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# Review of the impact of mass disruption on the wellbeing and mental health of children and young people, and possible therapeutic interventions

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# Review of the impact of mass disruption on the wellbeing and mental health of children and young people, and possible therapeutic interventions

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Views expressed in this report are those of the researcher and not necessarily those of the Welsh Government

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## Glossary

<b>Acronym/Key word</b>	<b>Definition</b>
COVID-19	Coronavirus 2019, is a novel coronavirus that causes mild to severe respiratory difficulties, and was designated a worldwide pandemic in March 2019
PTSD	Post-traumatic stress disorder
PTSS	Post-traumatic stress symptoms
CBT	Cognitive behavioural therapy
EMDR	Eye movement desensitisation and reprocessing
UNESCO	The United Nations Educational, Scientific and Cultural Organisation
OECD	The Organisation for Economic Co-operation and Development
ONS	Office for National Statistics

## **Key findings – Summary**

To support the Welsh Government's COVID-19 information gathering, a Rapid Evidence Assessment (REA) literature review was carried out in-house by Knowledge and Analytical Services to explore the available literature on the impact of disasters <sup>1</sup> on the wellbeing and mental health of school aged children and young people (3 to 18 years) and possible therapeutic interventions. The literature review focused on finding out about children and young people's wellbeing and mental health as a result of the COVID-19 pandemic, as well as previous international disasters, in order to understand the current and anticipated impacts of COVID-19. Risk and protective factors for children's post-disaster mental health were explored for COVID-19 and international disasters that caused mass disruption. Previous interventions and their effectiveness were highlighted.

Two questions were asked of the literature, and examination of the available literature resulted in these key findings:

**(1) How has mass disruption and the closure of schools affected the wellbeing and mental health of children and young people, and have any risk or protective factors been identified, in relation to (a) COVID-19 research and (b) international disasters research?**

### **(a) COVID-19 research**

- International research included two studies from China that found high rates of depressive and anxiety symptoms amongst school-aged children who were confined to their homes.
- Studies from Italy and Spain suggested that isolation has changed children's behaviour, and led to an increase in children's behaviour problems (e.g. problems concentrating, irritability and hyperactivity) and worries, although positive outcomes such as more prosocial behaviour and reflection were also reported.

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<sup>1</sup> "A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins." (IFRC, n.d)

- International research also suggested that it is specifically isolation, rather than worries about infection risk or school closures, that is related to parent and child mental health difficulties.
- International research suggested that parental wellbeing during isolation is related to children's wellbeing, with the children of parents who are experiencing the most difficulties during isolation more likely to have greater behavioural difficulties.
- UK research has suggested that COVID-19 is adversely affecting the mental health of children and young people, with child and parent reports demonstrating children's COVID-19 related worries.
- In the UK, children from lower socio-economic backgrounds seem to be at greater risk of falling behind in their education compared to peers.
- Limited research suggested that UK children with additional needs seem to be at risk of greater mental health difficulties.
- Limited evidence suggested that secondary school aged children are more likely to have greater wellbeing and mental health difficulties than primary school aged children.
- There are a number of limitations to the COVID-19 research identified in this REA: (1) several studies have used survey data involving samples that are not nationally representative; (2) most studies lack baseline pre COVID-19 data; and (3) several studies do not use standardised validated screening measures for mental health.
- Future COVID-19 research is needed that has pre-COVID-19 mental health data, standardised questionnaires, representative samples, and longitudinal or follow-up data.

#### **(b) International disasters research**

- Most disaster research identified in the literature review focused on disasters such as earthquakes, hurricanes and tornados, and therefore findings may not be fully applicable to the COVID-19 pandemic.
- Numerous disaster research studies have demonstrated that both primary school and secondary school aged children that have been exposed to disasters suffer from mental health difficulties, in particular post-traumatic stress disorder (PTSD), post-traumatic stress symptoms (PTSS) and depression.

- Even children that have had indirect exposure to a disaster through the media can experience PTSD and PTSS.
- Research exploring the role of age in relation to post-disaster mental health difficulties has been mixed; overall it appears that older children have a greater risk of developing PTSD or PTSS, but not depression, compared to younger children.
- The relationship between older age and greater PTSS and PTSD could be influenced by exposure, with older children potentially more likely to experience and understand the effects of a disaster.
- As well as older age and exposure, other risk factors for greater post-disaster mental health difficulties included experiencing isolation or quarantine, parents' mental health, and children's pre-existing mental health difficulties.
- The risk factors identified in this REA were those that emerged from the literature reviewed, and do not represent an exhaustive list.
- The literature included here was limited to disaster literature published in the last 20 years from high income countries (see Methodology), which means that some literature, including high quality studies looking at AIDS/HIV pandemics and war or civil conflict were not included.

**(2) With previous international disasters, what therapeutic interventions were used to improve the mental health and wellbeing of children and young people, and were they successful or not?**

- Research has shown that children that have well-developed cognitive skills (attention and inhibition) and coping strategies tend to have less post-disaster mental health difficulties, and show higher levels of posttraumatic growth (positive psychological change as a result of adversity).
- Post-disaster school level interventions were often identified; they involve whole school changes that focus on supporting their pupils' mental health, and seem to be successful in reducing mental health difficulties and increasing prosocial behaviour<sup>2</sup> and adaptive behaviours such as coping.

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<sup>2</sup> Prosocial behaviour: "is defined as voluntary behaviour intended to benefit another (e.g. helping, sharing and comforting)". (Eisenberg, 2006)



- Community spirit or solidarity can be important for children, and community projects involving art therapy and story-telling seem to be successful in reducing mental health difficulties.
- Positive social support from parents and peers following a disaster can reduce children's mental health difficulties, and one study suggested that face-to-face social support seems to be more effective than virtual support.
- Specific therapies such as Cognitive Behavioural Therapy (CBT) and Eye Movement Desensitization and Reprocessing (EMDR) have been shown to reduce depression and PTSD in children recovering after disasters.
- Few interventions involved randomised control trials, which reduces the robustness of the research into their effectiveness, however it should be noted that randomised control trials are often not possible because of the ethical sensitivities surrounding the identification of a control group (i.e. choosing which children should and should not receive an intervention when all are in need of support).
- It is important to consider the transferability of these disaster interventions to the COVID-19 pandemic, however there are similarities between the findings of COVID-19 research and international disasters research, and some researchers have stated that the COVID-19 pandemic involves many of the characteristics of mass trauma events.

## **1. Introduction**

- 1.1 The aim of this Rapid Evidence Assessment (REA) was to explore the literature surrounding the impact of disasters causing mass disruption on the mental health and wellbeing of children and young people, and to highlight the effectiveness of post-disaster interventions.
- 1.2 The purpose of this REA was to provide evidence to inform policy decisions about support for school aged children following the COVID-19 pandemic. This REA addresses an immediate policy priority to understand the potential impacts of lockdown on pupil wellbeing to inform considerations about what support will be needed when schools re-open and whether support needs will differ between primary and secondary schools. A review of international literature on previous disasters and emerging COVID-19 research, can meet this evidence need through demonstrating the emerging and anticipated impacts of disasters on children and young people’s mental health, as well as highlighting which interventions could be beneficial for supporting post-COVID-19 recovery.

