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Mitigating impacts of the COVID-19 pandemic on primary and lower secondary children during school closures

A RAPID EVIDENCE REVIEW

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Contributions

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Abstract

Background: To control the spread of the SARS-CoV-2 virus during the COVID-19 pandemic, UK schools were closed and education activity was undertaken at home resulting in considerable disruption to children's education.

Aims: To identify and assess evidence of harms caused to primary and lower secondary pupils during this time and identify mitigation strategies relevant to those harms.

Methods: A rapid evidence review tailored to delivery at pace, drawing on UK evidence for harms and relevant mitigation strategies.

Findings on harms

There is evidence that the patterns of disruption to education during the pandemic have impacted on children's *learning and attainment, mental health and wellbeing, physical health and nutrition* and *increased exposure to risk* especially for those children living in potentially dangerous domestic settings. Although the quality of the evidence is uneven, it is clear that children living in poverty have been most affected, in particular through food insecurity and conditions triggering stress and anxiety in the home, alongside their more limited opportunities to access digital resources for learning, or indeed outside space for physical activity. Attempts to distinguish harms that impact in the short term from longer lasting harms may take time. It also requires schools to have access to contextually relevant diagnostic tools they can use to assess the range of harms in need of redress in their local context.

Findings on mitigation strategies

We found no evidence for mitigation strategies directly relevant to the harms experienced by children due to school closures under COVID-19. Mitigation strategies suggested in the UK often derived their evidence of efficacy from circumstances quite unlike the prolonged patterns of disruption to education that COVID has caused. Most were designed to address the needs of a few pupils struggling under normal circumstances and were not able to demonstrate their relevance at scale. We therefore examined the primary literature on recovery from unplanned school closures in other countries focused on school-based strategies that had been evaluated as effective under similar conditions.

Conclusion

We found some evidence of a range of harms but little research evidence on relevant mitigation strategies and an absence of evidence on those strategies that schools themselves have adopted since re-opening, tailored to local needs. Such mitigation strategies may be highly relevant for system learning, and it is important to document and evaluate their efficacy, and indeed learn from them. Closing schools during the pandemic has revealed the importance of schools in safeguarding children. School staff should be given the training and resources to be able to identify children at risk and refer pupils to appropriate services if necessary.

EXECUTIVE SUMMARY

This report is based on a review of the available literature on harms to pupils in primary and lower secondary schools from the extended period of education disruption they have experienced since March 2020 due to the COVID-19 pandemic. Once harms were identified we looked for mitigation strategies that could address them.

Background

During the national lockdowns, only vulnerable and key worker children were able to access the physical school site. Other children stayed at home. Patterns to home learning differed from patterns of learning in school across several different dimensions. Establishing *routines* might be more difficult, depending on home circumstances and parents' commitments when they were newly working from home; pupils might feel less motivated to *engage* in learning at home; there would be fewer opportunities to *socialise* with their friends than in school. This lack of social contact, heightened by worries about the virus and its impact on their families, might impact on *mental health* and *wellbeing*. Parents' understanding of the tasks set and the *support* they could offer might vary; as would pupils' *access to digital technology*. Some pupils would be restricted to cramped living conditions limiting the possibilities for *physical exercise*, or *places to work quietly* in rooms they shared with siblings. Some students living in families exposed to *food insecurity* would be rendered more vulnerable given the important nutritional role of school lunches. Some students would find themselves exposed to *increased levels of risk* at home in contexts where family stress, domestic violence and other forms of abuse might be a significant *threat to children's welfare*. Each of these different factors may impact on children's capacity to learn and will need careful consideration as the disruption eases and children return to school.

Against this background we undertook our rapid review of the evidence focused on these questions:

What is the current research evidence on:

RQ1: the harms created by school closure during the COVID-19 pandemic on primary school and lower secondary children;

RQ2: mitigations for these harms that have been: (a) used during the current pandemic or (b) used elsewhere to address harms arising from similar periods of educational disruption and with potential to be transferable.

Methods

Our rapid review was tailored to delivery at pace. For example, we focused on UK-based evidence of harms and used the best available quality systematic reviews for mitigation strategies relevant to pandemic conditions. We looked for high quality evidence in peer reviewed journals, prioritising synthesis reviews if they existed. This was supplemented by searches of the grey literature in the UK. (The methods including the searches are fully described below and in the appendices to the report.)

The quality of the studies retrieved

The quality of the evidence identified was uneven. Surveys were the most frequently used research instrument but many lacked a representative sample, and few were able to make comparison with data collected before the pandemic. Many relied on eliciting respondents' opinions about harms in the future, without acknowledging the potential weaknesses of such speculations. Fewer studies were able to rely on appropriate administrative data, giving clearer snapshots of changes over time. These were used to good effect in medical studies, e.g. on hospital admissions, though even here there were uncertainties over interpretation. In order to avoid omitting harms for which only weak data are currently available but which may prove important as the effects of the pandemic unfold, we retained in the review some studies of relatively weak design. In each of the relevant review sections we draw attention to any design weaknesses that impact on the conclusions that can safely be drawn from particular studies.

Given the gaps in the evidence collected to date, further research will be needed over the medium to long term to differentiate between *relatively short-term harms*, and *longer lasting harms* that may require longer term investment.

Findings

Harms

We found 65 studies providing evidence of harms to learning and attainment, mental health and wellbeing, physical health and nutrition and in increased exposure to risk factors.

Learning and Attainment

We reviewed test data collected over the first year of the pandemic that showed there are some losses to learning and that these were greater for younger children. Some data also suggest that progress in maths may have been harder hit than in English. This will need to be kept under review. Test data also suggest an uneven pattern to gains and losses for individuals. Teachers will need to be aware of this. Bearing this in mind, impacts have been most directly felt in disadvantaged communities where any reduction in quality of work and lack of access to IT will have had most effect.

Mental Health and Wellbeing

There is mixed evidence of impacts on mental health and wellbeing from school closures. Studies found evidence to suggest both positive and negative impacts. There are some indications that: pre-adolescent children showed greater deterioration in mental health (Waite et al., 2021); girls were more likely to experience difficulties than boys (Raw et al., 2021); young people identifying as LGBTQ+ and those who were experiencing anxiety before the lockdown are likely to require more support on return to school (Widnall et al., 2020); young people from low-income families and those with SEND faced greater challenges with mental health and wellbeing (Pearcey et al., 2020).

Physical Health and Nutrition

Food insecurity and declines in physical exercise were the most prominent harms identified from school closures. There is strong and reliable evidence that families were more reliant on foodbanks during the pandemic; those whose incomes had been substantially hit by the pandemic became more reliant on the support schools could offer. The pandemic highlighted the crucial role schools play in sustaining basic nutrition, whether during or outside of pandemic conditions. On physical health the picture was more mixed. For some children there were gains, for others, losses. Parents of children with physical or intellectual disabilities, for instance, reported their children had done less physical activity during lockdown (Theis et al., 2021), mainly because access to outside space was restricted. We found no evidence on harms to child development. This may be easier to assess once early years children return to schools and other early years settings.

Increased Exposure to Risk Factors

Although only a minority of children suffered from exposure to harms in this category, the evidence we reviewed showed the number of incidents has increased during lockdowns and school closures, and some harms are significant including increased risk of sexual abuse and criminal exploitation. Increased risk has been compounded by the challenges of providing professional safeguarding during a pandemic. This issue deserves priority attention as schools return.

Mitigations

Our review demonstrated a need to distinguish between short-term harms that can be swiftly repaired as pupils return to familiar school routines and a less disrupted pattern of education; and longer-term harms that may not be immediately apparent and will need careful assessment into the next academic year. The exception here are safeguarding issues. Schools will need to address these as a priority and should be in receipt of appropriate resources and training, as a matter of urgency.

Elsewhere, our review concluded that there was less strong evidence for mitigations that might successfully address the harms we list above, either individually, or in recognition of their potential to interact. This is because many of those interventions suggested are based on addressing individual needs that present under normal conditions. In fact, mitigation strategies targeting small numbers of children in need of additional support under normal conditions might not automatically confer benefits to larger number of pupils, nor be manageable at scale. Given the unusual circumstances in which children were absent from school, harms may also not present so discretely, or be amenable to being solved one by one.

To date little research has been conducted on the mitigation strategies that schools themselves have put in place either during the different phases of the pandemic, or since the last full lockdown ended. This is an important area of system knowledge that is currently not being fully exploited, yet may have most relevance for rebuilding school functioning after this prolonged period of disruption (Harmey and Moss, 2020). Not least given the very different ways in which individual schools and their communities will have experienced the pandemic, and the local priorities this will rightly lead to.

BACKGROUND

The issue

To control the spread of the SARS-CoV-2 virus during the COVID-19 pandemic, UK schools, colleges, universities, and other education institutions were closed between March and June 2020, in November 2020 and between January and March 2021. In primary and secondary schools, all education activity was undertaken at home, except for vulnerable children and those of key workers who were able to attend school in person. To comply with infection control measures as the pandemic continued, many children also had to quarantine during periods when schools were open, meaning school attendance was patchy. Taken alongside the uneven access to digital resources for those pupils learning at home, this has led to considerable disruption to children and young people's education since March 2020.

Rationale for the review

The review sought to identify harms resulting from high levels of educational disruption and mitigation strategies that might most effectively address them. This review considers the growing body of evidence highlighting actual and anticipated harms caused by school closure in UK to primary and secondary age pupils (reception to Year 11), their mental health and wellbeing, their physical health, their learning and attainment, and through increased exposure to risk from spending longer at home. Where studies found unexpected gains from, for instance, reduced air pollution or having more quality time with family, and where uneven patterns of gains and losses were reported, we have included these.

We considered emerging evidence on mitigation strategies in the UK or elsewhere that might address harms caused by the high level of education disruption due to COVID-19. Where appropriate this included evidence on adaptations made in school while the pandemic continued, or mitigations implemented and well-documented from earlier disasters and other recent unexpected and high impact events that brought disruption to education by restricting children's access to the physical school site and what such access normally affords. These include school responses to earlier instances of the SARS pandemic in other countries, hurricane Katrina and earthquakes in New Zealand. A rapid evidence review of these literatures can inform what we currently know about the harms that may impact UK school children during education disruption due to COVID-19 and how these harms in any further school closures due to COVID-19 or other disasters may be mitigated (See Harmey and Moss, 2020 for a summary of a systematic review of this literature, submitted as written evidence to the Education Select Committee Inquiry into the impact of COVID-19 (https://committees.parliament.uk/writtenevidence/12497/pdf/). The search was rerun as part of this review but returned no further papers. We draw on that evidence base in our report.

Positionality of the topic experts

Professor Gemma Moss is Director of the International Literacy Centre, UCL Institute of Education. She has led three projects on the impacts of COVID on education, two with funding from the ESRC. She has research interests in the relationships between policy and practice, research-informed education and gender and literacy.

Professor Alice Bradbury is Professor of Sociology of Education and Co-Director of the Helen Hamlyn Centre for Pedagogy. She has been involved in two projects funded by the ESRC on the impact of Covid on primary education and additional projects on phonics testing during the pandemic and schools' use of teaching assistants.

