Office for National Statistics

Statistical bulletin

Links between parental mental health, child mental health, and school outcomes, England: 2021 to 2022

This release analyses the relationship between child and parental mental health and school outcomes, in partnership with Loughborough University.

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To be announced

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1 . Main points

- For children aged 5 to 16 years living in two-parent households in England, having a parent who experiences mental ill health significantly increases their probability of also experiencing mental ill health.
- The probability of a child presenting at hospital with mental health issues nearly doubles when their mother experiences mental ill health, increasing from 2.23% to 3.92%; when their father experiences mental ill health, this increases from 2.18% to 3.44%.
- Girls are both more likely to experience mental ill health and are affected more by parental mental ill health, with the probability increasing from 2.51% to 4.43% if the mother experiences mental ill health, and from 2.47% to 3.96% if the father does.
- For boys, while the increase is smaller, from 1.96% to 3.43% if the mother experiences mental ill health, and from 1.94% to 2.94% if the father does, the effect is amplified if both parents experience mental ill health.
- In urban areas, the child’s environment is important to their mental health, with local access to greater amounts of green space being associated with a reduced probability of mental ill health.
- Child mental ill health also increases the probability of parents experiencing mental ill health.
- The probability of a mother experiencing mental ill health nearly triples if the child presents at hospital with mental health issues (increasing from 6.67% to 19.13%), while the probability of a father experiencing mental ill health nearly quadruples (increasing from 4.44% to 16.99%).
- Having previously found that a child's mental ill health impacts their school attendance, additional analysis has shown that their mental health negatively affects their attainment in maths both directly and by increasing their level of absence from school, which negatively affects their score.
- A child's maths score at the end of Key Stage (KS) 1, KS2 or KS4 is on average 0.19 standard deviations lower, reducing by 7.5 percentile points, if they experience mental ill health in the year leading up to the assessments.

2 . Data on links between parental mental health, child mental health, and school outcomes

Links between parental mental health, child mental health, and school outcomes, England
Dataset | Released 18 March 2026
Descriptive statistics and model estimates for the bi-directional relationship between a child's and their parents' mental health, and its effect on maths attainment.

3 . Glossary

Generalised full matching estimator

A matching estimator is a statistical method that can enable causal inference in observation data when supported by appropriate sensitivity analysis. It emulates randomised control trials, which are the gold standard for causal inference and are often not practical because of ethical, financial, and feasibility reasons. A matching estimator can be applied to longitudinal and cross-sectional observational data. It is especially useful when the treatment variable is binary.

Generalised full matching allows the full sample to be retained. This is where the proportion of the sample in one of the groups is comparatively small, and where the nature and volume of data do not support exact matching. This method optimises the matching process, while minimising the computing power required for matching.

Instrumental variable estimator

Instrumental variable (IV) estimator is a causal statistical method that can be applied to cross-sectional data where the input ("treatment") variable is continuous. The IV estimator uses additional variables ("instruments") to separate the proportion of change in the treatment variable that is attributable to unobserved external factors. Instruments must satisfy two conditions:

- be related to the treatment variable
- not be directly related to the outcome variable or the unobserved external factors

Mental health conditions

Individuals were coded as having experienced mental ill health if they had attended hospital between 1 April and 31 March, and were recorded as having a diagnosis of the following conditions:

- alcohol-use disorder
- substance-use disorder
- schizophrenia
- schizotypal and delusional disorder
- personality disorders
- other mood disorders
- bipolar disorder
- depression
- anxiety
- dementia
- obsessive-compulsive disorder
- post-traumatic stress disorder
- eating disorders
- conduct disorders
- self-harm
- behavioural/development problems

Children were also coded as having experienced mental ill health if they met the criteria for a stress-related presentation (SRP). These are attendances at hospital for, or where they exhibited emotional, behavioural, or physiological manifestations of stress. SRP coding is based on academic research.

Adults were also coded as having experienced mental ill health if they were referred to NHS Talking Therapies during the period of interest.

The coding for this can be found in our accompanying dataset.

Logistic regression

Logistic regression is a statistical method that allows us to estimate the relationship between multiple input ("treatment") variables and a categorical outcome variable.

Special educational needs and disability

A child or young person is considered to have special educational needs and disability (SEND) if "they have a learning difficulty or disability which calls for special educational provision," as outlined in the Department for Education's SEND code of practice. They may also have a disability, which is "a physical or mental impairment which has a long-term (a year or more) and substantial adverse effect on their ability to carry out normal day-to-day activities," as defined by the Equality Act 2010.

SEND needs can be broadly categorised into four areas:

- communication and interacting
- cognition and learning
- social, emotional and mental health difficulties
- sensory and/or physical needs

4 . Data sources and quality

Linked dataset

This work involved linking data from the following sources:

- Census 2021 (England only)
- Hospital Episode Statistics (HES) Admitted Patient Care (APC) and outpatient care (OP) records from 1 April 2020 to 31 March 2023
- Emergency Care Dataset (ECDS) records from 1 April 2020 to 31 March 2023
- NHS Talking Therapies records from 1 April 2020 to 31 March 2023
- National Pupil Database records from 1 September 2021 to 31 August 2022
- Office for National Statistics (ONS) death registrations, covering deaths registered from 1 January 2020 to 31 December 2023
- Ordnance Survey data specially curated for the ONS
- Index of Multiple Deprivation (2019)

We used the Demographic Index (DI) (PDF, 549KB) to link the data. This allows anonymous data linkage across the different datasets without using personally identifiable data, such as the person's name or date of birth.

The full linked dataset includes people who completed the Census 2021 and who were usually resident in England at the time of completion. Each person was linked to a unique DI reference.