### **Background**

- 1.3 On 12th March 2020 the World Health Organisation (WHO, 2020) declared the respiratory disease COVID-19 to be a global pandemic. At this point there were an estimated 118,000 cases worldwide, with 4,291 deaths (WHO, 2020). The COVID-19 pandemic has led to mass disruption worldwide, resulting in the closure of businesses, recreational facilities and educational institutions to reduce the spread of the virus. By 8th April 2020, educational institutions were closed in 188 countries, leaving an estimated 1.5 billion children and young people without their usual access to education (UNESCO, 2020). UNESCO stated “the global scale and speed of the current educational disruption is unparalleled” (UNESCO, 2020).
- 1.4 While children and young people are not considered to be at high risk of severe health complications as a result of COVID-19 (Göttinger et al., 2020), they have been described as the “hidden victims” of the virus, due to the numerous “spill-over effects” of the virus, including the closure of educational institutions (UNICEF, 2020). In particular, children and young people are perceived as being at risk of

wellbeing and mental health difficulties as a result of school closure, quarantine or isolation, and worries about the virus itself (OECD, 2020a). The pandemic is expected to have the largest impact on children who were already disadvantaged (Fegert et al., 2020). Childhood has been shown to be a key period in development, particularly regarding wellbeing and health, with the majority of adult mental health problems arising by adolescence (OECD, 2020b). Consequently, the COVID-19 pandemic and exposure to new stressors or exacerbation of pre-pandemic stressors (e.g. financial insecurity, parent stress, lack of social support) are expected to have long-term negative effects on children's wellbeing and mental health (Kodor et al., 2020). In fact, schools have been revealed to play a key role in children and young people's development and wellbeing (e.g. Langille et al., 2002).

- 1.5 In Wales, all schools closed to pupils on 20th March 2020, with the exception of pupils who were considered to be vulnerable and the children of key workers (parents whose roles were considered to be essential by the government, see Department for Education, 2020). In many areas, localised hub schools were created, in which pupils attending schools in the locality would attend one school acting as a 'hub', in order to minimise the number of schools that needed to be open daily. A Continuity of Learning plan was created to provide guidance about how pupils could continue to learn at home, with the already established online learning platform for Welsh schools, "Hwb", a key element of distance learning (Senedd Research, 2020a).
- 1.6 Wales can be perceived as being at high risk of adverse outcomes for children following COVID-19 (Senedd Research, 2020b). Wales has the highest level of child poverty in the UK, with 28 per cent of children in Wales living in poverty before the COVID-19 pandemic (Bevan foundation, 2020). In fact, poverty has been described as putting "children at highest risk of suffering from the COVID-19 crisis" (OECD, 2020a). As well as impacting on basic essentials such as nutrition and housing quality, poverty can result in less opportunities for online education, as well as increasing risk for wellbeing and mental health difficulties (Fegert et al., 2020). Consequently, the COVID-19 pandemic could be perceived as making the situation worse for children already disadvantaged pre-COVID-19.

1.7 In Wales, schools re-opened to all pupils on 29th June, with safety measures such as social distancing and split cohort groups meaning that only about a third of pupils were able to attend school at the same time (Senedd Research, 2020c). The legal obligation upon parents and guardians that their child attend school was set aside during this time, and they were able to choose for their child not to attend. The effects of COVID-19 are ongoing and are expected to influence and challenge schools in the long term (Senedd Research, 2020c). As a result, it is important to understand more about the anticipated effects of the COVID-19 pandemic and associated isolation or quarantine, on the mental health and wellbeing of children and young people.

### **Structure of the literature review**

1.8 This literature review aimed to investigate the impact of disasters that have caused mass disruption (including school closure) on the wellbeing and mental health of children and young people (aged 3 to 18 years). Risk and protective factors for children and young people's mental health were explored, and the effectiveness of post-disaster interventions were highlighted. Key search terms included: *disaster, schools, mental health, interventions, and children/young people*.

1.9 COVID-19 research was investigated, however due to the recency of this current pandemic, research was sparse. Consequently, it was necessary to also explore international disaster research. Although literature on international disasters, such as studies looking at the impact of earthquakes or hurricanes, have less relevance to the current pandemic, understanding about the effect of these disasters on children's wellbeing and mental health can provide information on the anticipated effects on children, and what can help or hinder their recovery as well as the effectiveness of specific interventions.

1.10 Accordingly, the following questions were examined:

- (1) **How have disasters and the closure of schools affected the wellbeing and mental health of children and young people, and have any risk or protective factors been identified, in relation to (a) COVID-19 research, and (b) international disasters research?**

- (2) **With previous international disasters, what therapeutic interventions were used to improve the mental health and wellbeing of children and young people, and were they successful or not?**

The literature review begins by looking at the contextual background of the review questions, then to the methods used. The review findings are then presented following the research questions. Finally, the report ends with conclusions, limitations, and recommendations.

## 2. Methodology

- 2.1 This literature review was conducted as an REA, and accordingly aimed to provide a rapid synthesis of available evidence to support emerging policy needs. As such this literature review is not exhaustive and does not follow a full systematic review process.
- 2.2 The Welsh Government Library Service conducted literature searches and sourced the literature. The literature search used broad search terms to understand the breath of relevant research about children and young people's post-disaster mental health and wellbeing, and possible therapeutic interventions. Key search terms included: *disaster, schools, mental health, interventions, and children/young people*. Lists of the full search terms and the databases used can be found in Appendix A. It was agreed that the search would include journal articles, government articles and grey literature published in the last 20 years to ensure results were contemporary. Only articles published in English were included, and the search focused on articles in high income countries for more applicability with the UK.
- 2.3 The Library Service literature searches were carried out between 27<sup>th</sup> April and 24<sup>th</sup> June 2020, and produced 287 results, which mainly comprised journal articles and government research reports. Two screening processes were undertaken. First, an initial abstract screening process for relevance was conducted. Articles that did not directly address children and young people's post-disaster mental health or wellbeing and interventions were excluded. The included articles were then separated into groups according to whether they addressed question one or question two of this REA. These articles then went through a secondary screening process. See Figure 1. (below) for a PRISMA flow diagram explaining this process.
- 2.4 In the secondary screening process, the full text of articles were screened according to the following inclusion criteria:
- Study focus: articles directly addressing our two research questions (either children and young people's post-disaster mental health and wellbeing or post-disaster interventions to support their mental health and wellbeing) were

retained. Only articles presenting some form of post-disaster mental health data were retained.