Dr Sinéad Harmey is a Lecturer in Literacy Education. She has conducted rapid evidence assessments for projects funded by the EEF, ETF, ESRC, and the Froebel Trust. Her research interests include translational research in education and research-practice partnerships. She has been involved in two projects on the impact of COVID on primary education and on schools' use of teaching assistants.

Dr Rosie Mansfield is a Research Fellow in the Centre for Longitudinal Studies, UCL Social Research Institute. She was a review advisor specializing in the mental health and wellbeing of school-aged children and young people.

Topic experts worked with Dr Bridget Candy, a review expert who advised on the process, ran searches and coded for inclusion; Dr Rachel France, who supported the review process; and Carole Vigurs, a review expert who, advised on the process and ran searches.

OBJECTIVES

Overarching review question

What is the current research evidence on: (i) the harms created by school closure during the COVID-19 pandemic on primary and lower secondary school children; (ii) mitigations for these harms that have been: (a) used during the current pandemic or (b) used elsewhere to address harms arising from similar periods of educational disruption and with potential to be transferable.

METHODS

Overview of approach

Reviews vary in the breadth of their question, the depth with which they examine a question and the exhaustiveness of the review process. This rapid evidence review was undertaken in a very short period of time and this approach is sometimes called a 'rapid review'. Rapid reviews are delivered at pace, and in response to immediate demands for overviews of evidence from research. As a result, decisions are made on how to reduce the usual time taken on some of the stages and processes of a full systematic review. This may be in narrowing the focus of the review, by population or to the most comparable contexts, by focusing only on those sources of literature where the most on-topic studies are likely to

be found, and through a focus on metareviews, where available. Each of these approaches involve trade-offs between specificity of topic against the generalizability of findings and what could also be learned from the wider issues and insights around the topic that may also be of interest. In this review, rapidity was achieved by searching only for UK evidence regarding harms. For mitigation strategies, we searched in the first instance for the most trustworthy and relevant systematic reviews but, as limited relevant evidence was found, alternative sources were considered including that from other disasters leading to unscheduled school closure as noted above.

This review has been carried out at a particular phase of the pandemic, when it is still too early to assess what the separate effects for education have been of the pandemic, the lockdown, and the attendant social, economic and political challenges. What has appeared consistently in the commentary on the pandemic has been a theme of the interconnectedness of the education sector with all other areas of public policy and social relationships. While conventions of administration, disciplinary focus, and social relations demarcate boundaries between different phases of education and different areas of experience, for example, health, work, and education, the pandemic has highlighted their interconnection. Appreciating how these connections have been documented in the research literature is an important step in building and learning from the tragedies, stresses, and loss of the past eighteen months. Therefore, it is challenging to separate out harms due specifically to closure of schools and harms due to other factors connected with the pandemic.

The review had two main sub-questions resulting in two stages with different research strategies:

1) **Stage 1:** To identify the nature and extent of harms or impacts of the pandemic due to school closures in UK children who are pupils of primary and lower secondary schools.

2) **Stage 2:** To identify research evidence on how to tackle harms identified in Stage 1 in terms of both immediate mitigation of those harms and longer-term adaption to prevent future harms.

The lead authors of this review are education specialists in their field. This has enabled quicker clarification of conceptual issues and informed searching, appraisal and interpretation of evidence. The strategy adopted combines the rigour and transparency of systematic review principles with the insights of topic specialists. The limitations this strategy has placed on this review are considered in the report.

Assessing the quality and relevance of the studies reviewed

Using Seeger et al.'s (1998) description of a crisis as 'a specific and non-routine event or series of events that create high levels of uncertainty and threaten or are perceived to threaten life and property or general well-being' (p.233), we considered COVID-19 as a disruptive event that would impact on children's education, independently of the disease itself.

In the UK the pandemic restricted physical access to schools for many children, especially during periods of lockdown, creating new conditions in which many children were largely confined to home. The only exceptions were vulnerable children and children of key

workers who were entitled to attend during lockdowns. When schools re-opened, they were subject to further control measures designed to minimise transmission of the disease which meant that 'bubbles' or classes of children thought to be at risk of catching the disease could be sent home at short notice, sometimes repeatedly. All of this disrupted normal patterns of school attendance for the majority of pupils (DfE, 2020). In addition, schools were liable to have fewer staff on site, both because of transmission of the disease, and because of the policy directive in England to supply four hours of remote learning to all pupils isolating at home. This led many schools to keep staff at home planning and conducting remote learning, with a skeleton staff on site to look after the fewer students physically attending (Moss et al., 2021). This pattern of lockdowns and school closures, with large numbers of school-age children confined to home, created the unusual context in which we reviewed the harms that might follow, and any mitigation strategies intended to address them.

Drawing on Rapid Evidence Assessment (REA) methodology (Thomas et al., 2013) which privileges both the quality of a study's methodology *and* its fitness for purpose in light of the review questions, we categorized harms relevant to primary and lower secondary pupils as follows:

- Learning and teaching experiences – due to changes in amount or modes of teaching, with knock-on effects on attainment and socialisation;
- Mental health and wellbeing – affected or exacerbated by the uncertainties the pandemic caused;
- Physical health, nutrition and development - from restricted access to the social context of the school;
- Increased exposure to risk factors at home – e.g. misuse of substances, domestic violence, bereavement; material disbenefits of poverty (overcrowding, lack of access to outdoor space); screen time; support service access.

We paid attention to evidence of disproportionate impacts on vulnerable children and SEND children. We noted other harms identified in our searches that fell outside the categories originally suggested, as well as taking into account any reported gains.

We defined mitigation broadly as ways to prevent or mitigate harms whether identified at policy, education, individual school, community or household level.

We found from our preliminary screening of studies that credible calculations of short- to longer-term harms needed careful assessment. The studies we reviewed showed that such calculations are difficult to make with confidence at this point in the crisis, and some studies speculate about future harms using data whose relevance to disruption to education from COVID is unproven. In our assessment for inclusion, we therefore distinguished on whether a study drew on appropriate evidence to identify impacts from likely harms due to COVID-linked disruption, or showed sufficient caution about the calculations made about the harms themselves. Higher quality studies were those where authors had commented on limitations in the data they had collected for the claims made and made the case for their relevance clear, and in considered terms. Equally we were aware that mitigation strategies targeting small numbers of children in need of additional support under normal conditions, might not automatically confer benefits to larger number of pupils where harms might not present so discretely, and given the unusual circumstances in which children were absent from school.

Our approach to quality assessment can therefore be summarised as follows:

- That the evidence of current harms must be robust – ie not based on speculation about the future, but treated as evidence of actual harms;
- That mitigation strategies must be suitable for addressing harms that have resulted from this specific disruptive event. For instance, we reviewed studies that drew parallels with similar harms created under normal conditions (e.g. learning loss during planned holiday closures) and assessed some as potentially misleading, on the basis of the evidence presented;
- That studies needed to be aware of the strengths and limitations of any research evidence they were using to generalize from one context to another.

Full details of the methods used are in Appendix 1.

Initially the evidence reported here was to be presented in two reports: one for primary school children and one for lower secondary. Our reason for deciding to combine reviews for harms experienced by pupils in primary and lower secondary sectors was confirmed, given the large proportion of studies which considered both primary and secondary students and the relatively few which restricted their findings to either primary or secondary age pupils. Where relevant we draw attention to age differences reported in the studies we reviewed.

THE EVIDENCE BASE FOR HARMS TO PUPILS IN THE UK

In this section we summarise the nature and extent of the literature we included in the review as a whole and some of its strengths and weaknesses. We then present findings under each thematic area.

Overview of the included studies

Sixty-five studies met our inclusion criteria for harms. Most studies included addressed harms to mental health and wellbeing or learning and attainment. There were fewer studies on physical health, nutrition and development, or increased exposure to harms from children not being in school (See Table 1).

*Table 1 Numbers of studies by harm type**

Category	Mental Health, wellbeing	Physical health, nutrition and development	Learning and attainment	Increased exposure to harms	Other
Total n	29	17	32	11	4

* studies cover more than one harm type

References to included studies are in Appendix 4.

We report in detail on the quality of studies reviewed in each area in the thematic sections that follow. Here we make some general observations. The majority of the studies

reviewed used survey data. A few, particularly in health-related areas and on learning and attainment, were able to make good use of available administrative data (See Table 2 below).

Of the 65 studies we identified, few were of the highest quality. This confirms our observation in our interim report that there is little robust evidence available so far from which to draw clear conclusions about harms from the lockdown for primary and lower secondary age pupils, and how far the re-opening of schools will lead to their rapid repair or require longer term investment.

The lack of robust evidence for harms was not compensated for by our search of the grey literature despite anticipating the more rapid production of research reports made possible in third-sector organisations (e.g. Anna Freud Centre, National Foundation for Education Research) campaign groups (e.g. Food Foundation) and think tanks (e.g. Education Policy Institute).

Table 2 Numbers of studies reviewed by harm type and study design to show the relative weighting of studies of different types and their contribution to each theme*

Category	**Mental Health, wellbeing**	**Physical health nutrition and development**	**Learning and attainment**	**Increased exposure to harms**	**Other**
Survey	9	7	15	3	1
Case study	0	0	1	0	0
Administrative Data	4	9	11	4	1
Existing Longitudinal Dataset	0	1	4	0	0
Review	4	1	1	1	0
Interviews/Focus Groups/ Diaries Qualitative Analysis	2	0	1	2	1
Action Research	0	0	0	1	0
Total, all	29	17	32	11	4

* some studies cover more than one harm type

Areas of concern over quality include some research using quantitative modelling to predict future harms based on comparisons with data collected under very different circumstances prior to the pandemic. For instance, in a systematic review of the literature on learning loss conducted by two members of the review team with funding from ESRC (Harmey and Moss, 2020), we concluded that the most robust research is cautious about drawing analogies between normal times and the unusual circumstances of the pandemic. The main literature on learning loss is based on assessing the impact of planned closures during summer holidays of different lengths in the US. Even here, the most considered research on learning loss, undertaken by Kuhfeld and colleagues at NWEA, is clear that patterns of loss and gain are rarely linear, and often more unpredictable than the models would suggest (Johnson et al., 2021)). Predictive modelling needs to be treated with care.

The methodological quality of studies using survey designs was often poor due to:

- The types of questions asked, and in particular how they treated responses to questions designed to elicit opinions on future harms. Some studies treated these as uncomplicated evidence of future harms, not expressions of current concerns or worries;
- The size of the survey and likely representativeness of the sample.

The best quality survey designs were able to exploit longitudinal data and repeated measures collected from a representative sample of respondents recruited prior to COVID so they could compare changes in the patterns of response pre and post the pandemic (e.g. Mansfield et al., 2020). We did not exclude studies with small samples where a case was made warranting their inclusion (e.g. a hard to reach sub-sample of the population as a whole e.g. Theis, 2021) and the conclusions drawn took the size of the sample and its fitness for purpose into account. A good example is a study based on a small and unrepresentative sample surveyed at different time points during COVID (Jester and Kang, 2021), where the study's strengths and weaknesses were reported transparently and factored into the conclusions drawn. We draw attention to how these criteria applied in each thematic area in the sections of the report that follow.

