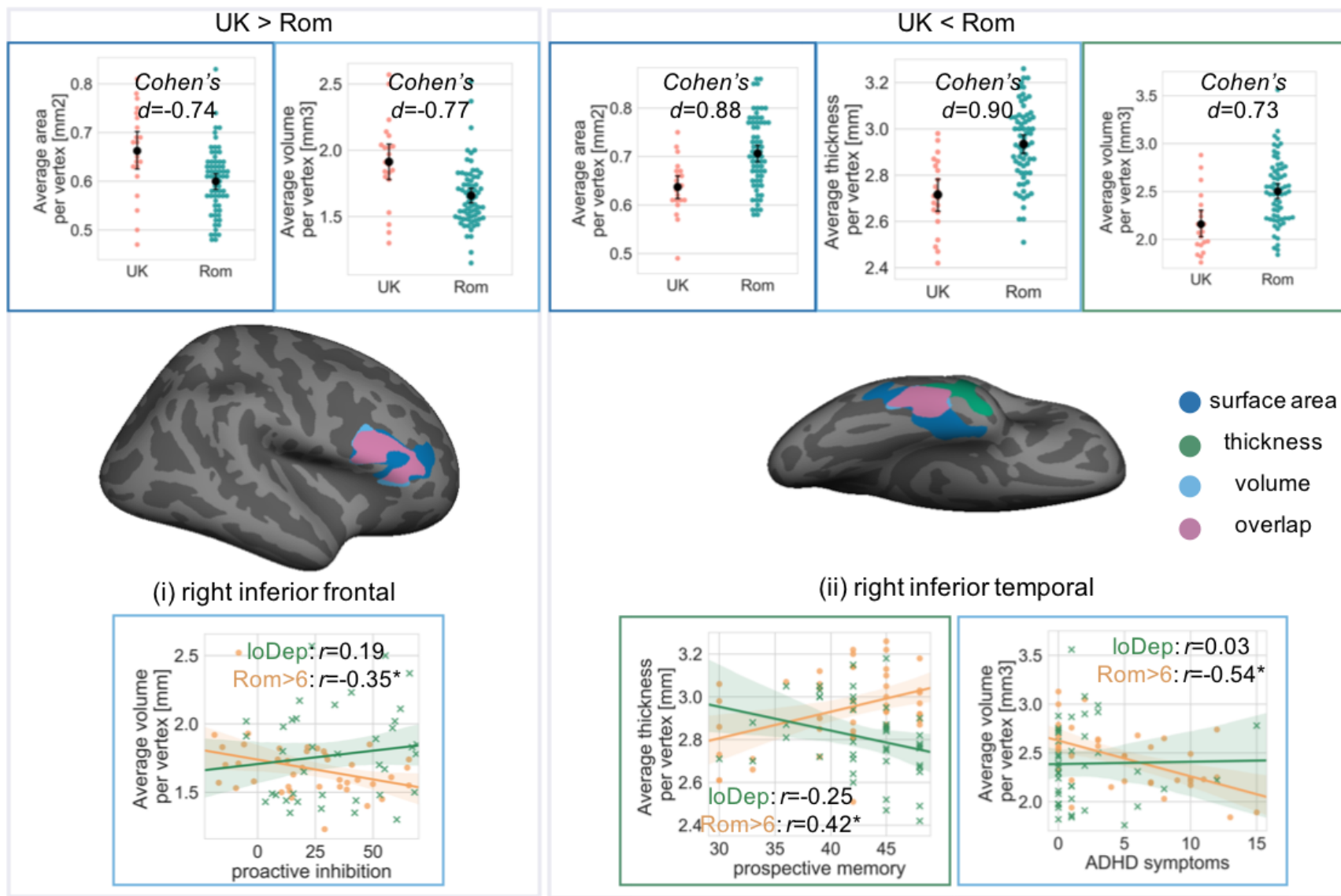
Figure B) IQ PGS and deprivation levels on IQ scores in young adulthood



DOES DEPRIVATION HAVE AN ENDURING EFFECT ON BRAIN STRUCTURE?



DOES DEPRIVATION HAVE AN ENDURING EFFECT ON BRAIN STRUCTURE?