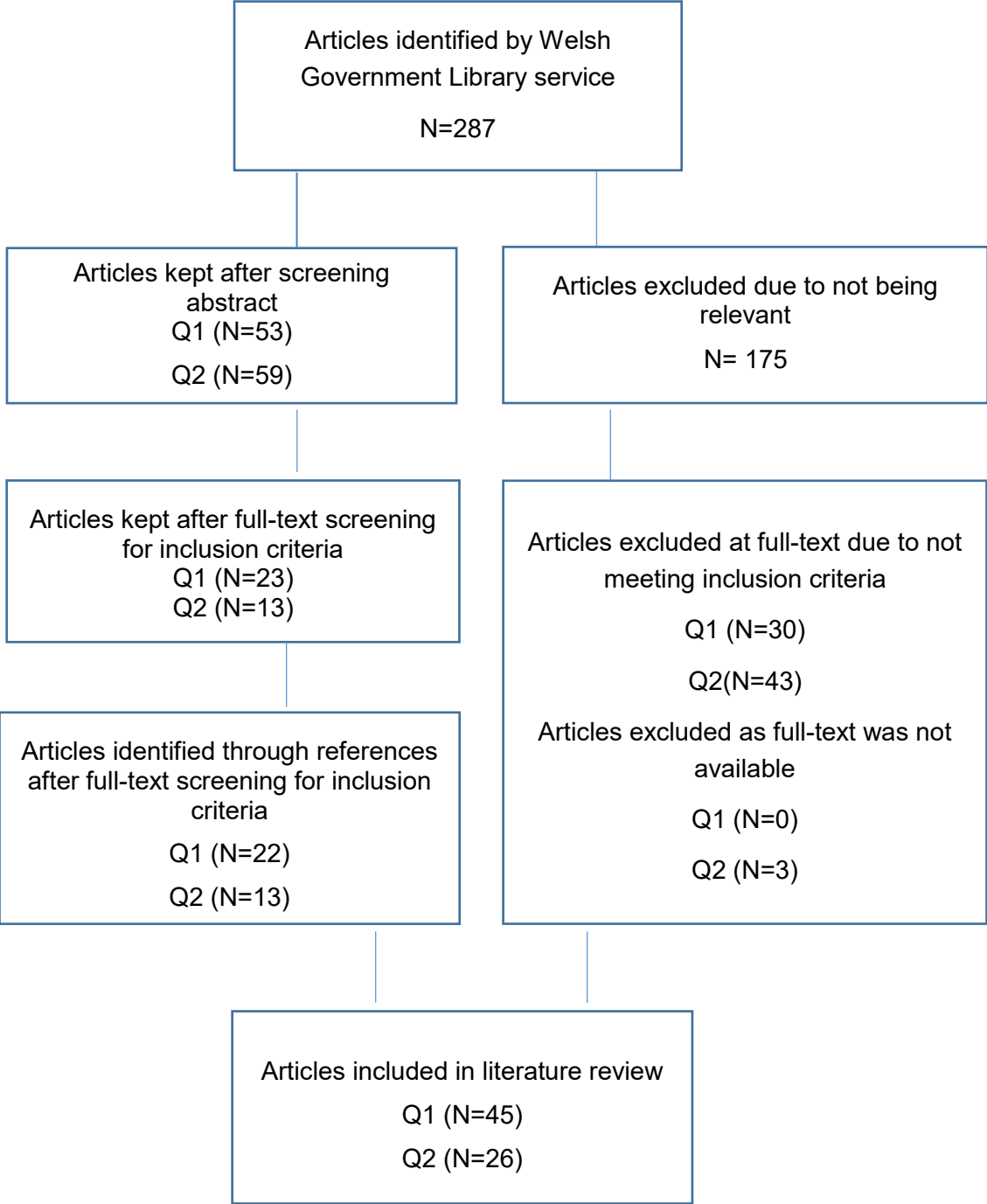
- Age: articles that included school aged children and young people (3 to 18 years) were retained.
- Accessibility: only articles accessible in their full text format were retained.

2.5 The inclusion and exclusion criteria did not involve a strict quality assessment of the methodologies used in the literature. This was primarily due to time constraints, but also due to the disaster context of the literature. In the context of previous international disasters, it is not often possible to have pre as well as post-disaster mental health data for children or a feasible control group. Regarding interventions, randomised control trials are less frequently used due to the sensitive nature of post-disaster interventions and the need for children to receive support (Chemtob, Nakashima, & Carlson, 2002). As a result, studies providing quantitative, qualitative, and anecdotal reports of children's pre and post disaster mental health were included. The limitations of different types of research and evidence are discussed in the conclusion section of this REA.

2.6 After both stages of the screening process, 71 articles were retained, and selected for inclusion in the literature review.

2.7 This REA review was also peer reviewed by Prof. Simon Murphy and Prof. Stephan Collishaw, who both reviewed an early draft. Their comments and recommendations were used to improve and finalise this REA.

Figure 1 PRISMA flow diagram (Moher, Liberati, & Tetzlaff; 2009) depicting the literature search and screening process for this report.





### **3. Findings**

Each question will be addressed in turn:

(1) How have disasters and the closure of schools affected the wellbeing and mental health of children and young people, and have any risk or protective factors been identified, in relation to (a) COVID-19 research, and (b) international disasters research?

(2) With previous international disasters, what therapeutic interventions were used to improve the mental health and wellbeing of children and young people, and were they successful or not?

#### **3.1 1(a) COVID-19 research**

##### *International research overview*

3.1.1 The worldwide COVID-19 pandemic has prompted many discussions of the expected impacts of the crisis on the wellbeing and mental health of children and young people. For example, UNICEF has highlighted the importance of prioritising “children’s emotional needs” and “ensur[ing] they have space to express their opinions and that they are encouraged to do so” (UNICEF, 2020). Similarly a report by the OECD stated “child wellbeing, both emotional and physical, is a key concern post-crisis” (OECD, 2020b) and Lee (2020) described the importance of monitoring the long term mental health of children and young people during and after the COVID-19 pandemic. The role of schools in supporting the mental health and wellbeing of their pupils has also been discussed. For example, Holmes et al., (2020) discussed the research priorities for COVID-19, and the expected rise in mental health difficulties. The authors stated that it is important to reduce the impact of school closures on children and young people as “school is often the first place children and adolescents seek help”. Wang et al., (2020) drew attention to the different issues that could negatively impact children’s mental health long-term, including not only COVID-19 specific worries of infection and loss, but also day to day feelings of a lack of information, feeling isolated at home and missing other people.

3.1.2 Recent research studies have investigated the emerging mental health difficulties of children and young people experiencing the COVID-19 pandemic. The first recorded cases of COVID-19 were in the Wuhan province of China. Accordingly, there is an early study that has examined the impact of COVID-19 and school closure on children's mental health in Wuhan. Xie et al., (2020) investigated the depressive and anxiety symptoms of primary school aged children in the Hubei province of China.<sup>3</sup> All children aged seven to 12 years at two primary schools in Hubei were invited to complete an online survey (between February 28 and 5th March 2020) about their mental health. There were 2330 responses, of whom 845 were from Wuhan and 1485 from Huangshi, and these pupils had been restricted to their homes for a mean of 33.7 days (SD=2.1). Results revealed that 22.6 per cent of pupils reported having depressive symptoms.<sup>4</sup> Levels of optimism about the COVID-19 epidemic were found to relate to results; pupils that were not optimistic had significantly higher symptoms of depression than those who felt quite optimistic. Levels of anxiety were lower than depression, with 18.9 per cent of children scoring for symptoms of anxiety.<sup>5</sup> These findings provide some early evidence that the COVID-19 pandemic and associated school closures and isolation have negatively affected the mental health of children.

3.1.3 Zhou et al., (2020) explored the mental health problems of adolescents in China (including the Hubei province) during the COVID-19 pandemic. In March 2020 (8th-15th) a cross-section of 8140 high school pupils in China (aged 12-18 years) were invited to complete an online survey, and 8079 pupils completed the survey. Results revealed that the prevalence of mild to severe anxiety and depressive symptoms was 37.4 per cent and 43.7 per cent, respectively. Most pupils with anxiety or depression had mild symptoms (27 per cent mild anxiety, 26.4 per cent mild depression), with 3% of pupils having severe anxiety, and 2.7% of pupils having severe depressive

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<sup>3</sup> Depressive symptoms were measured using the standardised valid screening tool the Children's Depression Inventory, short form (CDI-S). In the CDI-S, 10 symptoms are included, using a scale of 0-3 for severity. Xie et al., (2020) do not state the threshold cut-offs they used for depressive symptoms.

<sup>4</sup> This is higher than usually found in primary schools in China; a recent meta-analysis including 42,374 children found the prevalence rate of depressive symptoms was 17.2% (Xu et al., 2020). Most studies included in the meta-analysis used the CDI, the same measure used by Xie et al., (2020).

<sup>5</sup> This represents a higher level of anxiety than a recent study that found prevalence levels of 11.9% in urban children, though using a different anxiety measure (Liu et al., 2018). Xie et al., (2020) used a standardised valid screening measure of anxiety, but do not report the cut-offs used.

symptoms. The study also explored risk and protective factors for greater mental health difficulties, and found that female gender, and living in the Hubei province (where the first COVID-19 cases were) were risk factors. The study also found that the level of anxiety and depression reported increased with age, with difficulties rising with each school year. Knowledge and awareness of COVID-19 prevention and control measures, as well as projections of the COVID-19 trend, were protective factors that reduced the level of anxiety and depressive symptoms. However, as the authors note, depressive and anxiety symptoms are affected by sociocultural contexts, and this must be taken into account. Nevertheless, the study does suggest that there was an increase in anxiety and depressive symptoms<sup>6</sup> in adolescents during the COVID-19 pandemic when adolescents were experiencing periods of isolation and restrictions on their daily lives.

