

Statistical bulletin

COVID-19 Schools Infection Survey, England: long COVID and mental health, March 2022

Analysis of COVID-19 findings on mental health and long COVID from the Schools Infection Survey's headteacher, parent and pupil questionnaires. The Schools Infection Survey is jointly led by the London School of Hygiene and Tropical Medicine, UK Health Security Agency and the Office for National Statistics.

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1 . Main points

- Nearly 1 in 50 (1.8%) primary school pupils (years from reception to year 6) and nearly 1 in 20 (4.8%) secondary school pupils (years 7 to 13) had experienced long COVID following their most recent COVID-19 infection.
- Significantly more secondary school pupils who reported having COVID-19 had experienced loss of smell or taste, cardiovascular symptoms, or systemic symptoms (fever or high temperature) than those who reported not having had COVID-19.
- Secondary school pupils in years 7 to 13 with long COVID were significantly more likely to have a probable mental disorder (28.1%) than those without long COVID (12.3%).

Where differences between groups exist, [confidence intervals](#) provided in datasets should be used to assess [statistical significance](#). The word "significantly" is used to highlight differences that have been found to be statistically significant.

2 . Long COVID

To estimate the prevalence of long COVID, we used the Delphi consensus for non-hospitalised children and young people with long COVID (as used in the [CLoCk study \(PDF, 588KB\)](#)) for our calculations, which defines long COVID as being present if all the following conditions are met:

- a positive test for coronavirus (COVID-19) infection
- the presence of symptoms continuously over a 12-week period or longer
- everyday life is affected by these symptoms

Parents responded on behalf of pupils in school years from reception to year 6 and pupils in school years 7 to 13 responded on behalf of themselves. For school years from reception to year 11, parents responded about specific symptoms on their child's behalf, because of potential difficulties for children under 16 years recalling specific symptoms since the start of the pandemic. Our long COVID estimates are based on the numbers of pupils, in our sample, who experienced long COVID after their most recent infection, and any increase in long COVID is likely because of the increase in the number of children testing positive for COVID-19 rather than an increase in the risk of developing long COVID symptoms once infected.

The prevalence estimates reported here are not directly comparable with those from the Office for National Statistics (ONS) Coronavirus (COVID-19) Infection Survey because of differences in time periods measured and sample design (see Measuring the data).

Long COVID prevalence

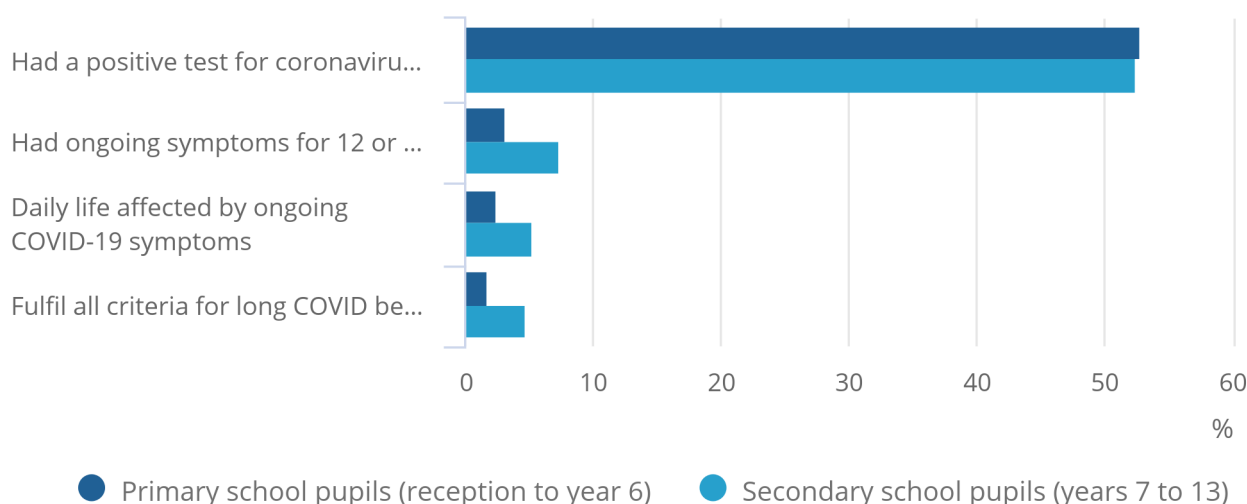
We estimate that nearly 1 in 50 (1.8%) primary school pupils and nearly 1 in 20 (4.8%) pupils in years 7 to 13 fulfilled all the criteria for long COVID following their most recent COVID-19 infection, at any point since March 2020. The [percentage of pupils fulfilling the criteria for long COVID following their most recent infection](#) has almost doubled since November to December 2021, from 1% of primary school pupils and 2.7% of pupils in years 7 to 13, however, this difference is not significant, and any increase in long COVID is likely due to the increase in number of children testing positive for COVID-19 rather than an increase in the risk of developing long COVID symptoms once infected.

