

# How depression relates to academic achievement in adolescence and early adulthood: identifying high risk points

Dr José A López-López, Prof Kate Tilling, Dr Liz Washbrook, Mr Alex Kwong and Dr Gemma Hammerton, Dr Judi Kidger and Dr Rebecca Pearson (University of Bristol, United Kingdom)  
Dr Mina Fazel (Oxford University, United Kingdom)

It is increasingly recognised that depression and poor educational achievement are connected, but how they are connected remains poorly understood, making it hard for policymakers to address the issue.

## About the research

Depression is a leading cause of disability in the UK and many other countries.

According to the World Health Organisation, more than 300 million people of all ages suffer from depression.

For many people, the first experience of depressive symptoms takes place during adolescence which is why it is essential to try and better understand what happens at this time.

Worldwide, evidence shows that higher educational achievement at the end of compulsory education is clearly linked to higher employment rates and better health and social functioning in adulthood.

Does depression lead to poor grades or do poor grades lead to depression? Do grades or changes in mood at specific ages make a greater difference?

What should be the focus of public mental health interventions, and at which ages should these be targeted?

We examined the links between depressed mood over time and education in the UK, using data from the Avon Longitudinal Study of Parents and Children (ALSPAC, also known as Children of the 90s), a cohort of 15,458 children born in 1991-92 in the Bristol area.

This work builds on evidence from similar studies by providing more detailed findings about key transition points, specifically the start of puberty (approx. 11-13 years) and start of adulthood (16-18 years).

## Policy implications

Challenges for Child and Adolescent Mental Health Services

- Transitions from childhood to adolescence (around ages 11-13 years) and from adolescence to adulthood (16-18 years) may be critical timepoints for considering interventions, as this is when many cases of depressed mood begin.
- Novel policies need to be developed to ensure continued support for young people who need to access mental health services both before and after age 18.
- More research is needed to understand the risk factors that might lead to a rise of increased depressive symptoms in late adolescence (i.e. genetic factors, ages, family history), particularly to identify those young people who do not appear as high-risk at an earlier age.
- Further investment in a range of mental health provision to support schools is needed to reach a wider group of children and young people, as different things might be needed for different ages.

Implications for schools

- If school-based interventions to improve academic achievement target depressed mood in those at risk, this might boost grades.
- Students who are struggling academically also need support.

Any policy initiatives need to take account of the fact that depression may cause lower academic attainment as well as vice versa.

Educational and mental health services would benefit from future research to explore mechanisms underlying educational failure.

# Research summaries

## Trajectories of depressive symptoms throughout adolescence

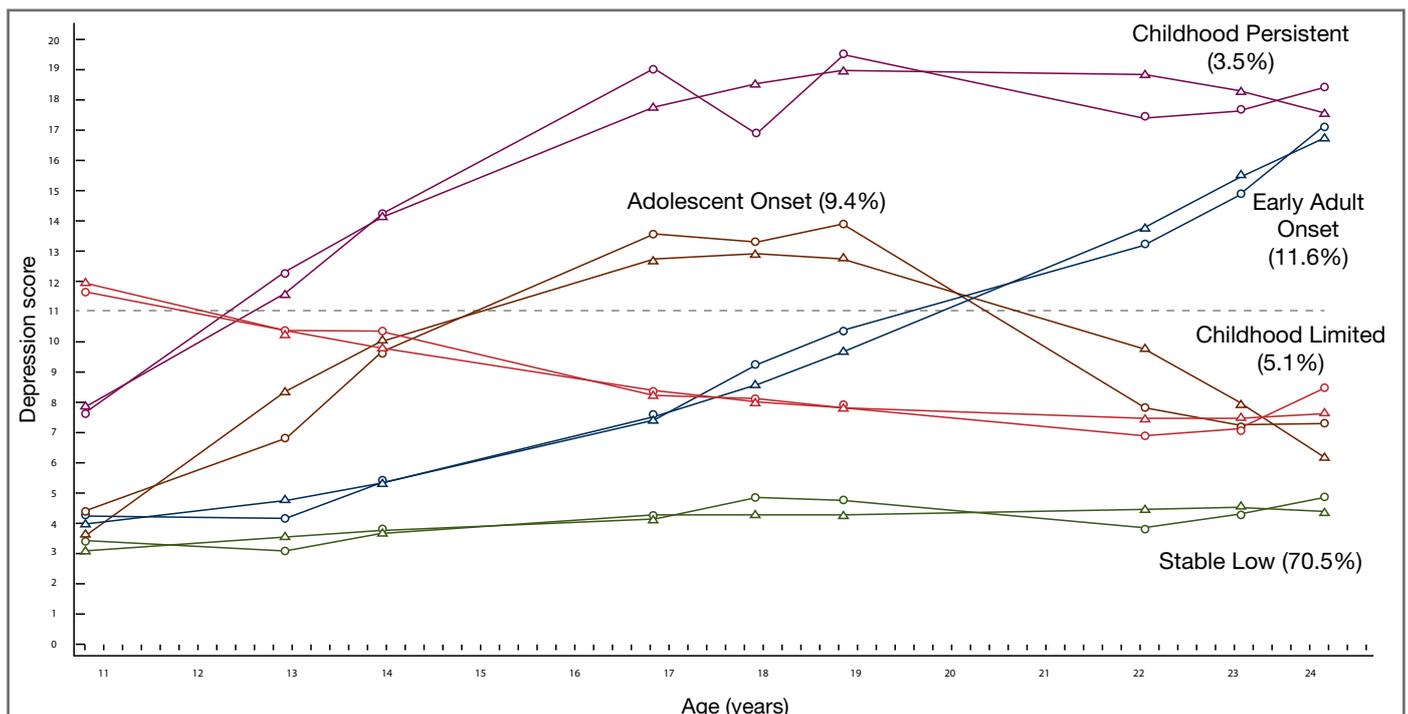
We examined depressive symptoms in 9,399 people in the Children of the 90s cohort, looking at nine repeated measures of depressive symptoms between ages 11 and 24.