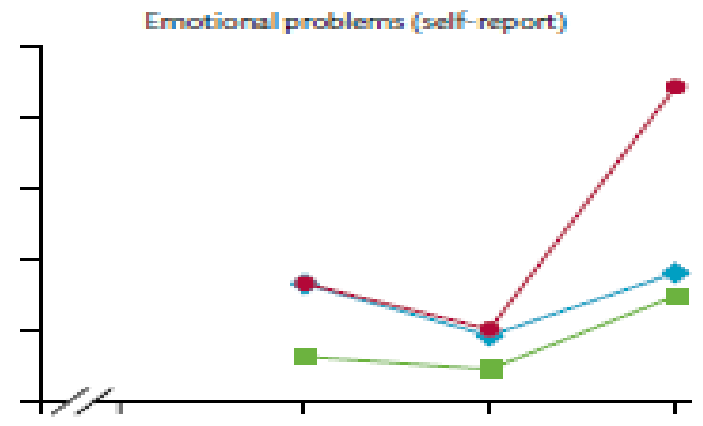
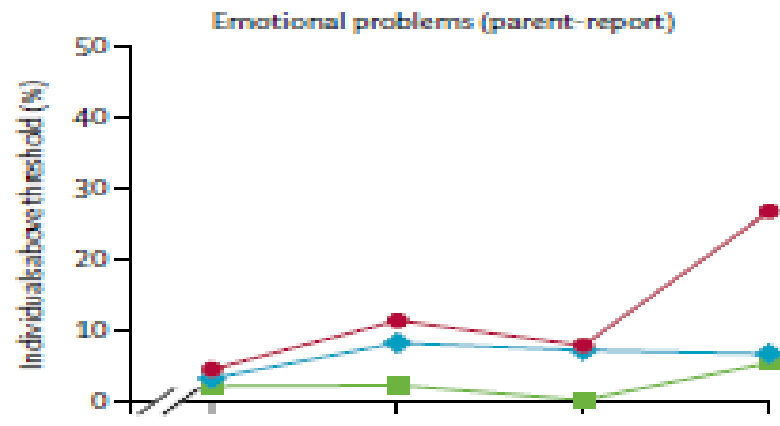


DO ENDURING NEURO-DEVELOPMENTAL CONDITIONS HAVE DOWN-STREAM CONSEQUENCES FOR ADULT MENTAL HEALTH?

- **Early adulthood holds opportunities for personal growth and independence.**
- **But also new challenges and increased risks.**
- **Dealing with emerging adult stressors can be challenging.**
- **Increased exposure to more health risks during experimentation.**
- **Possibility of loneliness and isolation.**

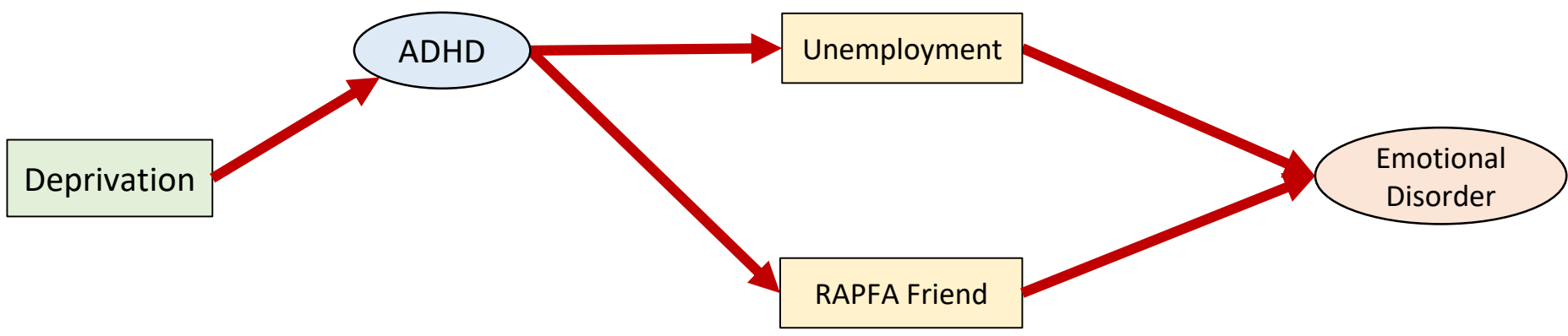
GIVEN THEIR BACKGROUND AND CONTINUING VULNERABILITIES EA MAY BE CHALLENGING FOR MANY ROMANIAN ADOPTEES