Figure 1: Nearly 1 in 20 secondary school pupils (in years 7 to 13) have experienced long COVID

Estimated long COVID prevalence for primary and secondary pupils, England, March 2022

Figure 1: Nearly 1 in 20 secondary school pupils (in years 7 to 13) have experienced long COVID

Estimated long COVID prevalence for primary and secondary pupils, England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Questions for parents of primary school pupils: Has your child had a positive coronavirus (COVID-19) test of any kind since March 2020? Has your child had at least one symptom of coronavirus (COVID-19) that continued for 12 weeks or more after the start of their coronavirus (COVID-19) infection? If your child has had coronavirus more than once, think about the most recent infection. How much have the ongoing coronavirus (COVID-19) symptoms affected the following for your child?
2. Questions for secondary school pupils (years 7 to 13) were identical but asked of the pupils themselves.
3. Base: All pupils in primary (n = 3,788) and secondary school (n = 2,966).

Among primary school pupils' parents, 61.1% reported that they believed their child had COVID-19 at some point since March 2020 (including those that reported a positive COVID-19 test and those who had not).

Of these, 5.1% experienced ongoing symptoms for 12 or more weeks. Among these, 75.6% were reported as having their daily life affected in some way, including 51.1% who reported their ability to carry out day-to-day activities was affected.

Over half of secondary school pupils in years 7 to 13 (58.8%) reported having COVID-19 at some point since March 2020. Of these, 12.4% reported having symptoms that lasted for 12 or more weeks after infection, of whom 71.9% reported their daily life being affected in some way by these symptoms. The most common aspect of daily life reported to be affected was the pupils' ability to stay physically active (58.8%).

Other studies have explored the duration of long COVID in children in more detail, such as [Illness duration and symptom profile in symptomatic UK school-aged children tested for SARS-CoV-2](#).

Symptom prevalence

We asked parents of primary pupils, and secondary pupils in years 7 to 11 and sixth- form pupils (years 12 to 13) themselves, about any of 28 symptoms that the pupil had displayed in a persistent way for a period of 12 weeks or more since March 2020. For some analysis we have grouped these symptoms into 10 groups (see the Glossary for details). This was asked of all pupils, not just those reporting having had COVID-19. We have compared two groups:

- Positive COVID-19 test group - Those who reported having a positive COVID-19 test at any time since March 2020.
- No reported COVID-19 group - Those who reported never having a positive test and who didn't believe they had had COVID-19. Please note that this could include asymptomatic individuals who did not seek a test.

The proportions of primary pupils who had experienced at least one persistent symptom, and those who reported experiencing three or more persistent symptoms, since March 2020, were very similar between the two groups. Just under half of both groups had experienced at least one symptom (46.9% of those in the COVID positive test group and 49.3% of those in the no reported COVID group) and a quarter of both groups had experienced three or more persistent symptoms (24.3% and 23.6% respectively). [These figures were similar to those seen in November to December 2021.](#)