- 3.1.4 Similarly, several international studies have recently been published that can provide further information about the effect of isolation or quarantine and school closure on children's mental health during the COVID-19 pandemic. A study by Orgilés et al., (2020) used a survey to explore the impact of quarantine on the behaviour and mental health of children and adolescents in Italy and Spain. The survey was distributed online through social media, so cannot be regarded as nationally representative of the views of parents in Italy and Spain. However, the parents in both countries were similar regarding demographic data, with some differences found, including the level of parental education (higher in Spain) and maternal employment (higher in Italy). The survey was completed by parents (N=1,143) of children aged three to 18 years old (Mean age= 9.08 years, SD= 4.22) residing in Italy or Spain.
- 3.1.5 Results revealed 85.7 per cent of parents identified changes in their child's mental health and behaviour during quarantine, with the most frequent reported including greater difficulty concentrating (76.6 per cent), more boredom (52 per cent), and irritability (39 per cent), more restlessness (38.8 per cent), more nervousness (38 per cent) as well as more feelings of loneliness (31.3 per cent), worrying (30.1 per cent),

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<sup>6</sup> Zhou et al., (2020) cited a meta-analysis that found prevalence levels of depression in children and adolescents in China was 15.4% (Liu et al., 2016), and studies finding varying levels of anxiety among Chinese high school pupils of 13.7% to 24.5% (Hu et al., 2007; Wan et al., 2005).

uneasiness (30.4 per cent) and more anger (25.9 per cent). Parents also reported COVID specific worries, with 23.1 per cent reporting their children were worried about getting infected with COVID-19, and 22 per cent were more worried when a family member left the house. Parents' perceptions of COVID-19 also appeared to effect children's behaviour, as parents' views of the seriousness of the COVID-19 pandemic were associated with 15 of the 31 children behaviour items surveyed.

- 3.1.6 Overall the study also found that Spanish children appeared to be more affected by quarantine than Italian children. Compared to Italian children, Spanish children had significantly more behavioural problems (e.g. irritability, anger, frustration), were more anxious and slept less. The parents of Spanish children also reported higher levels of anxiety and worry when a family member left the house. The authors suggest these differences could be because Spanish children experienced greater quarantine restrictions, and weren't allowed to exercise outside their homes when Italian children were allowed to do this in third week of quarantine. Spanish children are also less likely than Italian children to have gardens, and the authors hypothesise that this lack of outdoor space exacerbated behaviour problems. The study suggests that the COVID-19 pandemic has had an adverse effect on the mental health and wellbeing of children that have experienced quarantine or isolation through home confinement.
- 3.1.7 Pisano, Galimi and Cerniglia (2020) investigated the behaviours and emotions of children aged four to 10 years old after experiencing a month of COVID-19 isolation at home in Italy. The study involved parents (N= 5,989) completing an online questionnaire (from 21st-24th March 2020) about their children. The study was advertised on social media, and therefore cannot be seen as nationally representative, due to the self-selecting nature of the sample. Results revealed that most children (53.5 per cent) showed increased intolerance to rules, irritability and excessive demands. Other behavioural problems were reported, including sleep problems (20 per cent) and continuous mood swings (21.2 per cent). Parents also reported that some children (26.5 per cent) that had slept in their own bed before the pandemic, were asking to sleep in their parents' bed. Some children (43.3 per cent) were reported as being more bored of the activities they had done before the pandemic, such as studying, playing and gaming. However, the study also explored adaptive behaviours such as calmness and balance, and results showed that most

children (92.6 per cent) were able to adapt to the COVID-19 restrictions, even though 51.2 per cent of these children also demonstrated greater irritability. Other adaptive behaviours explored showed that some children appeared calmer than before the pandemic (31.4 per cent), and others seemed wiser and more thoughtful (49.6 per cent).

- 3.1.8 Rauschenberg et al., (2020) explored the impact of social isolation on older adolescents and young people (aged 16 to 25 years) during the COVID-19 pandemic in Germany. The study recruited a representative sample of young people (N=666) from the German population<sup>7</sup> to take part in an online survey during a time when lockdown measures were in use (7<sup>th</sup> May- 16<sup>th</sup> May 2020). Social isolation was measured using a standardised loneliness scale (Revised UCLA Loneliness Scale), psychological distress was measured using a standardised screening measure (Kessler-10) and COVID-19 related cognitive preoccupation, worries and anxiety were measured using a questionnaire. Results revealed that young people who reported greater COVID-19 related worries and anxiety were more likely to experience psychological distress. In addition, young people reporting greater levels of social isolation were more likely to experience psychological distress during the pandemic. For example, young people who stated that they were 'often' or 'very often' socially isolated were 22 and 42 times more likely to experience psychological distress, respectively, compared to young people who stated that they were 'never' socially isolated.
- 3.1.9 Romero et al., (2020) explored the positive and negative effects of COVID-19 isolation through home confinement on children in Spain. Parents reported on their own and their children's thoughts, feelings and behaviour (N=1,049 children, Age range= three to 12 years, Mean= 7.26, SD=2.39) in April after families had spent approximately 31 days confined at home. Participants completed a survey, and were recruited from online advertisements, which meant that the sample was self-selecting, and therefore not representative of the population. In the survey, children's negative outcomes were investigated using a standardised questionnaire, the

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<sup>7</sup> The sample were randomly collected using the Norstatpanel by Norstat Deutschland GmbH, which the authors' state "offers representative online panels in 18 European countries". Participants were invited by email to take part (Rauschenberg et al.,2020).

Strengths and Difficulties Questionnaire (SDQ), that identifies conduct problems, emotional problems, and hyperactivity. Positive outcomes were assessed using a new measure that aimed to find out about routine, prosocial behaviour, social reflection (new socially orientated attitudes, such as thinking people should work together to solve problems) and social bonding (willingness to keep in contact with others). When reporting on their child's negative and positive outcomes, parents also rated each outcome according to how different it was compared to their behaviour before the pandemic. Results revealed that the majority of parents believed their children's negative outcomes (conduct problems, emotional problems, and hyperactivity) had not altered during isolation, as between 56.6 per cent to 63.5 per cent of parents rated no change for each of the three negative outcomes. However, there was a large proportion of parents who believed they had increased, with 39.5 per cent reporting an increase in hyperactivity, 29.4 per cent stating conduct problems had increased, and 27.4 per cent stating emotional problems had increased. An increase of positive outcomes was also reported, with 49.1 per cent stating their child's prosocial behaviour had increased, and 61.1 per cent reporting an increase in social reflection. When exploring the results across age groups, the age group 10-12 years showed the greatest increase in positive outcomes compared to younger children, with 69.9 per cent reported as increasing in social reflection.

3.1.10 In addition, parent reports of their own behaviour were found to be associated with child outcomes, when gender, children's age, family socio-economic status and COVID-19 stressors (proximity to COVID-19 related deaths) were controlled for. COVID-19 related parental distress (stress around meeting caregiving demands) was found to be associated with children's negative outcomes, whereas positive parenting practices specific to COVID-19 (e.g. reassuring children during the pandemic) were associated with positive outcomes for their children, such as greater social bonding and social reflection. Consequently, the study suggests that COVID-19 isolation has altered children's behaviour both negatively and positively, and the indirect influence of parents' behaviour on their children's behaviour during the pandemic should not be overlooked.