Likely explanations of the comparative weakness of the evidence base to date include:

The slow publication cycle in peer-reviewed journals – this produces a lag in getting evidence into the public realm which may be heightened at this moment of crisis. The crisis also produced conditions where it was difficult to collect new data at speed using a range of methods otherwise well used by academic researchers.

The availability of data – there are some relevant administrative data available for research purposes which we identified e.g. on children visiting A&E for injuries (numbers fell during the pandemic – see Roland et al., 2020) but mostly researchers have relied on survey evidence. The survey quality, as already stated, was variable with some surveys not reaching a sample size appropriate to answering the questions posed.

The timing of any enquiry into harms. The literature on testing children cautions against doing this too soon after a disruptive event and then using the resulting data as the basis for calculations of future harms (See Sims (2020). Test data collected before children have had a chance to reconnect with learning in school and the return to the physical setting, and all it offers them, while the pandemic is ongoing, may simply exaggerate impacts. This could lead to over-prescription of targeted catchup programmes designed for those requiring additional support under normal conditions. Time back in class with a broad curriculum adjusted to engage children following a period of disruption could reap quicker rewards. We consider these issues more fully under the learning attainment section of this report.

There were very few robust synthesis reviews of work already published amongst our included studies. We are aware that more evidence of short-term and longer lasting harms will be required going forward. As more robust evidence emerges over time, so it will be easier to distinguish the most appropriate mitigation strategies.

THE EVIDENCE BASE FOR MITIGATIONS IN THE UK AND ELSEWHERE

We found a limited evidence base for mitigations designed to address such an unprecedented and widespread disruption to education in the UK. Here we present the findings from our reviews of the relevant studies already published; and suggest what actions can sensibly be taken in the light of that evidence. This includes the case for looking beyond the UK.

Regarding systematic review and other evidence for mitigations in the UK, we found eight relevant studies:

Learning and attainment	Mental health and wellbeing	Risk factors	Physical health and nutrition
Blainey and Hannay, 2021	Anna Freud Centre	Racher and Brodie, 2020	EPI, 2021
Harmey and Moss, 2020	Cortina et al., 2019		Moss et al., 2020
Kuhfeld et al., 2020			

These reviews of mitigation strategies were either peer-reviewed or produced by authors leading in the field. They provide the best estimates we could find in terms of likely effectiveness of the mitigation strategies reviewed. We have commented on other relevant references in the text which follows. Here we comment on why we considered so few studies to be relevant.

Many of the mitigation strategies designed to boost attainment are based on interventions targeted at a small number of pupils falling behind under normal circumstances. Their relevance to larger numbers of students falling behind under exceptional circumstances is not certain. Their efficacy depends upon small group provision, delivered with minimal disruption and maximum continuity, conditions that are hard to replicate while the pandemic continues to disrupt education through ongoing, frequent and unpredictable absences. In other words, judgements of their efficacy do not directly take account of the novel conditions of the pandemic and must remain uncertain.

In the case of mitigation strategies to address issues relating to mental health and wellbeing, despite identifying a relatively large number of studies relating to children and young people's mental health during the pandemic, there is limited evidence that can causally attribute changes in mental health and wellbeing to COVID-19 restrictions. Many studies lack pre-pandemic comparisons of symptoms, but those that have tracked children and young people throughout lockdown identify unequal impacts of the pandemic on mental health. The mitigations we provide therefore focus on immediate responses such as helping schools support and monitor the most vulnerable pupils as they return, while acknowledging their limited resources, and the capacity of external services to deal with referrals. We highlight the importance of proactive approaches for prevention of mental health difficulties and the promotion of positive mental health that address pre-existing structural inequalities that have been exaggerated by the pandemic. Known barriers for schools in terms of providing effective mental health support are presented along with a number of programmes aiming to evaluate the implementation and impact of a range of school-based mental health and wellbeing interventions.

In the UK to date there is therefore a paucity of evidence for appropriate mitigation strategies. This is why it is important to plan ahead, and document evidence of the local-level mitigation strategies that schools are putting in place in response to their immediate judgements of their populations' needs. These may be more carefully attuned to local circumstances. While school-led mitigation strategies are under-researched so far in the UK, we are aware there is an international evidence base arising from school recovery from natural disasters with similar patterns of educational disruption in other parts of the world that is relevant to COVID-19. In this light we include findings from an earlier rapid evidence review of this literature, based on previous natural disasters, and originally undertaken as part of a different research project but updated in this context as part of this review.

Findings: Learning and Attainment harms and mitigations

The nature and extent of harm caused by the disruption of the COVID-19 pandemic to learning and opportunities to access teaching has been an issue of concern throughout the pandemic.

As expected, a high proportion of studies identifying harms (n = 32) fell under this theme. These comprised 15 surveys (Banerjee (2021); Cattan (2021);Children's Parliament (2020); Greenway (2020); Lawton (2021); Leaton (2021); Levita (2020); Lucas (2020); Mansfield et al (2020); Marchant (2020); Mueller (2020); Parentkind (2020a); Parentkind (2020b); The Sutton Trust (2021a); The Sutton Trust (2021b)), one case study (Couper-Kenny (2021)), eleven secondary reports of existing administrative datasets (Sosu (2021); Andrew (2020); Blainey (2021); Cullinane (2021); Davies (2021); DFE (2021); DFE (2020); Montacute (2021); NSPCC (2020b); Rose (2021); Scottish Govt (2020)), four analyses of longitudinal datasets (Bayrakdar (2020); Elvers (2020); Education Policy Institute (2020); Juniper (2021)), one literature review (Lopez-Bueno (2020) and one study using a qualitative design (McCluskey et al (2021)).

Quality assessment of studies

The consensus from our expert assessment is that the findings from many of the papers published need to be treated with caution. As stated earlier, this is partly because of the quality of some studies, particularly those using predictive modelling to calculate impacts in the future; and also because it may simply be too early to assess the harms to learning and their attendant impacts on attainment, when schools have only just opened and are beginning to put mitigation strategies into place.

To assess the impact of the disruption to learning on attainment and opportunities to learn, some studies used large datasets. For example, the Department for Education (DfE) (2021) in conjunction with Renaissance Learning and the Education Policy institute used data from over one million assessments undertaken in STAR reading and 58000 in STAR maths from half-term 2020/21 (p. 38). Blainey and Hannay (2021) analysed test data from 800 schools. In both studies, the researchers calculated impacts on attainment midway through the year of disruption. Researchers also used real-time data to compare to earlier years to analyse attendance (Sosu & Klein, 2020) and time use (Andrew et al., 2020 used the UK Time Use Survey).

A greater number of studies used survey data to estimate the impact of school closures on learning and attainment (See Table 2 above for a breakdown). These were primarily based on parent or teacher reports on and estimation of harms from the volumes of work set and returned, or the time children spent learning, compared to time spent in school under normal conditions. Some of these studies only reported at the start of the first lockdown, at a point when schools were still in the process of adapting to novel circumstances. For those surveys that collected data at two time points there were issues of attrition at the second timepoint (e.g. Cattan et al., 2021). Grey literature publications using surveys lacked clarity in terms of survey construction, piloting, method, and representativeness of samples making it hard to assess the generalisability of findings.

Another issue is the timing of data collection in the light of the unfolding event. Findings from the first lockdown in March 2020 may differ significantly from subsequent closures when, for instance, schools had developed more refined contingency strategies and, for example, better provision for children entitled to free school meals.

Attention must also be paid to the metrics used in studies to estimate learning loss using attainment data. The interpretation of these data needs to be treated with caution, as will be discussed in the next section.

Nature and extent of different harms to learning and attainment

The evidence these studies presented suggest that the key harms included (1) a reduction of time spent learning at home compared to what would have typically been spent in school, (2) a reduction in the quality of work completed at home, (3) lack of access to remote learning due to inequalities in access to technology, and (4) impacts on attainment on the return to school.

Time spent learning: It is evident that during the COVID-19 pandemic children have spent less time on learning due to absence or reduced time spent on formal learning activities at home compared to school. Sosu and Klein (2020) found that, in Scotland, the rate of absence during the COVID-19 pandemic was higher (9.4%) than the previous year (6.7%) and that this increased for children from low-SES backgrounds (21%). Andrew et al. (2020) reported that 20% of children were doing less than 2 hours of home learning and that younger children were more likely to spend less time learning that their older peers. Cattan et al. (2021) looked at differences across the first and second lockdown and for those that stayed at home learning time decreased. They also found that those in higher SES groups were more likely to return to school. Of course, these findings assume that time in school equals learning. Comparisons of the amount of time children spent learning at home during COVID-19 with the estimated amount of time they would have spent in school in the absence of a pandemic show clear deficits in the time spent.

Reduction in quality of work: In terms of the work produced whilst children worked at home, some teachers reported that the quality of work returned was poor (Cullinane & Montacue, 2021). Lucas et al., (2020) found that 60% of teachers reported that less than 40% of pupils returned work for marking and just over half of parents of children engaged with schools. Lucas et al (2020) also reported that pupil engagement was lower in the most deprived communities, with the proportion of pupils with little or no access to the internet or devices in most deprived communities double that of those in the least deprived communities.

Lack of access to IT: An equally clear finding was that lack of access to technology impacted to a greater degree on children from lower socio-economic backgrounds. Andrew (2020) found that one in ten primary children were either using a mobile phone to access school work or had no device at all. Cullinane and Montacue (2021) reported wide disparities in terms of access to IT and the internet when comparing between public and private schools. For example, 15% of the teachers working in the most deprived areas reported that more than a third of children would not have access to a device compared to '2% in the most affluent state schools' (p.1). Parents of children with special educational needs reported that the array of digital platforms was overwhelming and uncoordinated (Couper-Kenny & Riddell, 2020). To counteract lack of access to IT, Andrew et al. (2020) found that poorer children were more likely to receive learning packs and concluded this led to more passive learning. By contrast, Bayrakdar and Guveli (2020) found that children spent more time learning if work was offline. Bayrakdar and Guveli (2020) also reported that, on average, children with Black-Caribbean or Black-African heritage spent the most hours on schoolwork across all ethnic groups and education stages. Distance teaching

provision explains the largest part of the variation in children's home learning across this group of studies.

Impact on attainment: A key issue is whether the reduction of time, quality, and access to remote learning impacted children's attainment. The DfE (2021) have published an initial assessment of learning loss by the Education Policy Institute and Renaissance Learning which compares test data from Autumn 2020 with that from previous years using STAR assessment data. Using a formula suggested by the Education Endowment Foundation (2021) in an attainment toolkit to convert effect sizes into months this calculated that younger age groups experienced more learning loss (up to two months) and that loss in mathematics was greater (equivalent to 3 months) with regional variations. An effect size quantifies the difference between two groups and is not confounded by sample size (Coe, 2002). The effect sizes in terms of loss range from .01 to -0.17. While there are multiple considerations in calculating effect size and Cohen's benchmark of small (.2), medium (.5), and large (.8) are 'somewhat arbitrary' (Bakker et al., 2019), all of the effect sizes reported are under the benchmark of small. Indeed, using the EEF (2021) toolkit, the data effect sizes reported may more appropriately be described as low impact.