This yielded five different trajectories:

- Stable Low (70.5% of the sample), mild or no symptoms throughout the observation period.
- Early Adult Onset (11.6%), rise in symptoms from late adolescence.
- Adolescent Onset (9.4%), rise and then decrease in symptoms during adolescence.
- Childhood Limited (5.1%), moderate symptoms in late childhood that decrease over time.
- Childhood Persistent (3.5%), high symptoms starting from early adolescence.

The Childhood Persistent and Early Adult Onset groups are at higher risk of poor mental health at 24 than the other groups. We define poor mental health here as high depression scores in adulthood exceeding the proposed threshold of 11 points.

Early Adult Onset are of concern, as they represent 11.6% of the total and might be harder to identify as high-risk at an early stage (as they do not show high depressive symptoms until later on).



## The link between depressive symptoms and educational achievement

We examined the associations between depressive symptoms and educational achievement at key stages 2 to 5 in 13,600 participants.

The work confirms a negative association between depression and academic achievement; more depressive symptoms correlate with poorer education results.

Compared to the group of non-depressed students, those who were depressed before exams, after, and both before and after the exams were less likely to achieve a pass at English and Maths GCSEs.

Achieved a 'pass' at GCSE	Depressive symptoms				Total
	None	Before exams	After exams	Before and after exams	
Yes	74.7% (1,890)	54.7% (197)	63.5% (356)	65.2% (73)	70.6% (2,516)
No	25.3% (639)	45.3% (163)	36.5% (205)	34.8% (39)	29.4% (1,046)
Total	2,529	360	561	112	3,562

The association might work both ways, with poor attainment at 16 leading to higher depressive symptoms at 18, and early depressive symptoms affecting later attainment.

The end of compulsory<sup>1</sup> education (GCSEs, age 16) seems to be an especially important time point.

- It may be negatively affected by depressive symptoms at an early stage.
- It might affect depressive symptoms at a later stage.

### Key findings

- At age 11 and 14, depressive symptoms predicted poorer later educational attainment.
- Poor educational attainment at 16 predicted increased depressive symptoms aged 18.
- Childhood Persistent and Early Adult Onset groups were at higher risk of poor mental health at 24 than the other groups, and made up 15% of the sample.
- Almost 12% of the sample were Early Adult Onset with very few depressive symptoms in early adolescence, increasing steadily into late adolescence.
- Fewer (10 %) experienced an increase and then decrease in symptoms during adolescence (Adolescent Onset).
- Some (5%) showed moderate symptoms in late childhood that decreased over time (Childhood Limited).
- The majority (70%) showed mild or no symptoms of depression at any age, and 3.5% had moderate to severe symptoms (Childhood Persistent) continuously from early adolescence.

<sup>1</sup>School leaving age rose to 18 in 2015, and was 16 for the Children of the 90s Cohort



## Further information

López-López JA, Kwong ASF, Washbrook E, Pearson RM, Tilling K, Fazel MS, Kidger J, Hammerton G. Trajectories of depressive symptoms and adult educational and employment outcomes. *BJ Psych Open*. 2019 [doi.org/10.1192/bjo.2019.90](https://doi.org/10.1192/bjo.2019.90)

Kwong ASF, López-López JA, Hammerton G, et al. Genetic and Environmental Risk Factors Associated With Trajectories of Depression Symptoms From Adolescence to Young Adulthood. *JAMA Netw Open*. 2019 [doi.org/10.1001/jamanetworkopen.2019.6587](https://doi.org/10.1001/jamanetworkopen.2019.6587)



## Children of the 90s

Based at the University of Bristol, Children of the 90s, also known as the Avon Longitudinal Study of Parents and Children (ALSPAC), is a long-term health-research project that enrolled more than 14,000 pregnant women in 1991 and 1992. It has been following the health and development of the parents and their children in detail ever since and is currently recruiting the children of the original children into the study. It receives core funding from the Medical Research Council, the Wellcome Trust and the University of Bristol.

Find out more at [www.bristol.ac.uk/alspac](http://www.bristol.ac.uk/alspac)

## Contact the researchers

Dr José A López-López: [josealopezlopez@um.es](mailto:josealopezlopez@um.es)

Dr Rebecca Pearson: [rebecca.pearson@bristol.ac.uk](mailto:rebecca.pearson@bristol.ac.uk)