3.1.11 Similarly, Spinelli et al., (2020) explored COVID-19 isolation experiences in Italy through the inter-relationship between parents and their children. Parents (N=854)

with children aged two to 14 years (Mean age= 7.14, SD= 3.38) completed surveys on their experiences and wellbeing after the first month of isolation, as well as reporting on their children's emotional and behavioural problems using the SDQ. The survey was advertised on social media, and consequently cannot be viewed as nationally representative of the population. Results revealed that mean scores for emotional symptoms, hyperactivity and conduct problems (as measured by the SDQ) were in the abnormal range, suggesting these children had emotional and behaviour difficulties.<sup>8</sup> Further analysis revealed that parental wellbeing mediated the effect of isolation on the behavioural and emotional problems experienced by children. Parents that reported having greater difficulties during isolation (e.g. finding it difficult to find time to themselves or to complete household tasks) were found to have greater levels of individual stress and dyadic stress (stressful parent-child relationship), and their children were more likely to have greater emotional and behavioural difficulties. The study also explored risk of infection more specifically, and found that infection risks, such as living in a zone with greater COVID-19 cases and knowing more people that contracted the virus itself, did not seem to affect the wellbeing of children or their parents. As a result it seems that it is the direct effect of isolation, and the indirect effect of parental stress and wellbeing due to isolation, that have the most influence on the wellbeing and mental health of children.

3.1.12 One study was able to disentangle the impact of school closure from the impact of quarantine and isolation on children's mental health. Ishimoto et al., (2020) explored the specific impact of school closure on the mental health of children in three primary schools in Japan (N=280), as these children had not experienced isolation or quarantine because there were no cases of COVID-19 in their local areas so no restrictions were imposed other than school closures. Parents completed questionnaires about their children's anxiety, their behaviour and emotions, as well as their daily activities after approximately one month of school closures (mean 27.4

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<sup>8</sup> The SDQ has cut-offs scores, and if children reach or exceed these, they are considered to have possible to probable difficulties in those areas (Cheng et al., 2017; Goodman, 1997). Spinelli et al., (2020) reported mean scores of 7.09 (SD 1.84) for emotional problems (the cut-off is a score of 5), 8.90 (SD 2.31) for hyperactivity (the cut-off is a score of 7) and 7.23 (SD 1.56) for conduct problems (the cut-off is a score of 4). Also, the mean scores found by Spinelli et al., (2020) are higher than the population norms for Italy, with seven to 10 year olds found to have a mean of 2 for emotional problems, 2.4 to 3.4 for hyperactivity, and 1.2 to 1.6 for conduct (Tobia et al., 2017).

days). Results revealed, as expected, that children were shown to be still spending time going out, and with extended family and friends as well as time spent on school work. The three anxiety items measured were: (1) anxiety about daily life after school resumed; (2) anxiety about catching the disease; and (3) anxiety about falling behind in school work. When exploring these items, all three were associated with greater emotional problems.

3.1.13 However, when comparing emotional problems during the pandemic with pre-pandemic questionnaire data that schools had collected for other reasons in December 2019, no differences were found. Emotional problems were not found to have increased during the COVID-19 pandemic. This finding does suggest it might not be school closures themselves that adversely affect children's mental health, but instead the impact of quarantine and isolation. However, it must be noted that this study was unusual in that no cases of the virus were reported in the local area, and as the authors note, school is often a source of stress for children and young people in Japan, and is one of the most frequent reasons for suicide (Ministry of Health, Labour and Welfare; 2019). Consequently, not attending school could have a positive affect for children and young people's mental health in Japan.

#### *UK research*

3.1.14 The majority of articles about COVID-19 and the mental health and wellbeing of children and young people are descriptive, and discuss expectations based on current knowledge of the demographics of different populations, or on experiences of other pandemics such as SARS or influenza outbreaks. For example, a report by the Children's Commissioner for England (2020) used data from government reports to look at local area profiles of child vulnerability to understand the children they expected to be most adversely affected, including looked after children, young carers and children with additional needs, as well as children experiencing poverty. A report by Senedd Research (2020b) discussed how Wales could be presented as at higher risk of negative outcomes following the COVID-19 pandemic, and one reason identified for this was that Wales has the highest levels of child poverty in the UK (Bevan Foundation, 2020).



3.1.15 Some early research has been conducted in the form of online surveys and questionnaires to understand the mental health and wellbeing of children and young people in the current crisis. Childline data (NSPCC, n.d.a), for example, revealed that COVID-19 was affecting children's wellbeing, as they reported that 913 over the phone counselling sessions were conducted as a result of children's fears about COVID-19 during the week that schools closed in the UK. During the first seven weeks of lockdown (23<sup>rd</sup> March to 10<sup>th</sup> May), Childline gave a total of 16,644 counselling sessions (over half of total counselling sessions) to children across the UK who were concerned about their mental health and wellbeing. This demonstrates a large increase in calls compared to 2018-19. A comparison with this data revealed that Childline delivered 43 per cent of last year's total mental health counselling sessions in the first seven weeks of lockdown. Childline reported on what children's concerns were during these counselling sessions (NSPCC, n.d.b; reported on 17<sup>th</sup> April), and stated that children tended to talk about increased anxiety and depression, more frequent panic attacks, having nightmares and feeling lonely or isolated. Children used the word "trapped" to describe how they felt during isolation, and children also spoke about the difficulties of home schooling, including struggling with their work and not being able to access the usual school support.

3.1.16 The Co-Space study was launched to understand the effect of COVID-19 on the lives of families in the UK with children aged between four to 16 years, and has involved parents filling in monthly online questionnaires about their experiences. The study is a self-selected sample in that is advertised online for anyone to take part, and therefore cannot be considered to be nationally representative of the UK. In the initial report (Co-Space, 2020a), based on 1500 parent respondents (surveyed 30<sup>th</sup> March- 4<sup>th</sup> April), 63 per cent of parents reported that they were either "not" meeting their children's needs, or were meeting them only a "bit". Their child's wellbeing was also stated as parents' second main stressor after work, with over 50 per cent of parents reporting this.

3.1.17 The second Co-Space report (03.05.20) based on 5,028 parents revealed that children's wellbeing and mental health seemed to continue to be negatively affected by COVID-19, finding that worries about COVID-19 were common amongst children and young people. Most parents (80.6 per cent) stated their child thought COVID-19

was “a very serious issue”, 47.7 per cent of parents reported they believed their child was worried that “friends and family will catch COVID-19”, 28.2 per cent thought their child was worried “they will catch COVID-19” themselves, and 14.6 per cent said their child was “afraid to leave the house”.

3.1.18 In contrast to the UK data presented above, Bignardi et al., (2020) was able to compare the results of a parent-reported child mental health survey with data already collected before the COVID-19 pandemic. The study had collected data from children attending participating primary schools in England. Before the pandemic, children completed standardised questionnaires about their mental health, which included the SDQ Emotional Problems Subscale, and the short-form version of the Revised Children's Anxiety and Depression Scale (RCADS). Teachers and parents also completed the SDQ, with some parents also completing the RCADS. During lockdown, parents completed all three questionnaires from 4<sup>th</sup> April to 6<sup>th</sup> June. Altogether, pre and during COVID-19 data were available for 168 children, average age was 8.7 years (pre-data) and 10.1 years (post-data). Results revealed no difference in SDQ emotional problems or RCADS anxiety during the pandemic. However, RCADS depression scores were found to be significantly higher during the pandemic than before, even when age, gender and socio-economic status were controlled for. Although this was a relatively small sample, this study was able to utilise pre- COVID-19 data to demonstrate a marked increase in depression amongst primary school children during the pandemic.