Another issue is the timing of testing. Blainey and Hannay (2021) examined the decline in attainment across all year groups between 2019 and 2020 in reading, maths, and GPS. The authors used attainment results from RS Assessments to compare declines in testing between (a) tests administered when schools reopened at the beginning of autumn 2020 with (b) a previous cohort in 2019 and (c) tests administered at the end of autumn. Findings at the end of autumn demonstrated a decline in scores across all year groups and subjects with younger years groups showing a larger decline compared with the previous year. The decline in these scores, however, is a fifth of the decline at the beginning of autumn.

In conclusion, there are some losses as evidenced by test data from the beginning of the school year 2020/2021 and that these were greater for younger children. Blainey and Hannay's (2020) results also showed that given time to settle back into schools children recovered these gains. Across the board the losses were low impact (EEF, 2021), although with a greater impact on maths than reading, but it may be that it is simply too soon to be testing children and estimating learning loss. Interestingly, these findings echo those of large scale achievement data from the United States which also found that maths was impacted more than reading (Kuhfeld et al., 2020) but that, given time, children were doing better than projected (Johnson et al., 2021).

Mitigations

Immediate responses

It is clear from the studies we reviewed that it might simply be too early to calculate learning lost as a result of school closures during the pandemic and that, given time back in school, without disruption, children may catch up (e.g. Blainey & Hannay, 2021). One implication of these findings is that children should be provided with the opportunity to learn rather than be tested too soon. In the short term, it is evident that teachers will need to pay close attention to observing students and providing differentiated learning opportunities, as appropriate, particularly for children from lower socio-economic backgrounds who were more likely to face disparities in terms of absence, time spent learning, and access to the resources required to engage fully in home learning. Indeed, the

presumption should be that there will be greater variation in attainment in any given class, and that schools can usefully address this through high quality whole class instruction, catering to that variation, and through carefully differentiated learning activities to support specific pupils' needs. Diagnostic assessment in schools should be used to decide where additional support needs to be targeted (e.g. mathematics, reading or writing), in terms of teaching and learning opportunities, bearing in mind the importance for all children of continuing to have access to a broad and balanced curriculum.

Long term change

Longitudinal data will have a role to play in assessing the impact of the COVID-19 disruptions to learning going forward. However, the system is still very much in the immediate aftermath of the event, at the time of writing this review. Given the variable impact COVID-19 has had at local level and the range of other harms that may also impact on pupils' capacity to learn, documented elsewhere in this review, appropriate longer term mitigation strategies have still to be securely identified.

In this context, building on the systematic review conducted by Harmey and Moss (2020) we deemed it helpful to look at other similar events that caused prolonged learning disruption (e.g. other pandemics or closures due to natural disasters) and the lessons learnt from this internationally. In the original review conducted in 2020, Harmey and Moss identified 15 studies that investigated the mitigation strategies adopted by schools in response to other crisis events and examined the recommendations and strategies for recovery identified for when schools reopened. We reran the searches for this study but found no further studies.

Recommendations for successful system recovery identified through the review focused on the crucial role of school leadership at local level (Stuart et al., 2013), the choices leaders were able to make about the curriculum (O'Connor and Takashi, 2014) and the mental health needs of the school community as a whole (Barrett et al., 2012). Studies found that school leaders were in the best position to use their local knowledge to identify and respond to local needs quickly (Howat et al., 2012). They identified that successful school recovery plans valued local knowledge (Mutch, 2016) and this knowledge was key to making appropriate plans for the curriculum (Harmey and Moss, 2020). Such studies also found that in many cases the pace of curriculum delivery benefited from being relaxed, to allow time for children to reflect on their experience and reconnect with the opportunities to socialize in school and find creative outlets (Alvarez, 2010). In addition, the review found that school leadership and policy makers alike recommended a focus on school-wide mental health strategies which would support staff in terms of their own mental health and also their ability to identify and support children's mental health and wellbeing needs (Fletcher & Nicholas, 2016).

Recovery longer term was aided by allowing the educational system as a whole to reflect on the experience of providing education at home, particularly for vulnerable children, and develop comprehensive contingency plans to cater for future disruptions to learning, drawing on what has been learnt at local level. In our expert view, medium- to long-term planning would benefit from considering this proposal. Any contingency planning for the future could also usefully take into account the disproportionate effects on children from poorer backgrounds, of the lack of access to internet and IT, requires strategic investment in technology to render it accessible to all, and that the strategic use of funding would serve these children well in terms of the development of IT skills and access to learning at home.

Findings: Mental health and wellbeing

In the context of this review, this theme produced a relatively large number of papers (n = 29) of which 19 were surveys (Asbury (2020); Children's Commissioner; Children's Commissioner for Wales; Children's Parliament (2020); Jester (2021); Levita (2020); Mansfield (2020); Marchant (2020); Mueller (2020); Nonweiler (2020); Parentkind (2020a); Parentkind (2020b); Pearcey (2020); Pungapong (2020); Shum (2020); Theis (2021); Vizard (2020); Widnall (2020); Young Minds (2020)), four used existing administrative datasets (Kooth (2020); NSPCC (2020a); NSPCC (2020b); Scottish Govt), four were literature reviews (Burkey (2021); Loades (2020); Lopez-Bueno (2020); Nobari (2021)) and two used qualitative designs (McCluskey (2021); Scott (2021)).

Quality assessment of studies

The consensus from our expert assessment of the quality of the papers supports the meta-analyses of work in this area which our searches identified (Loades et al., 2020; Viner et al., 2021): that any estimates of harm from the disruption of education to mental health and wellbeing need to be treated with caution. Key methodological limitations included a lack of capacity in the study design to isolate the impact of the pandemic using pre-pandemic comparisons of symptoms, and the use of cross-sectional, biased convenience samples as opposed to nationally representative, longitudinal cohort studies or large samples that use weighting to ensure they are representative of the population. As with all child and adolescent mental health research, it was important for studies to acknowledge any differences between self-reported vs. parent/guardian and teacher reported mental health and wellbeing. For this population, it is also particularly challenging to separate developmental changes in mental health and wellbeing that would have taken place anyway from changes due to the pandemic, not least because certain mental health difficulties can increase throughout adolescence, e.g., internalising difficulties (Kessler et al., 2005). International evidence suggests that the COVID-19 pandemic may have slowed the usual decline in externalising difficulties seen at this stage in development (Achterberg et al., 2021).

In the UK, approximately 10.8% of 5–16-year-olds met criteria for at least one mental disorder in England in 2017 (Sadler et al., 2018). The Mental Health and Young People Survey (MHCYP) was repeated in July 2020 during the COVID-19 pandemic offering an opportunity to compare rates of difficulties and found that this figure had increased to 16% (Vizard et al., 2020). Although this study benefited from a robust sample design, there were some methodological limitations. For example, under 50% of the original 2017 sample took part in the follow up survey and the mode of data collection went from face-to-face to online due to the pandemic. The two surveys also used different measures of mental health making direct comparisons inappropriate.

Nature and Extent of Harms to Mental Health and Wellbeing

Taking these limitations into account, evidence from the studies we reviewed to support worsening mental health and wellbeing due to school closure is mixed. One such study was Co-SPACE (Pearcey et al., 2020), a longitudinal study which was launched in March 2020 at the start of the pandemic. The self-selected sample was predominantly female (mothers), white, and had above average income. Although this study was not based on a representative sample and did not have pre-pandemic scores for comparison, it offers both parent/carers reported mental health as well as child self-report, at multiple time points throughout the pandemic. The study team found an increase in pre-adolescent children's

symptoms of mental health difficulties reported by n = 2673 parents at two time points in the early stages of the pandemic (March – May 2020). In contrast, the effect on adolescents was smaller with slight reductions in emotional difficulties (Waite et al., 2021). Being female, having SEN/ND or chronic health conditions, and coming from a household with higher levels of parental psychological distress and family conflict increased children's likelihood of experiencing symptoms of emotional difficulties (Raw et al., 2021).

Studies frequently found evidence to suggest both positive and negative impacts on mental health from the disruption to education. For instance, Mansfield et al. (2020) found both positive and negative impacts on the perceived wellbeing of school-aged children, from a large (19,000 pupils) cross-sectional survey. Almost one third reported sleeping and feeling better. In contrast to Waite et al (2021), secondary school pupils reported more negative impacts to wellbeing and lifestyle factors than primary school pupils. However, even among adolescents, there were reports of positive impacts of the Covid-19 lockdown related to spending more time at home with the family.

The evidence to date makes it hard to generalise about the differential impact of effects on different sub-sections of the population. There are indications that:

- Pre-adolescent children showed greater deterioration in mental health (Waite et al., 2021);
- Girls were more likely to experience difficulties than boys (Raw et al., 2021), and girls with probable mental disorders were more likely to have been exposed to arguments within the household during lockdown (Vizard et al., 2020);
- Young people identifying as LGBTQ+ and those who were experiencing anxiety before the lockdown are likely to require more support on return to school (Widnall et al., 2020);
- Young people from low-income families and those with SEND faced greater challenges with mental health and wellbeing (Pearcey et al., 2020).

Mitigations

Immediate responses

The absence of high-quality studies limits the evidence that can be brought to bear on immediate responses. It is clear that the available studies show uneven impacts from the lockdown, with some pupils showing symptoms of emotional distress, but others showing the reverse with increases in wellbeing on some measures (Mansfield et al., 2020). We suggest that in the short term the most practical and immediate response suggested by the evidence would be to help schools find ways to monitor and support students as they return to school, in ways that are compatible with the resources they have in place, and with the capacity to refer students to more specialist support if required. The Anna Freud Centre provides a useful guide to resources for schools to measure and monitor pupil wellbeing, which would help schools in identifying those children requiring support. Available here: https://www.annafreud.org/media/4612/mwb-toolki-final-draft-4.pdf They have a dedicated webpage of COVID specific resources, designed with schools and families in mind: https://www.annafreud.org/coronavirus-support/ .

Longer term change

Better quality evidence is needed on the impact of the pandemic on children and young people's mental health and wellbeing. Given that there was evidence of worsening adolescent mental health in the UK before the pandemic (Fink *et al.*, 2015; Sadler et al.,

2018; Patalay and Gage, 2019), the available evidence suggests a need for a wider review of how mental health is supported in and through education.

Structural solutions are needed to address existing inequality and poverty associated with poor mental health including proactive approaches to 'build back fairer' in the aftermath of the pandemic (Marmot et al., 2020). Prior to the pandemic, schools reported facing a number of barriers to providing effective mental health provision including a lack of capacity in CAMHS for referrals, limited capacity within school, and communication challenges with external services (Mansfield et al., 2021). More reactive approaches might therefore include better funding for schools and CAMHS (Child and Adolescent Mental Health Services), and better links between the two (Cortina et al., 2019, 2020). From this point of view, it is worth drawing attention to the Schools Link Programme that the Anna Freud National Centre for Children and Families are evaluating – a programme to encourage joint working between external mental health professionals and school staff to support young people's mental health: https://tinyurl.com/y6jehhfa. There is also COVID-related support for schools at https://www.annafreud.org/coronavirus-support/support-for-schools-and-colleges/.