THE LATE EMERGENCE OF DEPRESSION FOLLOWING DEPRIVATION IS DRIVEN BY PRIOR ADHD AND OTHER NDDS

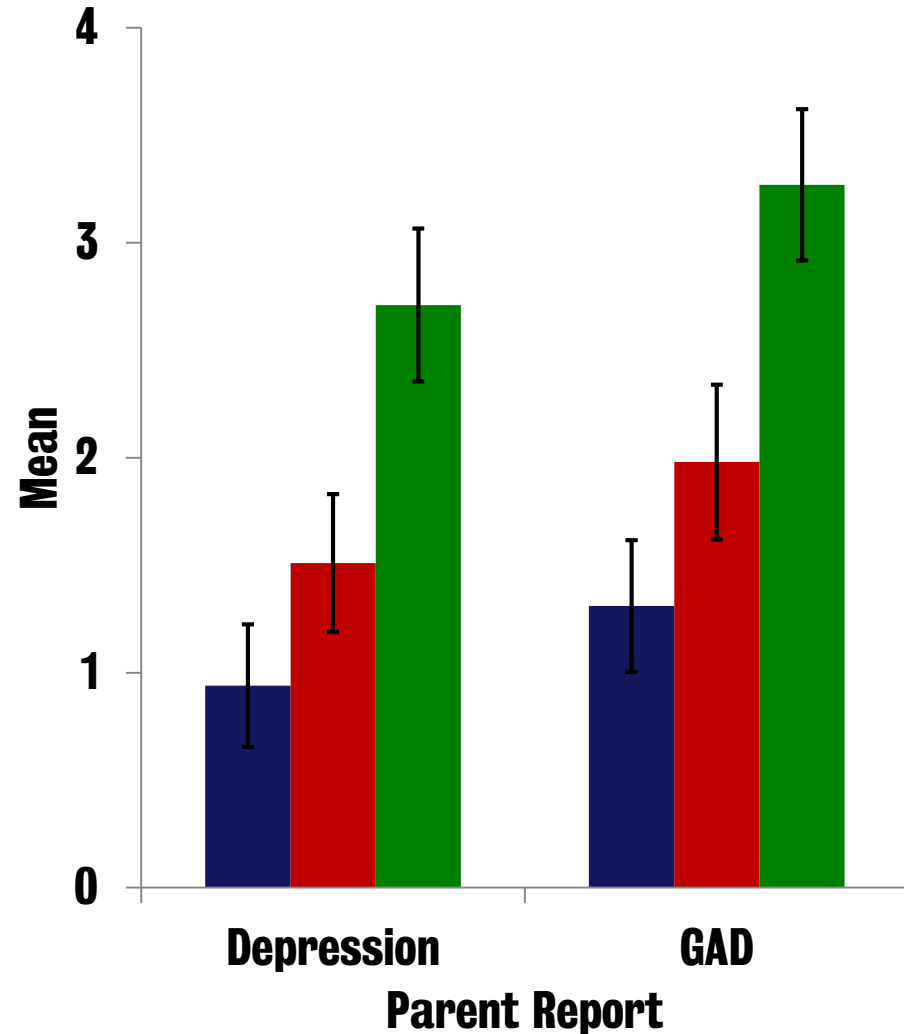
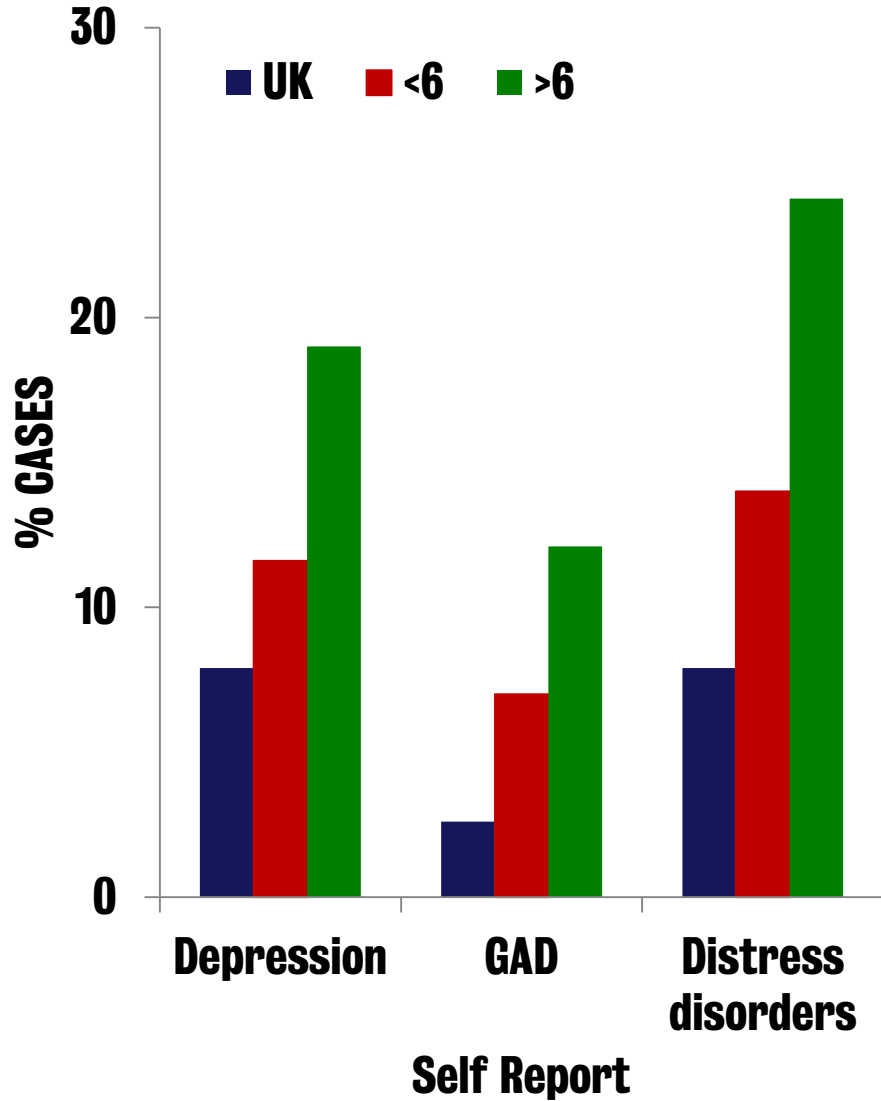