3.1.19 In addition, there is evidence to suggest that home schooling is affecting children and young people’s wellbeing in the UK. The Office of National Statistics (ONS) carried out a survey to collect data about the impact of the pandemic on everyday life in Britain. The survey findings are robust, as the results were weighted to provide a nationally representative sample of people in Britain, yet the sample size is small. Data collected from 3<sup>rd</sup> April to 10<sup>th</sup> May 2020 revealed that 43 per cent of parents (N=680) who were home schooling children (aged five to 18 years) thought that home schooling was negatively affecting the wellbeing of their children. In addition, a small sample of young people (aged 16-18 years, surveyed 7<sup>th</sup> May to 7<sup>th</sup> June 2020) answered home schooling questions in the survey, which revealed that 53.1 per cent (N=70) were struggling to continue their education at home. The most frequent

reasons young people (N=40) gave for this were lack of motivation (83.8 per cent) and lack of guidance and support (62.7 per cent). Most young people either strongly agreed (15 per cent) or somewhat agreed (49.2 per cent) with the statement “I am concerned that my future life plans will be negatively affected” by this time spent learning from home (N=80).

## **Factors affecting the severity of children and young people’s mental health and wellbeing**

### *Poverty*<sup>9</sup>

3.1.20 Research and statistics have also highlighted inequality during the COVID-19 lockdown in the UK, particularly in regard to the socio-economic background of families. A report by the Children’s Commissioner for England (2020) highlighted that they expected children living in poverty or in poorer housing conditions to be at risk of falling behind their peers in terms of education. Indeed, an online survey carried out by the Institute of Fiscal studies (2020) of over 4,000 parents of children aged four to 15 years in England (surveyed 29th April to 12th May) revealed that children from higher socio-economic backgrounds were spending 30 per cent more time every day on educational activities than children from the poorest fifth of households. In addition, variations were found between school catchment areas, with 64 per cent of secondary school pupils from high-income households receiving active help from their schools (such as online classes) compared to 47 per cent from the lowest income households. Secondary school children attending private school received the most educational support, with 84 per cent receiving active help from their schools. Lower income households were also found to have less resources to support home learning, with the majority of primary school pupils (58 per cent) from the lowest income households not having access to their own study space.

3.1.21 The Sutton Trust published a report looking at the impact of school shutdown based on data from a survey of 1,508 UK adults with children aged two to 18 years, (surveyed from 1st – 3rd April 2020) and survey data from approximately 7,000

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<sup>9</sup> Socioeconomic inequalities (including poverty, household income, parental education level and parental occupation) are generally (before COVID-19) associated with mental health problems in children and young people (Reiss et al., 2013)

teachers (collected at the end of March). Findings again revealed socio-economic inequalities, with pupils from private schools shown to be twice as likely to take part in online lessons each day compared to pupils from publically funded schools.

3.1.22 The second data release from the NFER school workforce survey (2020b) of 3,054 school staff surveyed (from 7th-17th May) revealed that pupils were less engaged in schools that had the highest number of pupils receiving free school meals. These schools reported that 30 per cent of pupils had returned their last piece assignment, compared to 49 per cent of pupils in the least deprived schools. Limited IT access was found to be more of a problem for learners from the most deprived schools, and parental engagement was also lower (41 per cent) compared to the least deprived schools (62 per cent).

3.1.23 It seems that children from lower socio-economic backgrounds are also less likely to attend school when it reopens. The first data release from the survey of the school workforce in England by NFER and Nuffield Foundation (2020a) found that senior school leaders with the highest amount of pupils receiving free school meals predicted on average that 50 per cent of their pupils' families would choose to keep them at home, compared to an average of 42 per cent estimated by senior school leaders with the lowest amount of pupils with free school meals. NFER stated their belief that this meant "pupils in most need of access to education will be least likely to receive it" and that "clear messages will be needed from the government" to prevent these estimations from becoming reality. Similarly, data from the fourth Co-Space report (2020d) revealed that parents from lower income households are less comfortable about their children returning to school than those from higher incomes households.

3.1.24 Research has also suggested that when schools re-open, more disadvantaged children will find it more difficult to catch-up with non-disadvantaged peers than they did before COVID-19. A rapid evidence assessment was conducted by the Education Endowment Foundation (2020) to review all the existing literature about the attainment gaps between disadvantaged pupils and their non-disadvantaged peers. Results revealed that their attainment gap in England is estimated to increase on average by 36 per cent, compared to pre-COVID-19 data. However, the study did

not take into account the effect of online learning, and was based on studies primarily looking at school closures over the summer holidays, which represents a shorter time period than school closures during COVID-19 in England. This suggests that the estimates of the study could be over or under estimates, yet the implication is that the attainment gap between disadvantaged and non-disadvantaged children will increase.

### **Pre-existing mental health and neuro-developmental disorders**

3.1.25 Reports by the Children’s Commissioner for England (2020) have discussed worries about vulnerable children (those with a statement of special educational need or with a social worker) experiencing more difficulties during the COVID-19 pandemic. Welsh Government statistics have shown that few children designated as vulnerable attended school settings in Wales even though they were invited to attend school (Welsh Government, 2020). From April to 26th June averages of school attendance of vulnerable children fluctuated from a low of 1.4 per cent (week of 6th April) to a high of 6.3 per cent (week of 8th June) of the total number of vulnerable children.<sup>10</sup> Similarly in England (Department of Education, 2020), the latest figures show that only 27 per cent of children designated as vulnerable were attending school (data from 9th July). This raises questions about whether the educational needs of vulnerable children not attending school, could be fully met at home. Survey data suggests that supporting home learning of children with additional needs can be a problem for parents. For example, the second Co-Space report (2020b; 03.05.20) that looked at the views of 871 parents of children with additional needs, found that 54.2 per cent of parents were concerned about their child’s education and 34.4 per cent stated they believed they would benefit from “support around managing their child(ren’s) educational demands”. In addition the second data release from the NFER workforce survey (2020b) revealed that teachers reported pupils with special educational needs and disabilities were 58 per cent less likely to be engaged in remote learning than their classmates.

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<sup>10</sup> Data that look at the number of vulnerable children attending school in Wales (after schools re-opened on 29<sup>th</sup> June) are not currently available.

- 3.1.26 As well as difficulties surrounding educational needs during the pandemic, a study by Asbury et al., (2020) identified increased mental health difficulties experienced by children with additional needs. The study involved parents in the UK (N=241) with a child that had additional needs aged between five to 18 years. Parents were asked open ended questions about their child's mental health, and an increase in children's anxiety was the most frequent mental health difficulty reported. Low mood, acting out and behaviour change in children was also frequently mentioned by parents.
- 3.1.27 Other studies have used surveys to explore the effect of COVID-19 on children's mental health. Young Minds (2020), for example, have had 2,111 responses to their questionnaire about mental health, which has been completed by young people (aged 13 to 25 years, Mean age= 16-17 years) who have stated that they have a history of pre-existing mental illness. It is important to note that the questionnaire was advertised on social media, and therefore is a self-selected sample that cannot be considered to be nationally representative of the UK. The questionnaire data demonstrated that 83 per cent of respondents believed the COVID-19 pandemic had made their mental health difficulties worse, and 26 per cent said they were unable to access mental health support (Young Minds, 2020). When asked to report their three biggest concerns in the next few months, the most frequent were isolation or loneliness, not having enough food or supplies, and managing their mental health or their mental health deteriorating.
- 3.1.28 In addition the second Co-Space report (2020b), of 5,028 parents of school aged children in the UK, found that 85.5 per cent of parents of children with additional needs stated they no longer had access to previous support, including support for mental health, social services or education support. In the third Co-Space report (2020c) of 611 parents, those parents with children with additional needs reported that their children were worried about returning to school because of "things being uncertain or different, changes to routine, the enjoyable parts of school not happening, and being away from home".