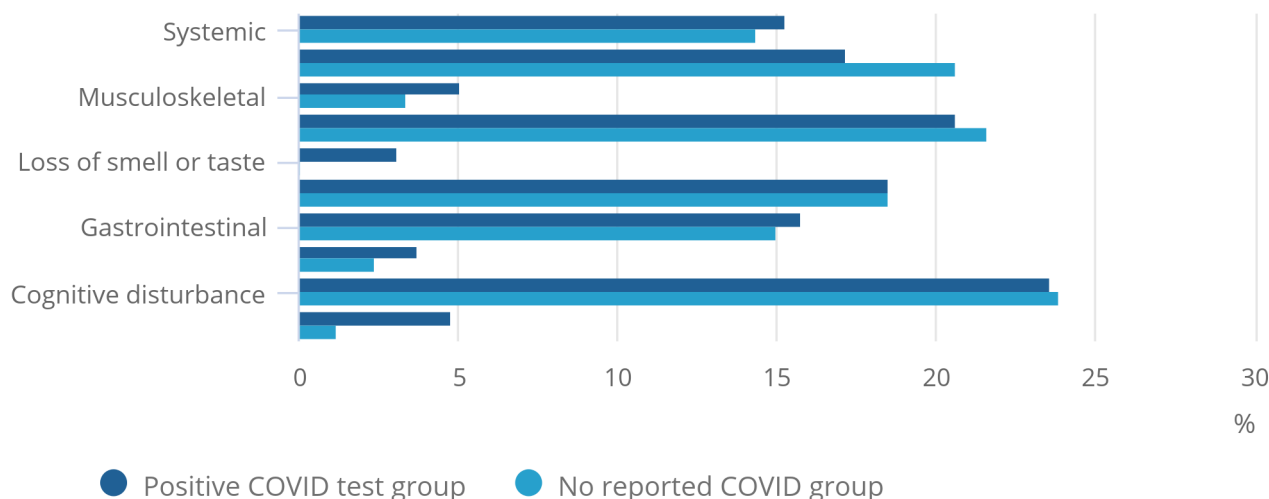
Significantly more secondary pupils in years 7 to 11 in the positive COVID-19 test group experienced one or more persistent symptoms than the no reported COVID-19 group (55.4% compared with 47.8%). While there was a difference in the proportions who had experienced three or more persistent symptoms (31.4% and 26.4% respectively), this difference was not [statistically significant](#). [Again, these figures were similar to those seen in November to December 2021.](#)

Figure 2: Cardiovascular symptoms and loss of smell and taste were more often experienced persistently among primary school pupils who had received a positive COVID-19 test since March 2020

Symptom prevalence among primary school pupils, England, March 2022

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Symptom prevalence among primary school pupils, England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Question: Which of the following symptoms has your child experienced in a persistent or recurring way for more than 12 weeks since March 2020?
2. Base: All primary school pupils who had a positive COVID-19 test at some point since March 2020 (n = 2,130) or who had not had a positive COVID-19 test and had not had COVID-19 at all (n = 1,334).

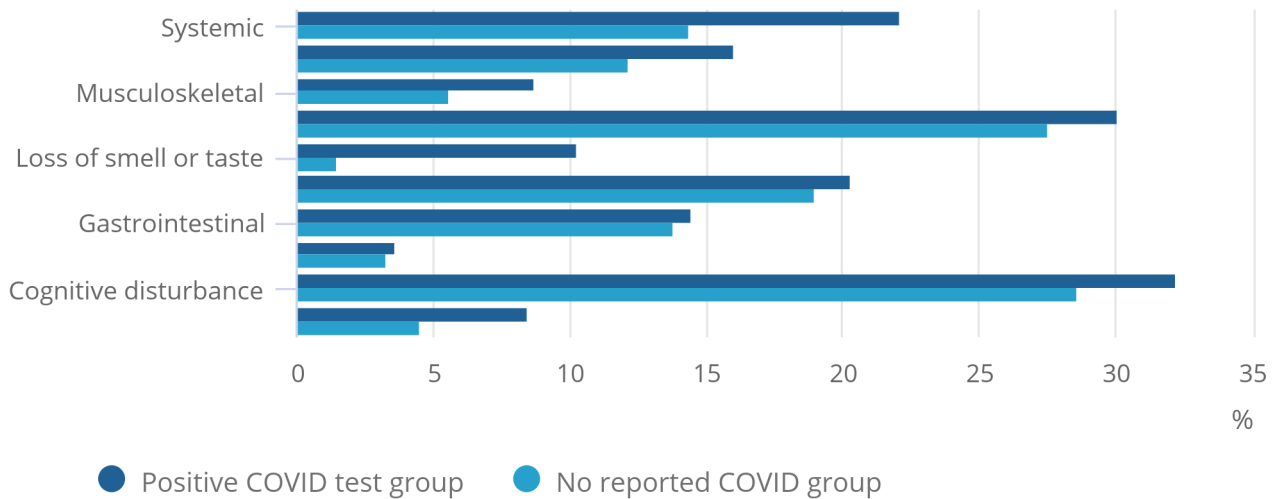
Cardiovascular symptoms were significantly more likely to have been experienced for 12 weeks or more at some point since March 2020 among primary school pupils with a positive COVID test (4.8%) than those with no reported COVID-19 (1.2%). There was a similar significant difference when looking at loss of smell or taste (3.1% compared with 0.1%).