age of entry age 6 years

age 19-23 years age 23 years

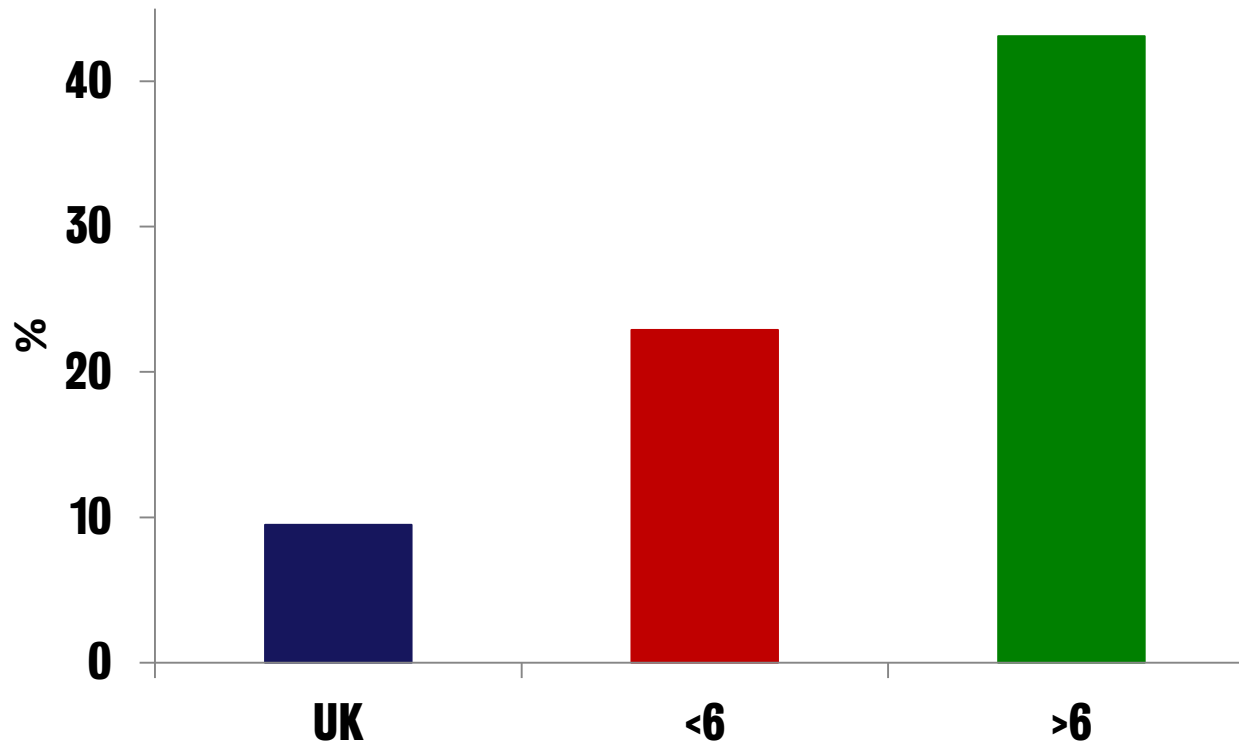


THE STING IN THE TAIL – EMERGENCE OF MENTAL HEALTH PROBLEMS DURING YOUNG ADULthood



IS THIS CLINICALLY SIGNIFICANT DISORDER?