To date, there is limited evidence around what works for UK schools in terms of implementing mental health and wellbeing interventions. Over the coming years, there will be emerging evidence from the Education for Wellbeing Programme, a DfE-funded programme consisting of two trials evaluating a range of mental health and wellbeing interventions. The programme is England's largest research trial of school-based mental health interventions and will evaluate the implementation, cost-effectiveness, and impact of a range of interventions on pupils' mental health and wellbeing. Trial protocols are published here:

https://bmjopen.bmj.com/content/9/8/e029044.info

https://trialsjournal.biomedcentral.com/articles/10.1186/s13063-019-3762-0

Findings: harms due to increased exposure to risk factors

Eleven studies were identified: three surveys (Children's Parliament, 2020; Khan and Mikuska, 2021; Mansfield et al, 2020), four using existing administrative datasets (NSPCC, 2020a; Garstang et al 2020; Mann et al 2021; NSPCC 2020b), one literature review (Proulx et al, 2021), two qualitative studies (McCluskey et al, 2021; Pearce & Miller, 2020) and a study using an action research design (Racher & Brodie, 2020).

Assessment of study quality

Some studies draw conclusions from large-scale surveys of relevant populations (Mansfield et al, 2020; Children's parliament [Scotland], 2020), while others are based on extensive reviews of existing literature (Proulx et al., 2021). Important and unique data from comparisons of Childline calls pre-Covid and during the crisis are also used in the NSPCC reports (NSPCC, 2020a; 2020b).

The less robust studies are based on smaller scale research, such as Khan and Mikuska (2021) which is based on 55 interviews with practitioners for children aged 3-8 from the first lockdown only, and Pearce and Miller (2020) which is based on analysis of webinars with safeguarding professionals with little explanation of how the data were analysed. In some cases, findings are extrapolated from one population (e.g. in one area) to the wider population (Mann et al, 2021; Garstang et al., 2020). These have nevertheless been included in the review as they cover topics not otherwise explored.

Nature and extent of harms due to increased exposure to risks

The eleven studies provide evidence of a combination of children's increased exposure to harms due to not being able to attend school, as well as highlighting the challenges of monitoring these harms without school attendance. A reduction in child protection medical assessments and referrals from schools provides evidence that school closures mean child abuse has in many cases remained hidden (Garstang et al., 2020). Some smaller scale research with young children suggests there have been challenges for professionals in monitoring safeguarding remotely (Khan & Mikuska, 2021). A small proportion (2%) of children in the Mansfield et al study cited above reported feeling unsafe at home (Mansfield et al., 2020). There is evidence from Childline that there has been increased reporting of sexual abuse by children (a three-fold increase in calls), including past abuse, due to children not being able to disclose this to their teachers and having more contact with abusers while at home (NSPCC, 2020a). Emotional, physical abuse and neglect are also reported as featuring in Childline calls (NSPCC, 2020b). However, expected increases in the number of children attending A&E for burns injuries due to abuse or injuries resulting from more time spent at home did not materialise according to one small study (Mann et al., 2021).

Research with safeguarding professionals indicates their concerns about continuing and undetected abuse of children within and outside of the home; about the changing nature of criminal exploitation; and about the strains created by social distancing on children in families experiencing problems with poor mental health, drug and alcohol misuse and domestic abuse (Pearce & Miller, 2020), though there are no estimates of how widespread these concerns are.

Surveys with children such as the Children's Parliament study in Scotland suggest that parents have increased financial worries (Children's Parliament 2020) while the NSPCC monitoring of calls also notes the issue of children' witnessing parents' arguments about

money. This is of concern as evidence suggests that there are links between parental stress and children's emotional regulation (Spinelli et al., 2021), with children in lower SES families more at risk (Pearcey et al., 2020).

In summary, although only a minority of children suffered from exposure to harms in this category, the number of incidents has increased due to lockdowns and school closures, and some harms are significant including increased risk of sexual abuse and criminal exploitation. Increased risk has been compounded by the challenges for safeguarding professionals.

Mitigations

Immediate responses

There is very little evidence in the research literature about how these harms can be mitigated against during periods of unscheduled school closure. Tentative findings from Racher and Brodie (2020) on the prevention of child exploitation and extra-familial harm during COVID are based on a scoping literature review and focus groups with staff from the Tackling Child Exploitation Support Programme, strategic leaders and professionals from different services. They suggest: first, there has been variation in approaches across different areas; second, there has been some innovation in digital methods and direct working with young people; and third, practical support has been integrated with other forms of service delivery. The authors comment that this emerging evidence should be used by strategic leaders as the basis for further interrogation of emerging data, along with the views of young people themselves and other staff. The quality and impact of new ways of working needs to be monitored.

The return to normal safeguarding procedures as children attend school will resolve some of the concerns raised in the literature. However, school staff may need to be particularly attentive to safeguarding issues, including disclosures of abuse during lockdown, in the recovery period.

Longer term change

Further research is necessary to assess the scale of the harms caused by school absence due to COVID-19, and the effectiveness of alternative methods of safeguarding. The scale of additional harm caused both by being at home and not being able to easily report abuse is not clear from the evidence at present. What is clear is the crucial role that schools play in safeguarding children, and the need for more robust connections between the different services that might be able to play a role in keeping children safe within their communities.

Findings: Harms to Physical Health, Nutrition and Development

Seventeen studies were identified all of which focused on harms to physical health and nutrition rather than on issues related to child development. The fact that the search strategy did not find an evidence base for harms caused to child development is likely to reflect the difficulties that researchers would find in collecting suitable data during the pandemic enabling such an assessment to be made. This underlines the importance of continuing to review harms as schools reopen. The seventeen studies included for the review consisted of seven surveys (Jester (2021); Mansfield et al (2020); Marchant (2020); Parentkind (2020b); Parnham (2020); Social Market Foundation; Theis (2021)), nine based on analyses of administrative data (Brown (2021); The food Foundation (2020); Garstang et al (2020); Magic Breakfast (2020); Mann et al (2021); NSPCC (2020a); NSPCC (2020b); Scottish Govt (2020); Sparks (2021)), one based on longitudinal data (Sugand (2020)) and one literature review (Lopez-Bueno (2020)).

Quality assessment of studies

The quality of studies was variable, as was the coverage of key themes. For instance, we had to turn to the grey literature to find any evidence of impacts on nutrition, not documented elsewhere but which we knew from our own previous research, based on a representative sample of schools (Moss, et al., 2020), was a significant harm for many pupils, and one to which schools were very quick to respond. Accordingly, amongst the included studies are some from campaigning organisations using self-selecting samples, which under other circumstances might not have been included. In our expert view the limited amount of evidence collected or sought reflects the lack of recognition given to the crucial role schools play in supporting children, particularly in our most vulnerable communities, on aspects of social life that are crucial building blocks for educational attainment: health, welfare and wellbeing. If the COVID-19 crisis has shown anything it is that these essential building blocks really matter, and that children cannot function properly in school without them. Maslow's hierarchy of needs is a key reference point that should guide any further analysis of how schools can help children recover from COVID-19.

Nature and Extent of Harms to Physical Health and Nutrition

Food insecurity and declines in physical exercise were the most prominent harms recorded in the papers reviewed for this theme. Studies addressing physical exercise relied on survey data. Bearing in mind the potential weakness of self-report methods, surveys in the UK (Jester & Kang, 2021, Mansfield et al., 2020) found children reporting declines in the amounts of physical exercise they were undertaking during school closures. In the largest survey (19,000 participants, Mansfield et al., 2020) pupils in years 8-10 were most likely to report doing less exercise (over 50%). Set against this, roughly a third of students in years 4 to 11, reported increasing the amount of exercise they were doing (Mansfield et al., 2020). In a survey of 125 parents and carers of children with physical or intellectual disabilities (Theis et al., 2021), parents reported their children had done less physical activity during lockdown, with the main reasons being a lack of access to facilities, activities and equipment.

A more substantial body of evidence shows the impacts of food insecurity on children eligible for free school meals (FSM). The Coronavirus wave of the UK Household Longitudinal Study, conducted in April 2020, found that in the month after the first lockdown 49% of eligible children did not receive any form of FSMs. They also reported that the voucher scheme the government had put in place was not adequately serving those

children who could not attend school. Many families relying on income-related benefits reported a need to access foodbanks. The Trussell Trust recorded increases in demand for emergency food parcels of 81% during the first weeks of the first lockdown compared to the previous year. In a survey conducted by Opinium on behalf of the Social Market Foundation, 16% of parents said that between March and September 2020 their children had had to make do with smaller portions, skip meals or go a day without eating. Parents working in sectors badly hit by the economic shutdown (hospitality, leisure, retail and construction) were most affected (Bhattacharya and Shepherd, 2020). COVID-19 has revealed very sharply the precarious situation in which many families on low incomes live, and the key role schools have in ensuring children are adequately fed. Food insecurity and the stress it causes both families and children have been found to have a direct link to lower attainment (see for example, Jyoti et al., 2005).

A few papers, drawing on administrative data, did describe gains. As reported above, separate studies reported reductions in the number of children seen in hospital before and after the first lockdown (March 2020), for burns recorded in one hospital (Mann et al., 2021) and in acute paediatric trauma referrals in another (Sugand et al., 2020). Reasons for the reductions are not altogether clear, however, and researchers caution that lockdown may have led to under reporting. A report on traffic-related pollution, based on Nitrogen Dioxide (NO2) monitoring at road sites near nurseries and schools, found a significant reduction in concentrations of NO2 resulting from the lower traffic levels and concluded from this that there would be a potential reduction in child exposure (Brown et al., 2021).

Mitigations

Immediate responses

Research conducted in June 2020 by members of this review team and already published (Moss et al., 2020) using a survey with a weighted sample, showed that school staff were already aware from the start of the first lockdown that food insecurity affected their pupils, with schools serving low SES catchment areas most preoccupied by this issue. All schools surveyed were making considerable efforts to support families affected, either drawing on their own resources or by putting families in touch with others who could help. Research in progress by the same team (yet to be published) indicates that primary school staff recognised the need for physical exercise to be part of their curriculum for children isolating at home during lockdown and have also made it a priority as children return to school in 2021. We are aware that comparatively little data have been collected directly from schools about their actions during the pandemic, and find the mitigation strategies that schools have already put in place, responding directly to the needs they were aware of, under-reported. This is an important deficit in the evidence base which needs addressing.

Longer term change

School closures during the pandemic have thrown a sharp spotlight on the effects of poverty and food insecurity on children. The extent to which many families rely on the contribution schools make has become very apparent. Those collecting evidence on these issues during COVID-19 have highlighted in their findings and recommendations for future action the need for national policy change. This should bring more funding to schools working in the most deprived areas (EPI, 2021) and addressing food insecurity faced by families in our most deprived communities, not least by changing the ways the benefit system, low wages and job insecurity put so many families at risk.