Figure 3: Systemic symptoms as well as cardiovascular symptoms and loss of smell and taste were more often experienced persistently among secondary school pupils who had received a positive COVID-19 test since March 2020

Symptom prevalence among secondary school pupils (in years 7 to 11), England, March 2022

Figure 3: Systemic symptoms as well as cardiovascular symptoms and loss of smell and taste were more often experienced persistently among secondary school pupils who had received a positive COVID-19 test since March 2020

Symptom prevalence among secondary school pupils (in years 7 to 11), England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Question: Which of the following symptoms has your child experienced in a persistent or recurring way for more than 12 weeks since March 2020?
2. Base: All secondary school pupils (in years 7 to 11) who had a positive COVID-19 test at some point since March 2020 (n = 2,027) or who had not had a positive COVID-19 test and did not report having had COVID-19 at all (n = 1,415).

Pupils in years 7 to 11 with a positive COVID test were significantly more likely to have experienced systemic symptoms and cardiovascular symptoms for 12 weeks or more at some point since March 2020 (22.1% and 8.5% respectively) than those with no reported COVID-19 (14.4% and 4.5% respectively). There was a similar significant difference when looking at loss of smell or taste (10.3% in the positive COVID-19 test group compared with 1.5% in the no reported COVID-19 group).

More detail on persistent symptoms, including prevalence of individual persistent symptoms, breakdowns by sex, health status and free school meals status and figures for sixth form pupils, can be found in the accompanying datasets.

More about coronavirus

- Find the latest on [coronavirus \(COVID-19\) in the UK](#).
- [Explore the latest coronavirus data and analysis](#) from the ONS and other sources.
- View [all coronavirus data](#).
- Find out how we are [working safely in our studies and surveys](#).

3 . Mental health

This analysis relates to the mental health of the pupil population, irrespective of previously confirmed or suspected COVID-19 infection. The measurement approach taken by the COVID-19 Schools Infection Survey (SIS) is to use parent-reported measures for primary school-aged pupils and self-reported measures for secondary school-aged pupils. The Strengths and Difficulties Questionnaire is used to define “probable”, “possible” and “unlikely” mental disorders using a scoring algorithm. More detail can be found in the [Glossary](#).

Caution should be used when comparing with other published studies such as the Mental Health of Children and Young People study (MHCYP). There are differences in sample design and measurement, which means the data are not directly comparable.

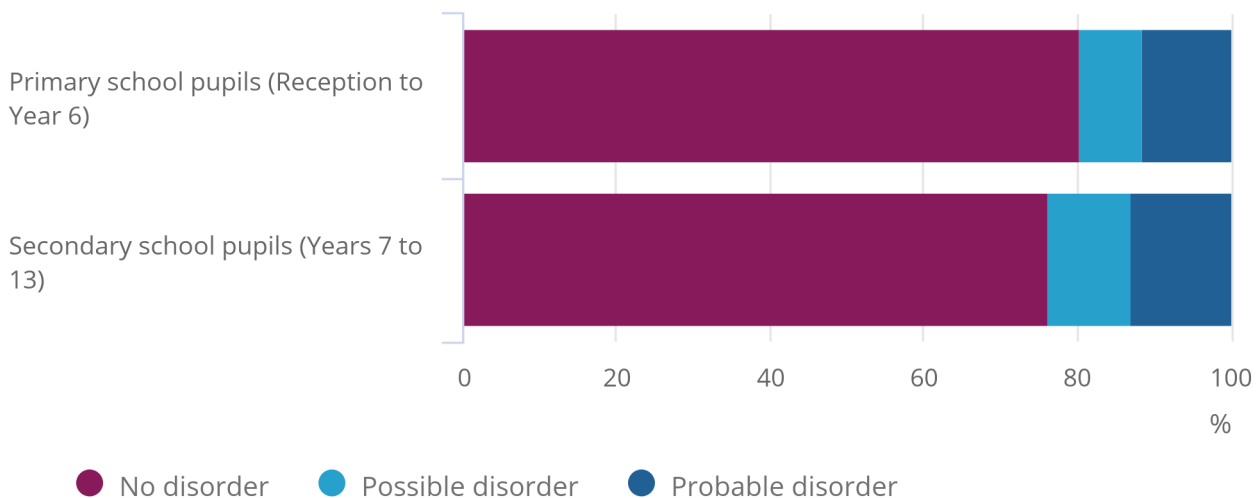
We found that 11.4% of primary school pupils (from reception to Year 6) and 13.0% of secondary school pupils (years 7 to 13) had at least one probable mental disorder, in March 2022. A further 8.3% of primary school pupils and 10.7% of secondary school pupils had at least one possible mental disorder.