## Age

- 3.1.29 There is some evidence that age could be a risk factor for greater COVID-19 mental health difficulties. Xie et al., (2020) found that age had a significant effect on the depressive, but not the anxiety, symptoms experienced by primary school aged children in Wuhan during COVID-19 lockdown and isolation. Results showed that older children had greater depressive symptoms, with 30.7 per cent of children in Grade 6 (age 10-11 years) reporting depressive symptoms, compared to 13.7 per cent in Grade 2 (age 7-8 years).<sup>11</sup> In addition. Zhou et al., (2020) found that age had an effect on the level of depression and anxiety experienced by secondary school children in China during lockdown, with each year group having increasing difficulties.
- 3.1.30 In the third Co-Space report (2020c), parents of secondary school aged children in the UK reported their children as having greater worries about returning to school during the COVID-19 crisis than primary school aged children. For example, 38.4 per cent of parents of secondary school aged children stated their children were worried about catching COVID-19 compared to 17.1 per cent of primary school aged children. The only concern listed in the survey that parents of primary school aged children reported their children were more worried about (than secondary school aged children) was being away from home when they attended school. The survey data also showed that overall secondary school aged children were more worried about attending school, with only 28.5 per cent of parents of secondary school aged children stating their children were “very” comfortable to attend school, compared to 49.8 per cent of primary school aged children’s parents.
- 3.1.31 The second NFER workforce data release (2020b) of 3,054 school staff also suggested that secondary school aged children were less engaged in learning online than primary school aged children. The survey found that secondary school leaders reported that 63 per cent of their pupils were involved in the school’s learning activities compared to 71 per cent in primary schools. This indicates that older children could be more likely to fall behind in their school work.

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<sup>11</sup> However, in general, depression becomes more common in older childhood and adolescence (Maughan, Collishaw and Stringaris, 2013), so more evidence is needed that compares pre and post COVID-19 mental health in younger and older children.

## **Potential protective factors**

- 3.1.32 Reports have highlighted different factors that are thought to improve children's mental health and wellbeing during the COVID-19 pandemic. A report by IPPR discussed 3 key priorities to support children and young people: (1) Financial security through paid leave for parents to focus on childcare or work flexibly; (2) Digital access through ensuring children have internet access and appropriate devices and (3) Access to outdoor space (McNeil et al., 2020). The importance of digital access has been discussed in other reports, with the OECD, for example, stressing the importance of digital resources in supporting learning. OECD research has found that the most common way of accessing the internet for 15 year olds from OECD countries was through smartphones (OECD, 2019), which are not always suitable devices to use to access online learning materials.
- 3.1.33 Additionally, in the Young minds (2020) questionnaire, young people reported that being socially connected to friends was frequently the most helpful way of maintaining positive mental health, and exercise was also highly rated. Whereas the least helpful activity was reported as reading or watching the news.
- 3.1.34 International studies have investigated the importance of the relationship between parents' wellbeing, and different parenting practices, on children's wellbeing and mental health during the pandemic. For example, Romero et al., (2020) found that specific parenting practices, such as reassuring children during the pandemic, were associated with more positive behaviour in children, such as social bonding and reflection.
- 3.1.35 Exposure to COVID-19 related news has been perceived as negatively impacting children's mental health, and accordingly reducing this exposure is believed to help children feel more secure and reassured (Goldschmidt, 2020). Similarly, UK government guidance also advocates parents "limit[ing] exposure to media and talk[ing] more about what [children] have seen and heard" to support children's mental health. The WHO have also recommended having direct and clear conversations with children about COVID-19 to reduce worries (WHO, 2020). In fact, Asbury et al., (2020) can provide some support for this, as in their study of parents of children with additional needs, results suggested that children that had better



understanding of the COVID-19 situation had better outcomes than those who had a limited understanding. Having a limited understanding was associated with distress. Similarly, Romero et al., (2020) found that parenting practices that involved ensuring children were well informed on the pandemic, were associated with their children having less emotional difficulties (e.g. being often unhappy, depressed or tearful) during isolation at home.

### **3.2 How have disasters and the closure of educational institutions affected the wellbeing and mental health of children and young people**

#### **(b) In relation to international disasters?**

3.2.1 While the previous section focused on the latest research about the current COVID-19 pandemic, this section explores research into the impact of international disasters on the wellbeing and mental health of children and young people. As discussed in the introduction, exploring previous disaster research is necessary both because COVID-19 research is so new and subsequently sparse, and because understanding the impacts of international disasters on children and young people's mental health can demonstrate the anticipated effects of COVID-19 on children, as well as potential risk and protective factors. In this section, first studies that have specifically focused on the post-disaster mental health difficulties of either Primary School aged children (ages three to 11 years) or Secondary School aged children (ages 11 to 18 years), are the subject of focus. Then follows an investigation of research that has explored the post-disaster mental health difficulties of children and young people in general, with a specific discussion of the importance of age.

#### **Primary schools**

3.2.2 Research into the impact of disasters that have caused mass disruption have found that primary school aged children exposed to these disasters can suffer from mental health difficulties as a result. Feo et al., (2014) found that 22.9 per cent of children aged six to 10 years that had been exposed to an earthquake in Italy had high levels of PTSS at 12-17 months after the earthquake. Liberty et al., (2016) explored the behaviour problems and PTSS of a group of young children four years before

(N=297) and another group of young children four years after (N=222) an earthquake in Christchurch, New Zealand. The children lived in nearby neighbourhoods and both the pre and post groups had just started school when the data were collected.

Results revealed that the mean behavioural scores and PTSS of the post-earthquake group were significantly higher than the pre group.

3.2.3 A study by La Greca et al., (2013) went further in monitoring the trajectory of PTSS experienced by primary school children (N=568) that had been exposed to Hurricane Andrew in the USA, at three, seven and 10 months post hurricane. Three trajectories of PTSS emerged; resilient (37 per cent), recovering (43 per cent), and chronic distress (20%).<sup>12</sup> Children in the chronic stress group were more likely to report having high levels of anxiety and difficulties with emotion regulation.

3.2.4 In addition, research has found that even indirect exposure to a disaster, such as learning of it through the media, can result in subsequent mental health difficulties. For example, Saylor et al., (2003) explored the PTSD<sup>13</sup> and anxiety symptoms of elementary school children (N=170, Range= five to 11 years, Mean=7.72 years) that had been indirectly exposed to the 9/11 terrorist attacks in the USA through television, the internet and printed media. Parents reported on their child's PTSD symptoms one month following 9/11, and a subset of children provided self-report data to demonstrate a sufficient level of agreement between child and parent reports. Results revealed that the total amount of exposure to negative media images correlated with parent-reported child PTSD and anxiety symptoms. Out of the different forms of media, children that had used the internet to find out about 9/11 were those that had the most PTSD symptoms. The study also found that positive media messages about 9/11, such as coverage of individuals presented as heroes, and positive messages from celebrities or the President, did not ameliorate children's

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<sup>12</sup> Resilient: low levels of PTSS with a small but significant decline across time.

Recovering: elevated PTSS at 3-months, which declined sharply by 10 months.

Chronic: clinically significant PTSS which remained above or near the clinical range (La Greca et al., 2013).

<sup>13</sup> Post-traumatic Stress Disorder (PTSD): to meet diagnostic criteria for PTSD, a person has to have been directly or indirectly exposed to an event that involved death, threatened death or threatened serious injury or sexual violation. At least one of a number of intrusive symptoms are experienced (e.g. intrusive memories or dreams), avoidance of reminders linked to the event, at least two negative changes in thought or mood (e.g. feeling detached from others or loss of interest in activities previously enjoyed), and at least two changes in arousal (e.g. difficulty concentrating or problems sleeping). The symptoms need to be present for more than a month and interfere with daily life (American Psychiatric Association, 2013).