Other harms

A survey of parents of children with SEND, recorded an increase in challenging behaviours, and recorded parents' concern at a loss of social contact and routine (Parentkind, (2020b). There are studies which focus on the impact on children of parenting changes such as fathers' increased involvement in caregiving (Proulx et al., 2021), which we expect to be covered by the parents and carers review and so have not considered here. The only other harm found in our review beyond the areas identified above was the data security risk involved in school-based COVID-19 testing, as noted in a study based on 50 interviews with parents, staff and students (Lorenc et al., 2020).

DISCUSSION

This review asked:

What is the current research evidence on: (i) the harms created by school closure during the COVID-19 pandemic on primary and lower secondary school children; (ii) mitigations for these harms that have been: (a) used during the current pandemic or (b) used elsewhere to address harms arising from similar periods of educational disruption and with potential to be transferable.

The four themes where harm to primary and lower secondary pupils was identified were learning and attainment; mental health and wellbeing; increased exposure to risks and harms in the domestic setting; and physical health and nutrition. These clearly merit attention going forward and are key areas that will require mitigation, if at different scales and over different timeframes.

In some cases, the evidence we reviewed highlighted key social and structural issues that require policy attention at a national level, leading to increases in funding, and potentially structural re-organization to bring the right support services into the frame and encourage more joined up partnership working to support schools and families. The review also highlighted areas of uncertainty, in part due to the limitations of the methodologies adopted in some studies, and the timeframe in which evidence is being sought. There is a need to take better stock at the start of 2022 of impacts that may endure or be remedied in that timeframe.

From our review of the harms caused, we suggest that appropriate mitigations may best be identified by equipping schools to assess more carefully the extent of harms in different areas (physical health and nutrition as well as mental health and attainment), and conversely, any potential gains for different individuals as they return to school. We foresee from the evidence we have reviewed that schools may need to distinguish more clearly between what the pattern of short-term harms are that may right themselves, as normal teaching and learning in school resumes; and the nature of more longer lasting harms that particular individuals may have suffered and that require long-term support.

We note that the mitigations currently offered to schools by external sources, in the form of interventions, come with varying evidence of their efficacy; and as they predate the pandemic, will not have been designed with the kind of educational disruption children have been through in mind. Without distinguishing between short and longer-term effects, this may lead to over-prescription of interventions tailored to a smaller group of individuals who might face difficulties under normal conditions, rather than to a larger group who may recover without specialized support. The most robust evidence available from the USA on recovery from the effects of school closure due to COVID-19 certainly indicates that impacts on attainment may be larger on maths than on reading, and that recovery is likely to be non-linear (Johnson et al., 2021; Kuhfeld et al., 2020).

Given the uncertainties in the evidence base stemming directly from COVID-19 and its impacts on education in the UK, due to timing and availability, there are reasons to look more widely at the literature on disaster recovery in education, stemming from other natural disasters in other national settings. We have used our existing overview of this literature for this report as it provides robust evidence on how schools have recovered from similar periods of disruption in other countries and at other recent times (see

Harmey and Moss, 2020) see also Eyre, 2006). High quality research studies of education recovery after a period of disruption, identified in Harmey and Moss (2020), counsel against thinking of catch-up as a short-term fix, but rather highlight the need to plan for recovery with the whole school community, both through the curriculum and by putting care at the heart of local leadership. Schools will benefit from thinking in the round about what their communities most need and finding ways to take any specific contextual and regional factors into account, rather than relying on centrally-driven planning and one-size-fits-all solutions.

We note that there are some striking omissions in the database of studies reviewed. In particular, there are very few studies already published that document or record the mitigation strategies that schools themselves put in place during the pandemic, derived from their first-hand experience of dealing with the problems that the disruption to schooling caused within their own communities and the families and children they serve. By contrast, Moss et al (2020) documents how schools were responding during the first lockdown and what they anticipated would be most helpful to them going forward, at that early stage in the pandemic. Moss et al (2021) explored the role teacher assistants were playing in supporting learners through the autumn term 2020 and January 2021 lockdown. With funding from the ESRC the same team are now engaged in a small-scale qualitative study looking at how schools have continued to adapt in the light of the crisis, using different strategies to identify harms to learning and wellbeing and from that devise mitigation strategies themselves. We are unusual in the academic field in being committed to fast turnaround studies that can report quickly. Others researching this area may simply not yet have published.

In such unexpected and novel circumstances that the crisis created for schools, it is in fact teachers themselves and school leaders who have formed the most in-depth view of the harms to children's wellbeing and to their learning. Without their insights, centralized prescriptions for recovery may have very little value. This hypothesis is very much supported by the broader disaster recovery literature which suggests local knowledge is paramount (Mutch, 2014). Without taking local knowledge into account, the disaster literature finds much well-intentioned support from afar may not actually match local needs, and indeed waste money by channelling it to the wrong resources and the wrong targets.

Strengths and limitations of the review

Like any study this review has strengths and limitations. In the light of the studies we reviewed, we consider the limitations primarily stem from the timing of this review. Ideally, we would have restricted our search to manuscripts from peer-reviewed journals. Given the time it takes to get published this was too restrictive and so we widened our search to grey literature and third-sector publications. This did impact the methodological quality of some of the papers we reviewed. However, we suggest, that a strength of this review is that we drew on evidence from organisations that have close connections with, and knowledge of, the populations at risk. This is a valuable resource as it is more likely to include the voices of those at risk.

Methodological limitations of the papers reviewed included the size and representativeness of samples and the variable quality of survey instruments. Many surveys relied on the opinion of parents and teachers to infer potential harms, and treated this as evidence for

them. Another limitation stemming from the timing of this review is that it may be too early to accurately assess harms at this point in time. (See our comments on study quality above for more details on these points.) It may be that children have been impacted in a variety of ways that have yet to manifest. It is also difficult, methodologically, to isolate harms to mental health which are due to the COVID-19 event and those which may have happened anyway, developmentally or indeed, to a particular at-risk group.

That being said, a strength of our review is that it provides a useful guide to the main harms likely to have been experienced, and an estimate, to the best of our knowledge, of the short-term harms to children. This provides a useful benchmark for future longitudinal research. A strength of several of the studies we reviewed was the utilisation of large longitudinal datasets. We suggest that future research utilising these datasets will provide reliable evidence of short-, medium- and long-term harms. We recommend that such studies be enhanced by more in-depth qualitative case studies that could illuminate the issues as they affect schools working in different contexts, where the uneven impacts from COVID-19 itself on different communities can be focused on at greater depth. We think qualitative studies of the mitigation strategies schools themselves have devised to meet local community needs are a priority, as they are most likely to contribute effectively to learning from this disaster and preparing for any further period of sustained educational disruption.

CONCLUSIONS

Our review of the available studies, based on evidence collected and analysed during the pandemic, has indicated that the main harms from COVID-19 on primary and lower secondary pupils will fall into these categories: learning and attainment; mental health and wellbeing; increased exposure to risks and harms in the domestic setting; and physical health and nutrition. Although impacts on learning and attainment and on mental health and wellbeing have attracted most research attention, we consider that impacts on physical health and nutrition and on safeguarding merit more notice than they have currently received. They are likely to have had particular impact in our most vulnerable communities. In many communities, schools play a crucial role in safeguarding pupils, yet have been hampered from offering this kind of crucial support while pupils were unable to access the school site, despite the various mitigation strategies they will have put in place.

The evidence suggests that equipping schools with the appropriate tools to diagnose needs across the spectrum of harms will be fundamental to planning efficiently and appropriately for recovery. It will also be useful inform local decision-making on how that funding should be spent. Our review finds evidence of harms not just on learning attainment but also on physical health, mental health and wellbeing, and increased exposure to risks at home. Being ready to learn depends on addressing pupils' basic needs across this range of likely harms. Schools understand this. To close the attainment gap, they will require the resources that enable them to meet those primary needs over the medium to longer term. The evidence from our review recognises the importance of increasing funding in particular to schools serving our most deprived communities and allowing them to spend the money according to the needs recognized in their context as most urgent.

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APPENDICES

Appendix 1: Methods

Inclusion criteria

1) Stage 1a: identifying harms – we included studies of any research design provided they were:

- Published since November 2019
- Related to COVID-19
- Reported data UK or/and Northern Ireland populations
- Reported empirical evidence
- Reported data collected on children aged 4 to 16 years
- Reported data collected from a community or hospital setting
- Reported data on impact of primary and/or lower secondary school closure.

Stage 1b: We also included synthesis review documents calculating harms to education published by international organisations.

2) Stage 2: identifying mitigations – we searched for systematic reviews that aimed to mitigate the harms identified in the first part of the review, both short-term mitigation of harms identified and longer-term adaption to prevent the harms. Studies were included if they were:

- Published with any date
- Related to identified harms
- Reported data collected from any geographical area
- Reported data collected from a relevant population
- Reported data collected from a relevant setting.

If more than one systematic review was found for each harm or sub-harm, we selected the most appropriate review as follows:

- The most up to date systematic review to avoid double counting individual studies included in reviews as well as choosing the most up to date findings
- The systematic review most relevant/ transferrable in terms of population, contexts and topics.
- The systematic review or reviews that were most likely to have trustworthy reliable findings based on a quality assessment of the execution of the review.

Search strategy

Since we were aware that relatively little relevant evidence had been published we searched for both published and 'grey' literature as follows:

Stage 1: search for harms:

Bibliographic databases

One reviewer (CV) searched Proquest Central, SCOPUS, and Google Scholar from database inception using search terms that were specific to our population and education type, plus terms for COVID and UK to find studies on the nature and extent of the harms.

The search terms used are in Appendix 2.

Hand searches for grey literature

One reviewer (CV) also searched the IPPO Living Map which is updated monthly with newly published systematic reviews relating to the COVID-19 pandemic (Shemilt et al., 2021).

One reviewer (BC) hand-searched Google for UK organizations relevant to the education sector and searched the websites of identified organizations for reports that met the above inclusion criteria. See Appendix 2.

BC also searched for synthesis review documents calculating harms to education published by *known* international organisations.

GM and BC hand-searched for relevant evidence submitted to the UK Parliament.

Stage 2: search for systematic reviews of mitigations:

CV and BC hand-searched the following databases for relevant systematic reviews for harms identified:

- The Cochrane Library
- The Campbell Collaboration
- The Database of Abstracts of Reviews of Effects (DARE)
- National Institute for Health and Care Excellence (NICE)
- World Health Organization (WHO)

As the populations covered in the reviews yielded by these searches (see Appendix x) proved not to be sufficiently relevant to harms identified in the first stage of this review, BC searched EBSCO and Google for reviews on education strategies following unplanned school closures, for example, due to disasters such as hurricanes or earthquakes. She also checked Google Scholar for new evidence from studies citing references used in the written evidence submitted by the topic experts of this review to the Education Select Committee Inquiry into the impact of COVID-19 on education and children's services, July 2020 (https://www.ucl.ac.uk/ioe/departments-and-centres/centres/international-literacy-centre/duty-care-and-duty-teach-educational-priorities-response-covid-19-crisis/reports-and-publications). See Table 3 for a summary of the search process.