Figure 4: Over 1 in 10 primary and secondary pupils had at least one probable mental health disorder

Probable disorder scores for primary and secondary pupils, England, March 2022

Figure 4: Over 1 in 10 primary and secondary pupils had at least one probable mental health disorder

Probable disorder scores for primary and secondary pupils, England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Results presented are scores based on responses to the Strengths and Difficulties Questionnaire. Scores for primary school pupils are parent-reported and scores for secondary school pupils are self-reported.
2. Base: All primary (n = 3,779) and secondary (n = 2,961) school pupils in school years Reception to Year 6 or Year 7 to Year 13.

The proportion of primary school pupils with a probable mental health disorder has significantly increased (8.0% in November to December 2021). The proportion of secondary school pupils (years 7 to 13) with a probable disorder has slightly decreased (13.8% in November to December 2021), however, this difference is not [statistically significant](#).

Of the three disorders analysed, probable hyperactivity disorders had the highest prevalence for primary school pupils (8.3%) and secondary school pupils in years 7 to 13 (8.7%). This was higher than probable emotional disorder prevalence (2.6% and 3.4% respectively) and probable conduct disorder prevalence (3.3% and 2.5% respectively).

Further breakdowns are available in our accompanying dataset.

Long COVID and mental health

The number of pupils with a probable mental health disorder based on their long COVID status is shown in Figure 5. Secondary school pupils (years 7 to 13) with long COVID were significantly more likely to have at least one probable mental disorder (28.1%) than those without long COVID (12.3%).

Causality cannot be inferred because this analysis does not account for mental health status before having COVID-19.

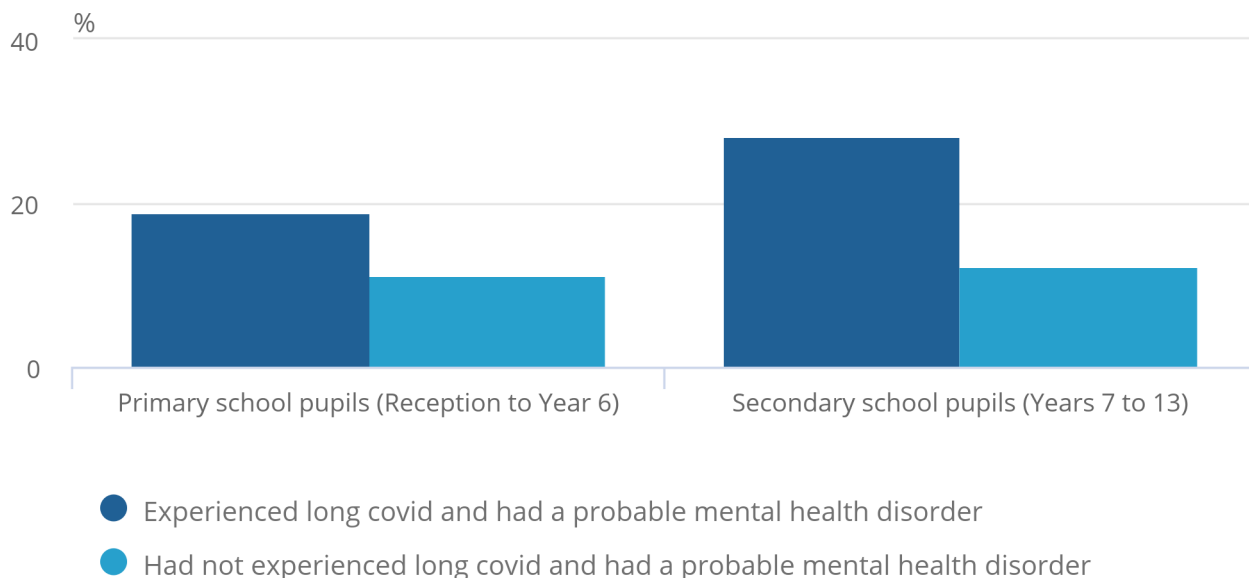
Among primary school pupils, 18.9% of those who had experienced long COVID had a probable mental health disorder, compared with 11.3% of pupils who had not. This difference was not statistically significant.