Significant Service Use - Since 15



**At least 2 sessions with a GP/mental health practitioner AND a formal diagnosis and/or a prescription of medication
In cases without a formal diagnosis or prescription, at least 6 sessions with a GP/ mental health practitioner was required.**

**BUT THE ORPHANS' DEVELOPMENTAL FATE
WAS NOT SEALED BY THE TIME THEY LEFT
THE INSTITUTIONS.**

—

**NEW SPECIAL RELATIONSHIPS DEVELOPED
WITHIN FAMILIES**

—

**CAN THESE PROMOTE HEALING FROM THE
PAST AND RESILIENCE FOR THE FUTURE?**

ATTACHMENT → RESILIENCE

- **Selective attachments promote resilience because they –**
 - **create a deep-seated sense of personal agency.**
 - **establish a template for, and a network of, intimate social relationships that buffer negative effects of external threats.**
- **Positive effects cascade across the life-span to produce benefits to individual and society.**
- **Conversely, their absence elevates risk for poor mental health especially during periods of heightened risk exposure.**

PRESCHOOL ATTACHMENT SECURITY

MODIFIED SEPARATION-REUNION PARADIGM

- i) 10 min of semi-structured child-mother play**
- ii) experimenter (stranger) takes the child into another room for 10 min, weighing and measuring task.**
- iii) 3 min reunion episode**
- iv) 30 min separation – parent leaves, standardised assessment with experimenters**
- v) 3 min reunion episode**

ATTACHMENT TYPES

A – insecure-avoidant: Disengaged, not seeking contact when distressed, inhibits affect.

Self – unloved/independent.

B – secure: Positively engaged – little evidence of insecurity.

Self – loved/autonomous/competent.

C – insecure-ambivalent: Passive/helpless or angry/resistant – especially apparent at separation/reunion.

Self – low worth/dependent.

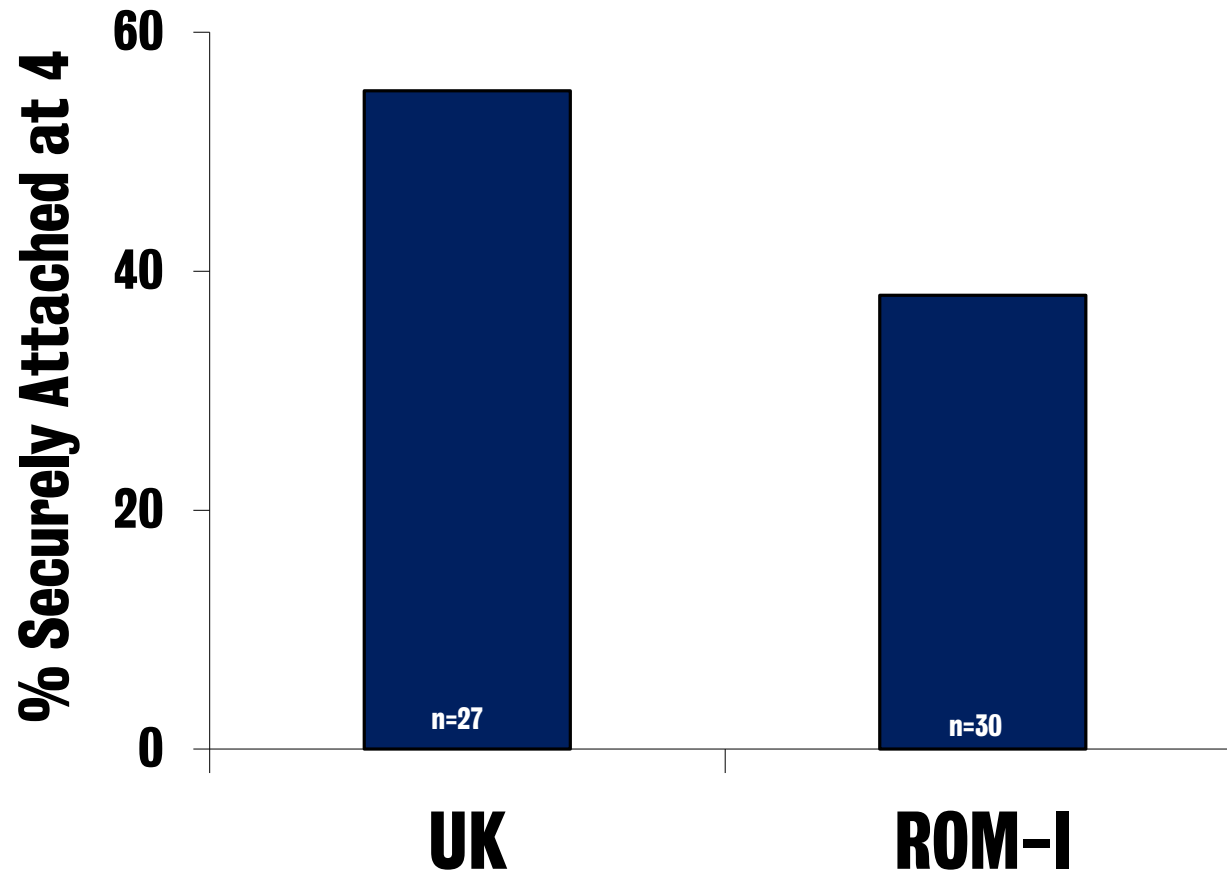
D – disorganised: Disordered behaviour/withdrawal.