Table 3 Overview of searches for evidence on mitigations

Source searched and terms used	Date searched	Number of references identified
Dedicated review databases (Cochrane, Campbell, Dare), WHO and NICE Focus on children or if database large (children and harms review identified)	17/5/21	23
EBSCO, date limited and peer review articles only. Terms used: (School closing OR school reopening or school closure or school or education or lockdown) and (Hurricane Katrina or Katrina or disaster or natural disasters or influenza or pandemic or epidemic or outbreak or disaster preparedness or covid or covid 19)	19/5/21	507
Google search Terms used: interruption disruption education training disasters crisis	19/5/21	14
Google Scholar - search for references in report to Education Select Committee Inquiry	20/5/21	22

Screening references

To expedite the screening process citations were uploaded initially to Excel and later to EPPI-Reviewer Web (Thomas et al., 2020) as this allowed further coding of the data.

Screening of citations relating to harms was undertaken by all reviewers. To ensure consistency some citations were checked by two reviewers. Disagreements were discussed and, where necessary, inclusion criteria adjusted. A Prisma diagram showing the flow of citations through the review process is in Appendix 3.

Data extraction of key characteristics

A full-text copy of each study which met inclusion criteria was uploaded into EPPI-Reviewer Web. The following data were extracted:

- Authors
- Year of publication
- Study Design
  - Survey
  - RCT
  - Quasi-experimental
  - Case study
  - Other

· Country

o UK

o Not UK

· Setting

o Primary

o Secondary

· Publication type

o Peer-reviewed journal publication

o Organisational publication

o Government publication

o Pre-publication

o Blog

o News Article

· Mitigation

· Findings

· Outcome measures

· Harms

o Mental Health and Wellbeing (Study findings were related to the detrimental effoct of COVID on mental health and wellbeing)

o Physical health, nutrition and development (Study findings were related to physical health, nutrition, and development)

o Learning and teaching experiences (Study findings are related to the detrimental effect of COVID on amount/ modes of teaching/ opportunities to learn, with knock- on effects on attainment and socialization/ transitions)

o Increased exposure to risk factors at home (Study findings are related to the detrimental effect of COVID on exposure to Misuse of Substances / Domestic Violence / Bereavement/ Material disbenefits of poverty (overcrowding, lack of access to outdoor space) /Screen time (excessive inappropriate)/ safeguarding)

o Other harm.

All reviewers undertook data extraction and checked each other's work to ensure consistency and accuracy.

Quality appraisal of studies

Each review topic expert was assigned a themed area on the basis of their expertise to assess studies for quality and relevance. This was a two-step process:

a) The quality criteria used across the wider study and regarded as appropriate to determining the quality of studies adopting different methodologies;
b) Assessing the relevance of the design and its execution for assessing harms from the patterns of disruption to education stemming from COVID, understood as an event impacting on different aspects of children's social life and educational experiences.

Each reviewer recorded their judgements on both aspects of the studies they reviewed. This led to a final list of included studies. The quality and relevance of the designs of included and excluded studies was a matter of discussion between the review topic experts to ensure consistency.

The following questions were used to assess each study's quality:

What does the evidence claim? Please specify:

1. Is the nature and extent of the claim relevant to your review?

- Yes
- No
- Partly
- Unclear

2. Is the evidence claim trustworthy in using a relevant method to achieve that evidence claim?

- Yes
- No
- Partly
- Unclear

3. Is the evidence claim relevant in terms of how its focus (how it applied the method such as for eg questions asked, outcome measures etc) to address the study question and make the claim?

- Yes
- No
- Partly
- Unclear

4. Are there any aspect of the execution of the study methods that undermine your confidence in the trustworthiness of the claims being made? Indicate any concerns below for all the method specific questions below (for systematic reviews)

- (i) Please specify under the relevant methods specific question and summarize here:
- (ii) Please state whether these undermine the evidence claim:
  - Yes
  - No
  - Partly
  - Unclear

Appendix 2: Search Strategies

Primary years search strings

Proquest Central searches – run 26/4/21

Ti(COVID-19 OR “coronavirus 2019” OR “SARS-Cov-2" OR “nCov-2019”) OR ab(COVID-19 OR “coronavirus 2019” OR “SARS-Cov-2" OR “nCov-2019”)

Changed to pandemic for sars-cov-2 and ncov-2019

AND

Ti("years 4-11" OR "4-11 years" OR "year 1" OR "Year 2" OR "year 3" OR "year 4" OR "year 5" OR "year 6") OR ab("years 4-11" OR "4-11 years" OR "year 1" OR "Year 2" OR "year 3" OR "year 4" OR "year 5" OR "year 6")

OR

Ti(Elementary OR "early years" OR "Primary school" OR "primary schools" OR reception OR "first school" OR "foundation stage" OR "foundation primary" OR "key stage 0" OR "key stage 1" OR "key stage 2") OR ab(Elementary OR "early years" OR "Primary school" OR "primary schools" OR reception OR "first school" OR "foundation stage" OR "foundation primary" OR "key stage 0" OR "key stage 1" OR "key stage 2")

OR mainsubject.exact “primary schools”

Returns 1,901

FILTER: UK 66

Scopus searches – run 26/4/21

TITLE-ABS (covid-19 OR "coronavirus 2019" OR "SARS-Cov-2" OR "nCov-2019")

AND

TITLE-ABS("years 4-11" OR "4-11 years" OR "year 1" OR "Year 2" OR "year 3" OR "year 4" OR "year 5" OR "year 6")

TITLE-ABS(Elementary OR "early years" OR "Primary school" OR "primary schools" OR reception OR "first school" OR "foundation stage" OR "foundation primary" OR "key stage 0" OR "key stage 1" OR "key stage 2"

Returns 464

FILTER UK 49

Google scholar – run 26/4/21

covid19 AND "years 4-11" OR "4-11 years" OR "year 1" OR "Year 2" OR "year 3" OR "year 4" OR "year 5" OR "year 6" OR “Elementary school” OR "early years" OR "Primary school" OR “reception year” OR "first school" OR "foundation stage" OR "foundation primary"

7,830

Searched 1st 25 pages

95 results

IPPO Map – run 26/4/21

Elementary school” OR "early years" OR "Primary school" OR “reception year” OR "first school" OR "foundation stage" OR "foundation primary" 41

Handsearching Google – various dates

Organizations found in the Google search results based on synonyms for Covid19, student impact OR research UK

Centre for Economic Performance

Education Policy Institute

Institute for Fiscal studies

NFER

Nuffield Foundation

NIHR

Mental Health Foundation Scotland,

NFER

Scottish government

Sutton Trust

UK government

UKRI

Youngminds

5,000+ results, 1st 20 pages scanned

Pupil engagement in remote learning https://mkonuffieldfounpg9ee.kinstacdn.com/wp-content/uploads/2020/06/NFER_-schools_responses_to_covid_19_pupil_engagement_in_remote_learning.pdf

Support for vulnerable pupils and the children of keyworkers. https://mkonuffieldfounpg9ee.kinstacdn.com/wp-content/uploads/2020/06/schools_responses_to_covid_19_support_for_vulnerable_pupils_and_the_childrden_of_keyworkerspdf.pdf

The challenges facing schools and pupils in September 2020 https://mkonuffieldfounpg9ee.kinstacdn.com/wp-

content/uploads/2020/09/schools_responses_to_covid_19_the_challenges_facing_schools_and_pupils_in_september_2020.pdf

UK gov - Evidence summary: COVID-19 - children, young people and education settings

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/963639/DfE_Evidence_summary_COVID-19_-_children__young_people_and_education_settings.pdf

Scottish gov. COVID-19: Children, young people and families https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2020/11/report-covid-19-children-young-people-families-september-2020-evidence-summary/documents/covid-19-children-young-people-families-september-2020-evidence-summary/covid-19-children-young-people-families-september-2020-evidence-summary/govscot%3Adocument/covid-19-children-young-people-families-september-2020-evidence-summary.pdf?forceDownload=true

LSE CEP Covid-19 school shutdowns: What will they do to our children's education?

https://cep.lse.ac.uk/pubs/download/cepcovid-19-001.pdf

IFS Inequalities in children's experiences of home learning during the COVID-19 lockdown in England

https://www.ifs.org.uk/uploads/publications/wps/WP202026-Inequalities-childrens-experiences-home-learning-during-COVID-19-lockdown-England.pdf

whole web page UK gov

COVID-19_ mental health and wellbeing surveillance report - GOV.UK

https://www.gov.uk/government/publications/covid-19-mental-health-and-wellbeing-surveillance-report

NIHR Young People's Mental Health during the COVID-19 Pandemic https://sphr.nihr.ac.uk/wp-content/uploads/2020/08/Young-Peoples-Mental-Health-during-the-COVID-19-Pandemic-Report-Final.pdf

EPI Preventing the disadvantage gap from increasing

https://epi.org.uk/wp-content/uploads/2020/05/EPI-Policy-paper-Impact-of-Covid-19_docx.pdf

parliament – Hansardhttps://hansard.parliament.uk/commons/2020-12-07/debates/4FFF63BD-3E7E-4CD6-A1B1-1A8400F88AD8/Covid-19ImpactOnSchoolsAndExams Webpage only

Mental health foundation , Scotland

Impacts of lockdown on the mental health and wellbeing of children and young people https://www.mentalhealth.org.uk/sites/default/files/MHF%20Scotland%20Impacts%20of%20Lockdown.pdf

Sutton trust -SOCIAL MOBILITY AND COVID-19 https://www.suttontrust.com/wp-content/uploads/2020/04/COVID-19-and-Social-Mobility-1.pdf

Young minds

Impact – survey with teachers

https://youngminds.org.uk/resources/policy-reports/what-impact-is-the-covid-19-pandemic-having-on-education/

Ongoing

REACH study to investigate the impact of COVID-19 on mental health in young people

An existing King's College London project that is researching the mental health of young people from diverse backgrounds and inner-city areas will be tailoring its next wave of data collection to understand how the COVID-19 pandemic and related public health measures are affecting these young people.