Figure 5: Pupils who have experienced long COVID are more likely to have a probable mental disorder [note 4]

Probable disorder prevalence by long COVID status, England, March 2022

Figure 5: Pupils who have experienced long COVID are more likely to have a probable mental disorder [note 4]

Probable disorder prevalence by long COVID status, England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Questions for primary school pupils are as in Figure 1.
2. Questions for secondary pupils are identical but asked of them rather than of a parent answering on their behalf.
3. Base: All primary (n = 3,779) and secondary (n = 2,961) school pupils in school years Reception to Year 6 or Year 7 to Year 13.
4. Difference between those with long COVID and those without was not statistically significant for primary school pupils.

School belonging

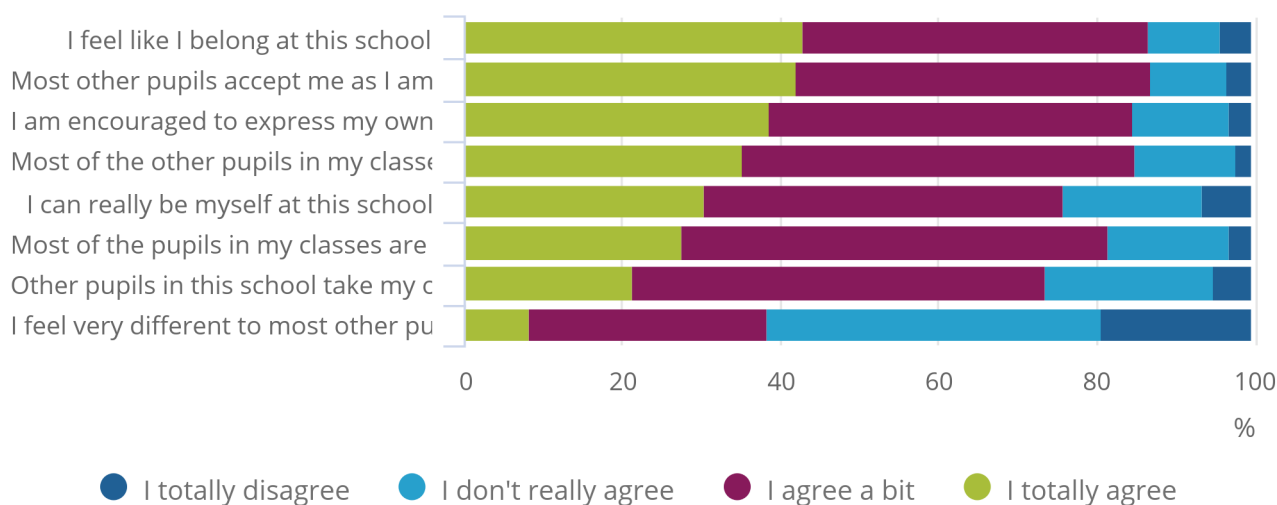
We measured whether secondary school pupils (years 7 to 13) felt they belong at their school. This information was collected to assess the impact that long periods of school closure had on pupils' sense of belonging to their school, which could affect well-being. Overall, 86.6% of secondary school pupils agreed with the statement "I feel like I belong at this school".

Figure 6: 86.6% of secondary school pupils agreed that they feel they belong at their school

Belonging among secondary school pupils (in years 7 to 11), England, March 2022

Figure 6: 86.6% of secondary school pupils agreed that they feel they belong at their school

Belonging among secondary school pupils (in years 7 to 11), England, March 2022



Source: Office for National Statistics – Coronavirus (COVID-19) Schools Infection Survey

Notes:

1. Question: How much do you agree with the following statements?
2. Base: Pupil survey for year 7 to 13 (n=2,481).
3. Agreement codes are reversed for this question.

The proportion of pupils who totally agreed with the statement "I feel like I belong at this school" was significantly higher when their school had a policy for "Access to school staff for pupils to talk about any problems" (47.6%; 35.8% for those without this policy) and "Phoning pupils outside of remote lesson time to check in on their well-being" when individuals were unable to attend school (48.6%; 37.7% for those without this policy).

