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Persistent symptoms following SARS-CoV-2 infection amongst children and young people: A meta-analysis of controlled and uncontrolled studies

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SUMMARY

Background: Data on the long-term impact of SARS-CoV-2 infection in children and young people (CYP) are conflicting. We assessed evidence on long-term post-COVID symptoms in CYP examining prevalence, risk factors, type and duration. Methods: Systematic search of published and unpublished literature using 13 online databases between 01/12/2019 and 31/07/2021. Eligible studies reported CYP ≤19 years with confirmed or probable SARS-CoV-2 with any symptoms persisting beyond acute illness. Random effects meta-analyses estimated pooled risk difference in symptom prevalence (controlled studies only) and pooled prevalence (uncontrolled studies also included). Meta-regression examined study characteristics hypothesised to be associated with symptom prevalence. Prospectively registered: CRD42021233153.
Findings: Twenty two of 3357 unique studies were eligible, including 23,141 CYP. Median duration of follow-up was 125 days (IQR 99–231). Pooled risk difference in post-COVID cases compared to controls (5 studies) were significantly higher for cognitive difficulties (3% (95% CI 1, 4)), headache (5% (1, 8)), loss of smell (8%, (2, 15)), sore throat (2% (1, 2)) and sore eyes (2% (1, 3)) but not abdominal pain, cough, fatigue, myalgia, insomnia, diarrhoea, fever, dizziness or dyspnoea. Pooled prevalence of symptoms in post-COVID participants in 17 studies ranged from 15% (diarrhoea) to 47% (fatigue). Age was associated with higher prevalence of all symptoms except cough. Higher study quality was associated with lower prevalence of all symptoms, except loss of smell and cognitive symptoms.
Interpretation: The frequency of the majority of reported persistent symptoms was similar in SARS-CoV-2 positive cases and controls. This systematic review and meta-analysis highlights the critical importance of a control group in studies on CYP post SARS-CoV-2 infection.

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Research in context

Evidence before this study

While there has been much recent interest in persistent symptoms in children and young people (CYP) post SARS-CoV-2 infection, the majority of studies to date have been open to significant bias. The lack of a control group in many studies has made it hard to separate symptoms due to infec-

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