Data on admissions with relevant mental or chronic physical health conditions (see Section 3: Glossary) were extracted from HES APC and OP datasets, the ECDS, and referrals to NHS Talking Therapies. These were linked using NHS reference numbers to create a single record for each person. These records indicate any involvement with health services for a relevant condition during that financial year. These data were then linked to the DI and the NHS number was removed, before being linked to the Census records using the DI reference.

Similarly, school data were extracted from the National Pupil Database, linking across different data tables using the anonymous Pupil Matching Reference (aPMR) to create a single record for each child. These data were then linked to the DI and the aPMR was removed, before being linked to the Census and health records using the DI reference.

Data on the area of green space where a person lives are from Ordnance Survey data curated specially for the Office for National Statistics. These data were linked to the Census data using the Unique Property Reference Number (UPRN) assigned to each census record by the ONS. Each record was linked via UPRN to a Lower-layer Super Output Area (2011 code) and then to the Index of Multiple Deprivation (2019).

This new linked data asset is currently only available for analysis by members of ONS staff. We are investigating whether we can make an anonymised version of the dataset available, and exploring options to do so, including our Secure Research Service, so that other UK researchers may access it.

Data inclusion criteria

Because of limitations in resource and time, we conducted our analysis on a 1.1 million sample of the over 8 million children in the full dataset. We focused on those living in households with two parents, as we are interested in the effects of both mothers' and fathers' health for this analysis.

Children were included if:

- they were aged 5 to 16 years on Census day (21 March 2021)
- they were living in a household with two parents (or step-parents)
- they had a record of completing a Key Stage (KS) 1, KS2 or KS4 assessment and had an absence record in the National Pupil Database for academic year September 2021 to August 2022

Methods

We used a matching estimator to explore the impact of parental mental ill health on child mental ill health. We controlled for factors such as physical health, home, family and school characteristics, and wider environment. The outcome variable is the child experiencing mental ill health between 1 April 2021 and 31 March 2022.

The treatment variable is the parent experiencing mental ill health between 1 April 2021 and 31 March 2022. Given the large volume of data and the small proportion of adults experiencing mental ill health, we have used generalised full matching.

We also used an instrumental variable (IV) estimator, in combination with generalised full matching estimator. This allowed us to explore the impact of child mental health on maths attainment, and how this is mediated by absence from school.

The outcome variable is the child's standardised maths score in the 2021 to 2022 academic year. The treatment variable is the child experiencing mental ill health between 1 April 2021 and 31 March 2022, mediated by their level of absence from school in the September 2021 to August 2022 academic year, as a percentage of the total number of sessions they could attend.

The instruments used for school absences that satisfy the required conditions of the model are hospital visits between April 2021 and March 2022 for minor infections and injuries that do not affect cognitive ability.

We use logistic regression to explore how availability of local green space may be associated with children experiencing mental ill health. Further analysis is required to understand the causal pathways.

For definitions of generalised full matching, IV estimator modelling, and logistic regression, see Section 3: Glossary.

In all analyses, we control for a wide range of variables at the individual child, parent, household, school, and neighbourhood levels that are likely to influence a child's mental health. These include environmental features of their surrounding area, and the health and socio-economic characteristics of their parents. A list of these variables is available in our accompanying dataset. Descriptive statistics, the analysis results, and a list of the factors controlled for in each specification can also be found in our accompanying dataset.

Quality

Overall, we consider the quality of the data to be good. Use of the demographic index to link data has enabled us to create a very large and complex dataset. This dataset supports the exploration of factors in a way that would not otherwise be possible within the project's timeframes.

The linkage rates between the different datasets and the demographic index are good, varying between 95.26% (for Census 2021) and 98.99% (for National Pupil Database). Because of the robustness of the statistical techniques and volume of data included, the trends and insights shown in the results are deemed to provide a valuable contribution to the empirical evidence on this topic and provide a basis for further research. However, as is the case with all exploratory research, there are some limitations users should be aware of, which we outline in the following subsection.

Limitations

While we have tried to identify the most suitable data sources, there are limitations on the datasets available for linkage in the project. The use of hospital data (Hospital Episode Statistics and Emergency Care Dataset) is likely to underidentify those experiencing mental ill health, as these capture only the most severe cases. Additionally, the use of administrative health data can also lead to the underidentification of those experiencing mental ill health caused by uncontrolled selection effects (as some people will be more likely to seek hospital treatment).

To partially overcome this issue, we have undertaken robustness checks, expanding the coding of the child's mental health variable to include stress-related presentations (SRPs). Our checks also involve exploring the impact of including school-identified Special Educational Needs and Disability (SEND) support for social, emotional, and mental health challenges. The results appear consistent and stable across the three definitions of mental ill health.

Bias is introduced during linkage, as certain groups of children (for example, those of minority ethnic background and those living in more deprived neighbourhoods) are less likely to successfully link to both health and education records. This is shown in our modelling dataset, where 70% of children are of British White ethnicity, compared with 67.1% in the census population of children.

We also see an underrepresentation of those in the lower deciles of the Index of Multiple Deprivation and an overrepresentation of those in the higher deciles. Therefore, caution should be exercised when applying these findings to those from ethnic minority groups and/or more deprived areas.

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Their contributions have been instrumental in refining our approach, ensuring that the analysis is both methodologically sound and directly relevant to current policy priorities.

5 . Related links

Intergenerational transmission of mental health policy paper
Policy briefing | Released 18 March 2026
This paper provides additional detail and graphs associated with this analysis, alongside policy recommendations drawn from these results.

Child mental ill health and absence from school, England: 2021 to 2022
Article | Released 9 September 2025
Analysis of the relationship between children's mental ill health and school absence.

6 . Cite this statistical bulletin

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