Amongst those with a "probable mental disorder", only one in five (19.6%) totally agreed with the statement "I feel like I belong at this school" whereas half (50.2%) of those without a "probable or possible mental disorder" agreed with the same statement.

4 . COVID-19 Schools Infection Survey, long covid and mental health data

[COVID-19 Schools Infection Survey, long covid and mental health, England](#)

Dataset | Released 15 June 2022

Indicators from the Schools Infection Survey to understand the impact of the coronavirus (COVID-19) pandemic on young people and schools. Including antibody data, questionnaire analysis, and breakdowns by age, sex and region where possible.

5 . Collaboration

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UK Health
Security
Agency

The Coronavirus (COVID-19) Schools Infection Survey analysis was produced by the Office for National Statistics (ONS) in collaboration with our research partners at the London School of Hygiene and Tropical Medicine and UK Health Security Agency. Of note are:

- Shamez Ladhani - UK Health Security Agency: Consultant Epidemiologist and Study Chief Investigator
- Georgina Ireland - UK Health Security Agency: Senior Scientist
- Patrick Nguipdop-Djomo - London School of Hygiene and Tropical Medicine: Associate Professor of Infectious Disease Epidemiology and Study Co-Principal Investigator
- Punam Mangtani - London School of Hygiene and Tropical Medicine: Professor of Infectious Disease Epidemiology and Study Co-Principal Investigator

6 . Glossary

Long COVID

The term long COVID is generally used to describe the persistence of symptoms, long after you would usually expect them to have resolved after coronavirus (COVID-19) infection, which cannot be explained by another cause.

Delphi consensus on long COVID

The Delphi consensus approach is a well-established, systematic and iterative method that relies on a panel of experts to move towards agreement. Researchers working on the non-hospitalised children and young people with long COVID (CLoCK) study, funded by UK Research and Innovation (UKRI) and the National Institute for Health Research (NIHR), participated in the Delphi approach and agreed that long COVID could be defined by the presence of all the following:

- a positive test for coronavirus (COVID-19) infection
- the presence of symptoms continuously over a 12-week period or longer
- that everyday life is affected by these symptoms

This is a working definition for research purposes, rather than a clinical definition for diagnosing long COVID, such as those published by the National Institute for Health and Care Excellence (NICE) and the World Health Organization (WHO).

Definitions of long COVID can vary between studies and articles. The Office for National Statistics (ONS) Prevalence of ongoing symptoms analysis uses different criteria, namely symptoms more than four weeks after a confirmed or suspected COVID-19 infection that cannot be explained by something else.

Symptom groupings

The list of persistent symptoms has been grouped following an approach taken by the Patient-Led Research Collaborative.

HEENT symptoms:

- lost or husky voice
- sore throat
- sore or uncomfortable eyes
- earache or ringing in ears

cardiovascular symptoms:

- chest pain or tightness
- palpitations (feeling like your heart is beating heavily or racing)

dermatologic:

- raised, red, itchy bumps on skin or swelling of the face or lips
- red or purple blisters on your feet or toes
- prickling, tingling or burning sensations in skin

gastrointestinal:

- diarrhoea
- not feeling hungry nor wanting to eat
- feeling or being sick
- stomach pain

mood:

- worry or anxiety
- low mood or not enjoying anything

musculoskeletal:

- strong aches or pains in muscles or joints

cognitive disturbance:

- feeling lightheaded or disorientated
- feeling dizzy
- trouble sleeping
- headache
- memory loss or confusion
- difficulty concentrating

pulmonary:

- cough
- feeling short of breath

systemic:

- fever or high temperature
- chills or shivers
- weakness or tiredness

loss of smell or taste:

- loss of smell or taste

Strengths and Difficulties Questionnaire (SDQ)

The Strengths and Difficulties Questionnaire (SDQ) is a brief behavioural screening questionnaire used for 3- to 16-year-olds. It exists in several versions to meet the needs of researchers, clinicians and educationalists. The questionnaire asks about 25 attributes, some positive and others negative. These 25 items are divided between 5 scales:

- emotional symptoms (5 items)
- conduct problems (5 items)
- hyperactivity and inattention (5 items)
- peer relationship problems (5 items)
- prosocial behaviour (5 items)

The SDQ also includes an impact supplement, which asks whether the respondent considers the child or young person to have difficulties, how long they have been present, and the extent to which they cause distress and impairment in functioning in everyday life.