Self – confused/incompetent.

Insecure other (preschool): Indiscriminate, emotionally dysregulated, “goofy”,

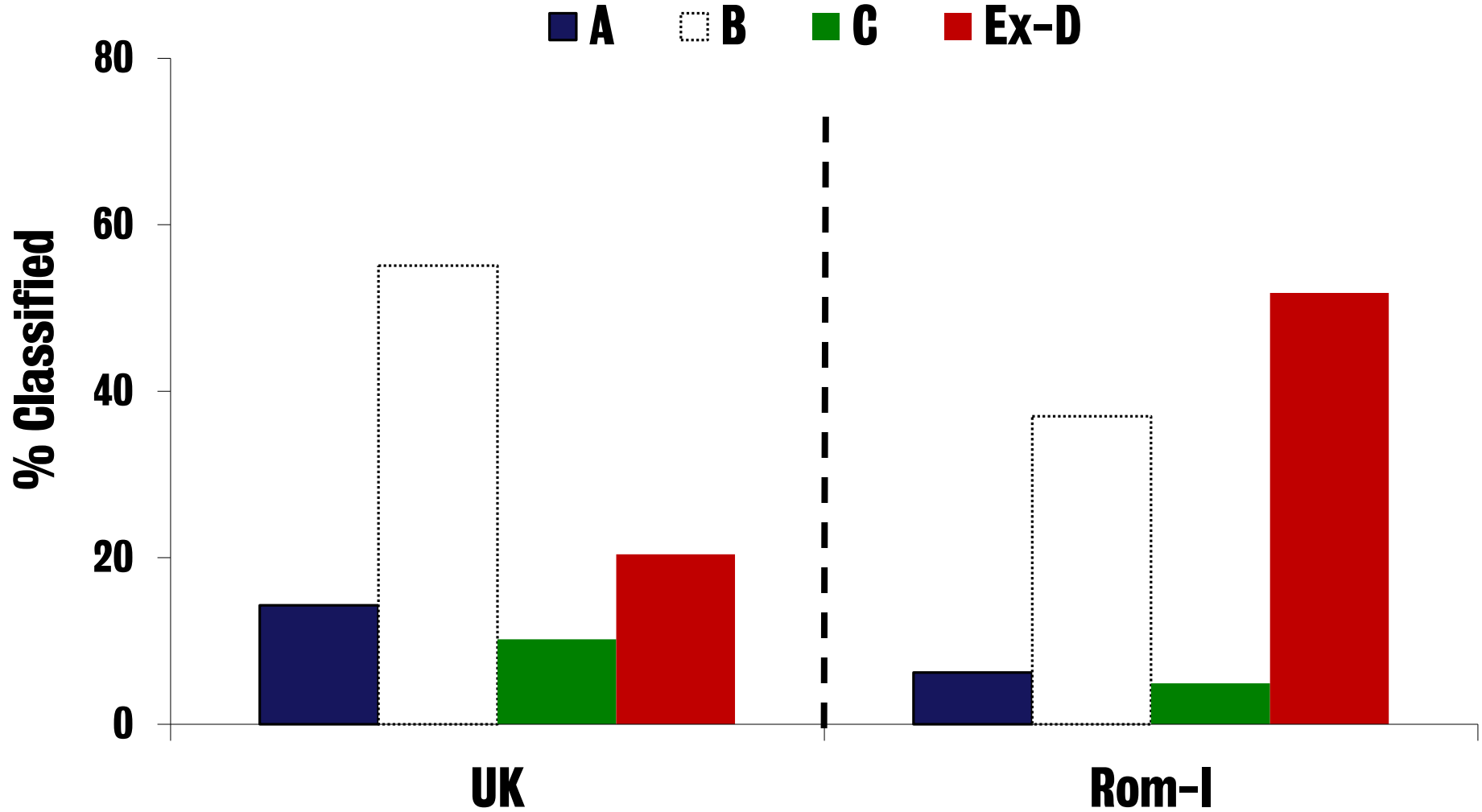
Self – needy/attention seeking/uncertain.