UKRI/ ESRC funded research projects at UCL

https://www.ucl.ac.uk/ioe/research/covid-19-research-ucl-institute-education/research-related-covid-19

Lower secondary years search strings

Proquest Central – run 13/5/21

Ti("Lower secondary" OR "Junior secondary" OR "secondary school" OR "middle school" OR GCSE OR "Grade 6" OR "Grade 7" OR "Grade 8" OR "Grade 9" OR "Grades 6-9" OR "grades 6-9" OR "Year 6" OR "year 7" OR "Year 8" OR "Year 9" OR "Years 6-9"OR "Level 2 Education" OR "Key stage 3" OR "Key stage 4" OR P6 OR P7 OR P8 OR P9) OR ab("Lower secondary" OR "Junior secondary" OR "secondary school" OR "middle school" OR GCSE OR "Grade 6" OR "Grade 7" OR "Grade 8" OR "Grade 9" OR "Grades 6-9" OR "grades 6-9" OR "Year 6" OR "year 7" OR "Year 8" OR "Year 9" OR "Years 6-9"OR "Level 2 Education" OR "Key stage 3" OR "Key stage 4" OR P6 OR P7 OR P8 OR P9)

MAINSUBJECT.EXACT("Secondary schools") OR MAINSUBJECT.EXACT("Secondary school students") OR MAINSUBJECT.EXACT("Secondary education")

AND

Ti(COVID-19 OR "coronavirus 2019" OR "SARS-Cov-2" OR "nCov-2019") OR ab(COVID-19 OR "coronavirus 2019" OR "SARS-Cov-2" OR "nCov-2019")

Results

5,448

FILTER UK: 108

Deduplicated 79

SCOPUS – run 13/5/21

TITLE-ABS-KEY("Lower secondary" OR "Junior secondary" OR "secondary school" OR "secondaries" OR "secondary education" OR "middle school" OR GCSE OR GCSEs OR "Grade 6" OR "Grade 7" OR "Grade 8" OR "Grade 9" OR "Grades 6-9" OR "Year 6" OR "year 7" OR "Year 8" OR "Year 9" OR "Years 6-9" OR "Level 2 Education" OR "Key stage 3" OR "Key stage 4" OR P6 OR P7 OR P8 OR P9)

And

TITLE-ABS-KEY(COVID19 OR "coronavirus 2019" OR "SARS-Cov-2" OR "nCov-2019")

Results 2,041

UK 258

Google scholar – run 13/5/21

Covid19 and (secondary education OR secondary school OR middle school or year 7 or year 8 or year 9)

211,000 results

108

1st 35 pages searched

IPPO Map Database – run 13/5/21

33

“junior secondary” 0

“Lower secondary” 3

GCSEs 0

Years 7-11 0

Year 7-11 0

Secondary education 5

Secondary school 27

Middle school 6

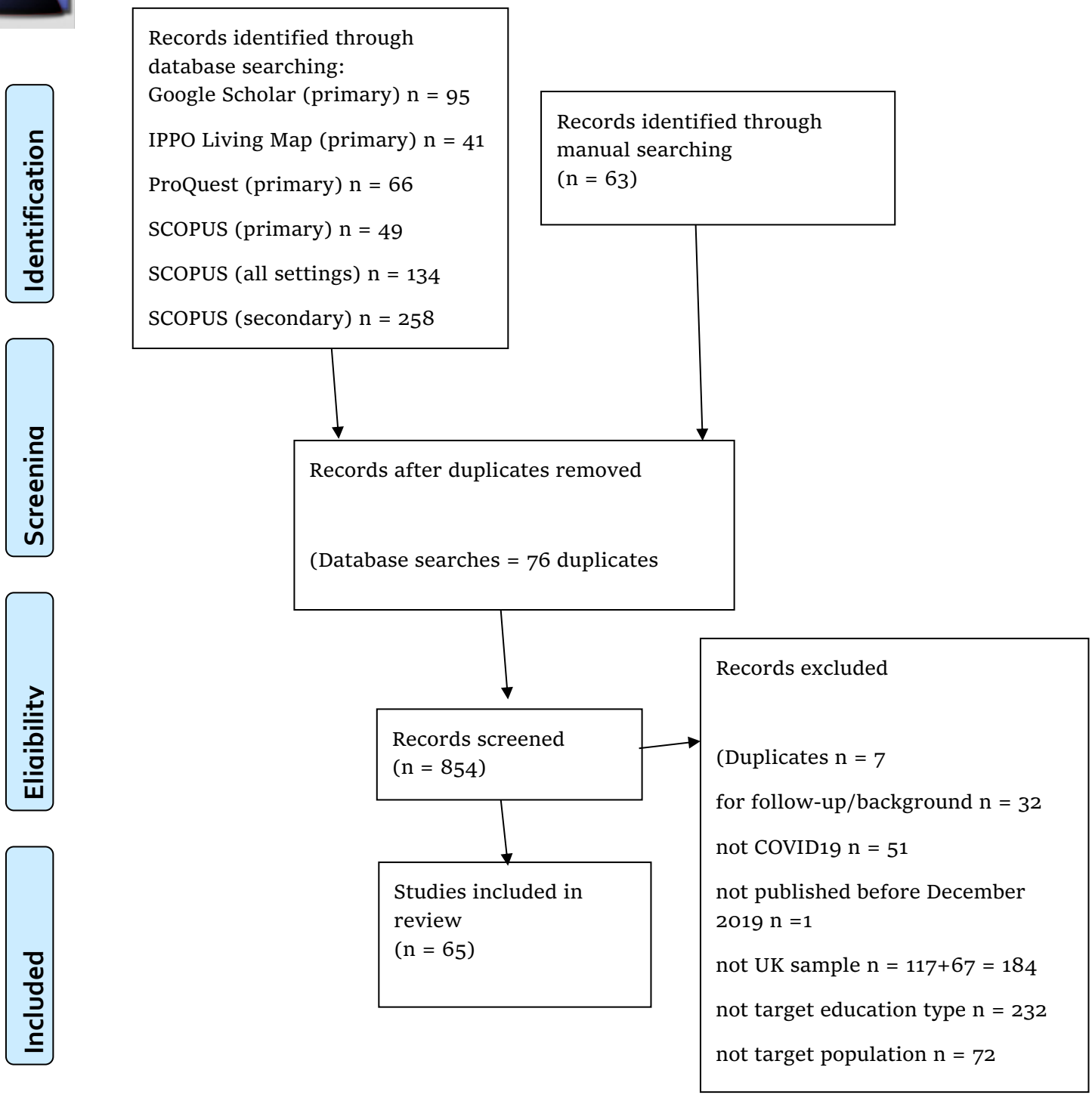
Additional search undertaken in ProQuest combining Primary and Lower Secondary – run 12/5/21

Search string for the broad school* only combined search terms:

S9	s7 and s3 Limits applied Scholarly articles	ProQuest Central	425
S8	s7 and s3	ProQuest Central	4,749
S7	S6 and S1	ProQuest Central	147,089
S6	s2 or s4 or s5	ProQuest Central	23,821,241
S5	MAINSUBJECT.EXACT("Schools") OR (MAINSUBJECT.EXACT("Elementary school students") OR MAINSUBJECT.EXACT("Students") OR MAINSUBJECT.EXACT("Middle school students"))	ProQuest Central	3,982,860
S4	MAINSUBJECT.EXACT("Schools")	ProQuest Central	745,919
S3	ti(UK OR United Kingdom OR Britain OR British OR England OR English OR Scotland OR Scottish OR wales OR welsh OR "northern Ireland" OR "Northern Irish") OR ab(UK OR United Kingdom OR Britain OR British OR England OR English OR Scotland OR Scottish OR wales OR welsh OR "northern Ireland" OR "Northern Irish")	ProQuest Central	18,830,826
S2	ti(school*) or ab(School*)	ProQuest Central	21,465,535
S1	ti(covid-19 OR Covid OR lockdown OR pandemic or Coronavirus) or ab(covid-19 OR Covid OR lockdown OR pandemic or Coronavirus)		

Appendix 3: Prisma diagram for included studies of harms

PRISMA Flow Diagram of studies of harms



Appendix 4: References to included studies on harms

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Appendix 5: Studies by type of harm

Category	Learning and attainment	Mental Health, wellbeing	Increased exposure to harms	Physical health	Other
Survey	1. Banerjee (2021) 2. Cattan (2021) 3. Children's Parliament (2020) 4. Greenway (2020) 5. Lawton (2021) 6. Leaton (2021) 7. Levita (2020) 8. Lucas (2020) 9. Mansfield (2020) 10. Marchant (2020) 11. Mueller (2020) 12. Parentkind (2020a) 13. Parentkind (2020b) 14. The Sutton Trust (2021a) 15. The Sutton Trust (2021b)	1. Asbury (2020) 2. Children's Commissioner 3. Children's Commissioner for Wales 4. Children's Parliament (2020) 5. Jester (2021) 6. Levita (2020) 7. Mansfield (2020) 8. Marchant (2020) 9. Mueller (2020) 10. Nonweiler (2020) 11. Parentkind (2020a) 12. Parentkind (2020b) 13. Pearcey (2020) 14. Pungapong (2020) 15. Shum (2020) 16. Theis (2021) 17. Vizard (2020) 18. Widnall (2020) 19. Young Minds (2020)	1. Children's Parliament (2020) 2. Khan (2021) 3. Mansfield (2020)	1. Jester (2021) 2. Mansfield (2020) 3. Marchant (2020) 4. Parentkind (2020b) 5. Parnham (2020) 6. Social Market Foundation 7. Theis (2021)	1. Parentkind (2020b)
Case study	1. Couper-Kenny (2021)				
Administrative Data	1. Sosu (2021) 2. Andrew (2020) 3. Blainey (2021) 4. Cullinane (2021) 5. Davies (2021) 6. DFE (2021)	1. Kooth (2020) 2. NSPCC (2020a) 3. NSPCC (2020b) 4. Scottish Govt	1. NSPCC (2020a) 2. Garstang (2020) 3. Mann (2021) 4. NSPCC (2020b)	1. Brown (2021) 2. The food Foundation (2020) 3. Garstang (2020)	1. Mann (2021)

	7. DFE (2020) 8. Montacute (2021) 9. NSPCC (2020b) 10. Rose (2021) 11. Scottish Govt (2020)			4. Magic Breakfast (2020) 5. Mann (2021) 6. NSPCC (2020a) 7. NSPCC (2020b) 8. Scottish Govt (2020) 9. Sparks (2021)	
Longitudinal Data Set	1. Bayrakdar (2020) 2. Elvers (2020) 3. Education Policy Institute (2020) 4. Juniper (2021)			1 Sugand (2020)	
Literature Review	1. Lopez-Bueno (2020)	1. Burkey (2021) 2. Loades (2020) 3. Lopez-Bueno (2020) 4. Nobari (2021)	1. Proulx (2021)	1. Lopez-Bueno (2020)	1. Proulx (2021)
Interviews/Focus Groups/Diaries Qualitative Analysis	1. McCluskey (2021)	1. McCluskey (2021) 2. Scott (2021)	1. McCluskey (2021) 2. Pearce (2020)		1. Lorenc (2020)
Action Research			1. Racher (2020)		
Total, all	32	29	11	17	4

International Public Policy Observatory (IPPO)
IPPO is an ESRC funded initiative to provide decision-makers in government at all levels with access to the best available global evidence on the social impacts of the COVID-19 pandemic, and the effectiveness of policy responses. IPPO is a collaboration between the Department of Science, Technology, Engineering and Public Policy (STEaPP) and the EPPI Centre at UCL; Cardiff University; Queen's University Belfast; the University of Auckland and the University of Oxford, together with think tanks including the International Network for Government Science (INGSA) and academic news publisher The Conversation.

EPPI Centre
Founded in 1996, the EPPI Centre is a specialist centre in the UCL Social Research Institute. It develops methods: (i) for the systematic reviewing and synthesis of research evidence; and (ii) for the study of the use research. As well as being directly involved in the academic study and the practice of research synthesis and research use, the centre provides accredited and short course training programmes in research synthesis and social policy and research.

UCL Social Research Institute (SRI)
The SRI (formerly the Department of Social Science) is one of the leading centres in the UK for multidisciplinary teaching and research in the social sciences. With more than 180 academic, research and professional staff, it works to advance knowledge and to inform policy in areas including gender, families, education, employment, migration, inequalities, health and child/adult wellbeing.

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