Responses provided in the SDQ were combined using a diagnostic algorithm to indicate whether each child was unlikely, possibly or probably demonstrating a mental health condition in the following domains: emotional, behaviour and hyperactivity disorders.

This algorithm combines data from all available informants and a disorder is considered probably present if the scores on the relevant symptom indicate the child is above the 95th percentile and the impact score is 2 or above according to either informant for emotional difficulties and conduct problems, or two informants if available for hyperactivity. A disorder is considered unlikely if the scores for conduct and emotion were 3 or below from all informants, and hyperactivity was 5 or below, plus impact scores were 0. A disorder was considered possible with intermediate scores. More detail on how the algorithm works can be found on the SDQ website.

For the Schools Infection Survey (SIS), we have adapted this methodology in light of only obtaining information from the pupil questionnaire for those aged 11 to 16 years, and only parent questionnaire information for those aged 4 to 11 years. The limitation of our approach is that it is not exactly comparable with other published mental health results, but it provides a measure against a validated methodology.

Beyond Blue School Climate Questionnaire

The eight questions on "Student sense of belonging in school community" within the Beyond Blue School Climate Questionnaire were used to measure school belonging for the Schools Infection Survey. These questions originated from Beyond Blue Schools Research Initiative project investigators, Psychological Sense of School Membership and the Patterns of Adaptive Learning Survey.

7 . Measuring the data

Data presented in this bulletin are from Round 3 of the COVID-19 Schools Infection Survey (SIS) carried out during March of the 2021 to 2022 academic year.

Data from the parent and pupil questionnaires are weighted to population totals for pupils in England. Headteacher questionnaire data are unweighted because of small sample sizes.

[Our methodology article](#) provides further information about response rates, survey design, how we process data and estimation methods.

Reference period

Coverage dates for each survey are:

- 15 March to 1 April 2022 for the pupil and parent questionnaire
- 23 March to 1 April 2022 for the headteacher questionnaire

Response rates

The estimated response rates are:

- 46% for the pupil questionnaire where 2,966 pupils responded from 6,511 eligible participants registered
- 62% for the parent questionnaire where parents responded on behalf of 7,448 children from 11,995 eligible children registered
- 64% for the headteacher questionnaire where 111 headteachers or delegated authority responded on behalf of 173 registered schools

Response rates are dependent on people voluntarily completing the questionnaire, which may introduce respondent bias.

Comparison with other Office for National Statistics (ONS) estimates of long COVID prevalence

The long COVID prevalence estimates in the Schools Infection Survey are higher than those reported from the Coronavirus (COVID-19) Infection Survey (CIS): 0.61% and 1.71% of children aged 2 to 11 years and 12 to 16 years respectively, reported long COVID symptoms during the four weeks to 1 May 2022.

The estimates in this release relate to period prevalence (children who fulfilled the Delphi long COVID criteria at any time between 1 March 2020 and 1 April 2022, including those whose symptoms had resolved before the end of the period) whereas those from the CIS relate to point-in-time prevalence (capturing only children who currently have symptoms).

The definition of long COVID in the CIS does not include the criteria of previously testing positive for COVID-19 and is based on a 4- rather than a 12-week threshold of persistent symptoms.

8 . Strengths and limitations

Please refer to the [Strengths and limitations section](#) of our previous bulletin.

9 . Related links

[COVID-19 Schools Infection Survey, England: mental health and long COVID, November to December 2021](#)

Bulletin | Released 28 February 2022

Analysis of COVID-19 findings on mental health and long COVID from the Schools Infection Survey's headteacher, parent and pupil questionnaires.

[COVID-19 Schools Infection Survey, England: pandemic response measures in schools: January to February 2022](#)

Bulletin | Released 3 May 2022

Analysis of coronavirus (COVID-19) findings on face coverings and remote learning from the Schools Infection Survey's headteacher, parent and pupil questionnaires.

[COVID-19 Schools Infection Survey, England: attitudes to vaccines and preventative measures, November to December 2021](#)

Bulletin | Released February 2022

Initial insights from the first round of questionnaire data collected as part of the Schools Infection Survey. Questionnaires are completed by parents of participating children, secondary school aged children and headteachers. Topics cover vaccine sentiment, ventilation in schools and preventative measures implemented in schools.