CAN SECURE ATTACHMENTS BE ESTABLISHED WITH ADOPTIVE PARENTS AFTER EXTENDED DEPRIVATION?



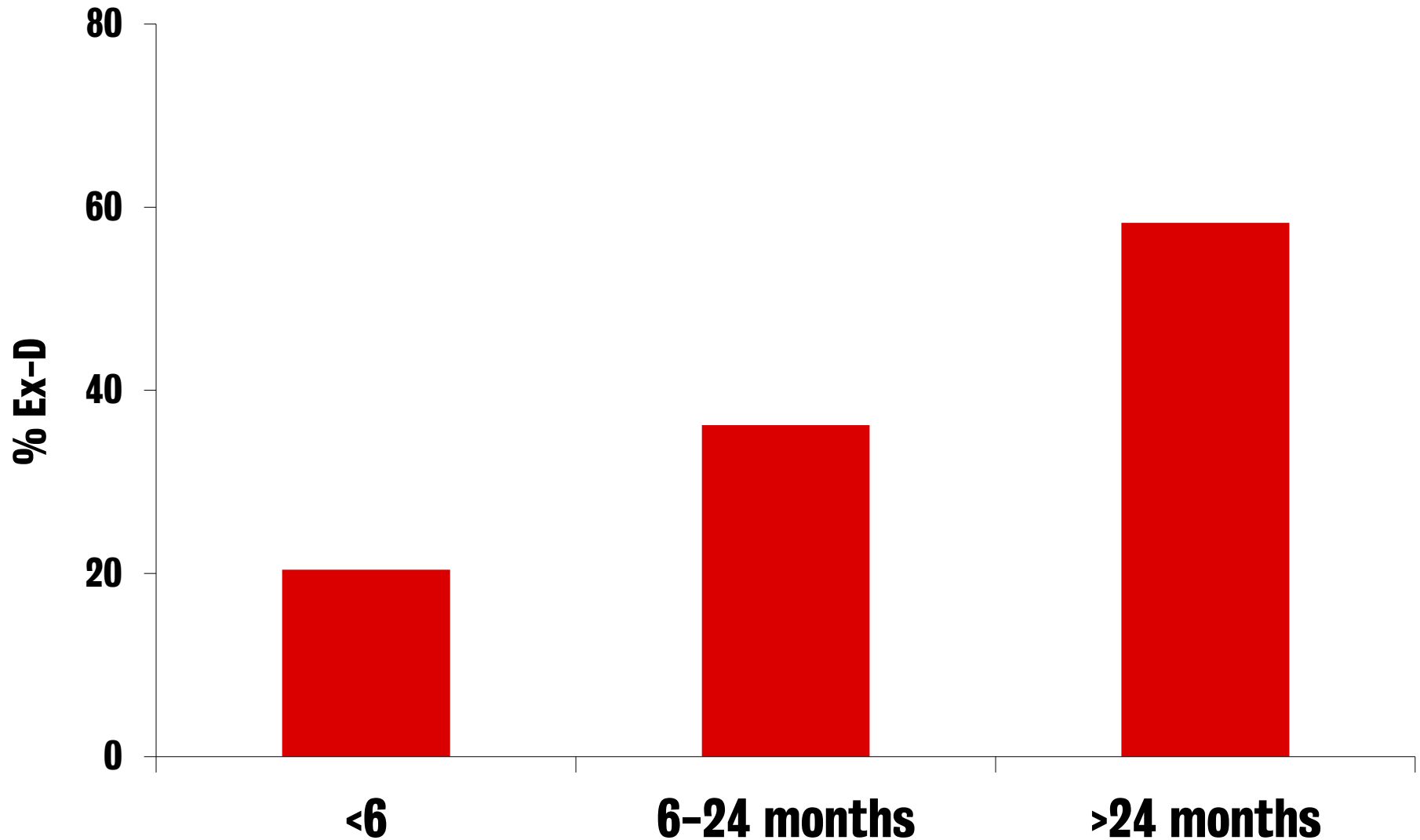
$\chi^2(2)=3.51; p>.1$

DOES INSECURE ATTACHMENT AFTER DEPRIVATION FOLLOW THE CLASSICAL PATTERN?



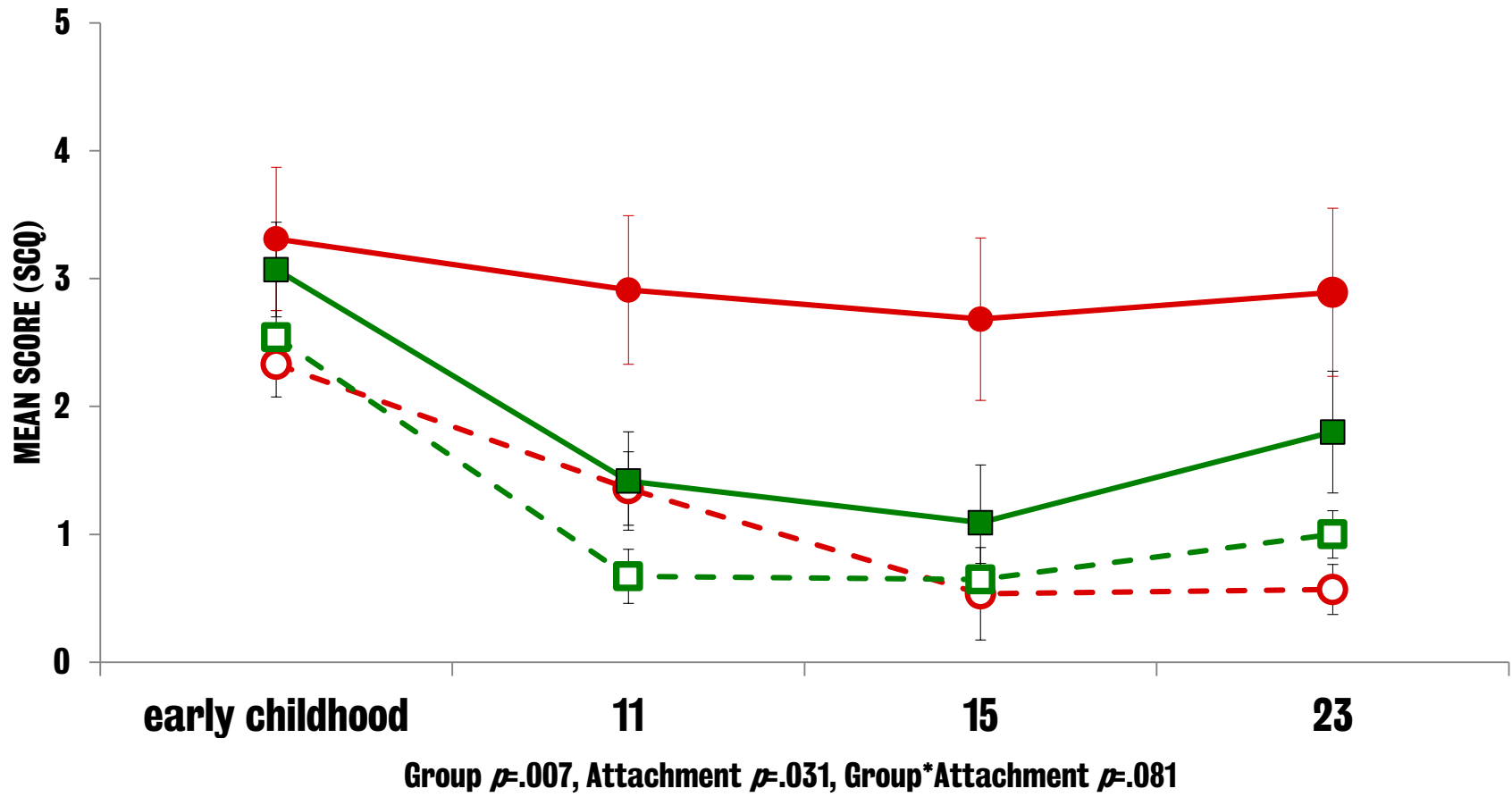
Age 4 $p=.027$
Age 6 $p=.472$

IS DISORGANISED ATTACHMENT RELATED TO THE DURATION OF DEPRIVATION?



Age 4 p=.002

QA



However severe disruption of attachment was strongly associated with cognitive impairment at age 4 years and when this was controlled the effects Ex-D were no longer present.

SUMMARY

- **Institutional deprivation - deep-seated effects on development for some - characteristic pattern of impairment following extended exposures.**
 - **Persistent neuro-developmental disorder**
 - **Remission of cognitive deficits**
 - **Onset disorder-driven emotional disorders**
- **Deprivation has enduring global and local (perhaps compensatory) effects on brain structure.**
- **Initial evidence –**
 - **Genetic risk operate differently as a function of exposure – apparently overridden by deprivation effects.**
 - **Deprivation-related ADHD/ASD have distinct neural signatures.**
- **Severely deprived can form secure attachments – associated with remitting ASD.**