PTSD symptoms, and were in fact associated with greater PTSD symptoms. Consequently, it seems that the amount of indirect media exposure to the 9/11 terrorist attacks, whether positive or negative, was related to increased PTSD symptoms in primary school aged children.

### **3.2.5 Secondary school**

- 3.2.6 As with the studies focused on primary school aged children, studies exploring the impact of disasters causing mass disruption on secondary school aged children have also found post-disaster mental health difficulties. For example, Lau, Zhang et al., (2010) investigated the psychological distress experienced by 3,324 secondary school aged adolescents from Sichuan one month after the 2008 Sichuan Earthquake. Adolescents self-reported on their mental health and experiences. Results revealed that 22.3 per cent of adolescents reached criteria for PTSD, 22.6 per cent were likely to have depression and 10.6 per cent reported suicidal ideation.
- 3.2.7 Post-disaster mental health difficulties are also revealed to have a long lasting effect on children's education. Weems et al., (2009) found that traumatic stress symptoms experienced by children effected by Hurricane Katrina in the USA can have a long term effect on academic achievement. The study explored children's (N=191, Range 9-14 years) mental health symptoms, and academic achievement (assessed through end of school year tests) at 24 and 30 months following Hurricane Katrina. Results revealed that traumatic stress symptoms as a result of Hurricane Katrina were indirectly related to academic achievement through their relationship with test anxiety. This suggests that post disaster stress can lead to increased anxiety that impedes academic ability.
- 3.2.8 In addition, Lai et al, (2018) found that post-traumatic stress symptoms (PTSS) can negatively impact children and young people's recovery after a disaster through undermining the effect of social support from parents and peers. The study explored the self-reported experiences of children (N=426, Mean=11.62 years, SD=1.56, range 8-16 years) effected by Hurricane Katrina over four time points after the Hurricane (from 3-7 months post hurricane to 25-27 months). Results revealed that the PTSS experienced by children and young people predicted decreased parent and peer social support up to two years after the Hurricane. This suggested that PTSS

could lead to children and young people either avoiding social support from parents or peers, not being supported, or perceiving there is less support. This demonstrates the long lasting effect of PTSS on post-disaster recovery.

### **3.2.9 Children and young people across age groups**

3.2.10 Many studies have found that children and young people that experience disasters suffer from mental health difficulties as a result. Lieber (2017) compared the mental health of children that had experienced an earthquake, tsunami and subsequent radiation in Japan, with control children that had not. Results revealed that mental health difficulties were seven per cent in controls, and between 14 to 20 per cent in children that had experienced the disaster. Abramson and Garfield (2006) investigated the mental health of children (N=665) whose families had received economic support from the government following Hurricane Katrina<sup>14</sup>, and found that 44 per cent of children had new mental health difficulties.

3.2.11 Post-disaster PTSD and PTSS emerge as common mental health difficulties that have affected children and young people. Indeed, studies have suggested that children are more at risk of PTSD than adults after a disaster (Fletcher et al., 1996; Duggal et al, 2002 cited in Mercuri and Angelique, 2004). McDermott et al., (2005) found high levels of PTSD were experienced by children (N=222, Mean age= 12.5 years, SD= 2.48, range= 8 to 18 years) that had been exposed to a wildfire disaster in Australia six months prior to the study. Results found that 49.7 per cent of children reached criteria for a diagnosis of PTSD, and for 9.0 per cent of these children, their PTSD was within the severe or very severe range. Tang et al., (2017), for example, found prevalence rates for post-earthquake PTSD of between 2.5 per cent to 60 per cent in their meta-analysis of 15 studies. Similarly, in their review of 22 studies exploring children's mental health after natural and technological disasters, Mercuri and Angelique (2004) found that 50 per cent of studies reported significant levels of PTSD. Xu et al., (2018) found that the majority of adolescents surveyed (57.5 per cent of 247) reported having PTSD symptoms three months after experiencing a tornado.

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<sup>14</sup> Participants were greatly affected by the hurricane, and the majority were displaced and in emergency government housing.

- 3.2.12 Studies have also found that elevated levels of depression after a disaster are frequent. Tang et al., (2014) found that prevalence rates for children affected by depression after natural disasters were between 7.5 per cent to 44.8 per cent in their meta-analysis of 11 studies. Similarly, Xu et al., (2018) investigated the mental health difficulties experienced by adolescents (N= 247) after a tornado in China, and found that prevalence rates for depression were 58.7 per cent.
- 3.2.13 Research has also shown that post-disaster depression, PTSD and other mental health difficulties are highly comorbid conditions (Fan et al., 2011). For example, Pan et al., (2015) investigated the mental health of children in China (n=373, mean age= 13.8 years, SD=0.9) three years after they had been exposed to the worst effects of the Wenchuan earthquake. Results revealed that out of the children reaching criteria for a post-disaster mental health difficulty, 16 per cent met criteria for anxiety, PTSD and depression. Of those children that met criteria for depression, 28.7 per cent met criteria for anxiety, and 23.2 per cent met criteria for PTSD. Similarly, Lai et al., (2013) examined levels of comorbidity among children's (n=277, age range= 7-11 years, mean age= 8.7, SD=1.0) symptoms of PTSD and depression after a hurricane in the USA. Results showed that at eight months after the hurricane, 13 per cent of children were found to reach criteria for PTSD alone, 11 per cent for depression alone, and 10 per cent for both depression and PTSD. Children who had comorbid symptoms of PTSD and depression were also found to have more severe symptoms, greater recovery stressors (defined as ongoing loss and disruption) and poorer rates of recovery.
- 3.2.14 In addition, research has shown that children and young people do not have to be directly exposed to a disaster; indirect exposure alone can lead to an increased risk of mental health difficulties. Pfefferbaum et al., (2019) found in their meta-analysis that indirect exposure to both manmade and natural disasters can result in PTSD and PTSS in children and young people, including those that live in close proximity or at a distance from the disaster. A meta-analysis by Houston et al., (2009) also demonstrated that even indirect exposure to a disaster through the media can cause mental health difficulties. Houston et al., (2009) found there was a relationship between media exposure to terrorist incidents and PTSS and PTSD, and that this relationship was more pronounced for children and young people than for adults.

Similarly, Yeung et al., (2018) conducted a meta-analysis of predictors of PTSD amongst primary and secondary school pupils (N=3577) in China that were approximately 444 miles from the epicentre of an earthquake, and found that exposure to distressing media images was associated with probable PTSD even six months after the earthquake.

### **3.2.15 Factors affecting the severity of children and young people's post-disaster mental health difficulties**

3.2.16 The majority of studies exploring the impact of disasters on children's mental health, have also investigated the factors that increase and reduce the likelihood of post-disaster PTSD, PTSS and depressive symptoms in children. There is consensus across studies that severity of exposure to the disaster is a risk factor for greater mental health difficulties (Tang et al., 2014; Tang et al., 2017; Xu et al., 2018; Mercuri and Angelique, 2004; Saylor et al., 2003; Gordon-Hollingsworth et al., 2015; Zhang et al., 2017; La Greca et al., 2013). Studies have found that specific exposure-related experiences have led to greater mental health difficulties, including; bereavement, (Furr et al., 2010; Gordon-Hollinsworth et al.,2015 ) feeling high levels of threat (Furr et al., 2010; Mercuri and Angelique, 2004; Gordon-Hollingsworth et al., 2015; La Greca et al., 2013) and witnessing injury of others (Lai et al., 2014; Gordon-Hollingsworth et al., 2015), as well as parents' post-disaster mental health difficulties (Lieber et al., 2017) and the child's pre-disaster mental health (Lau et al., 2010; Gordon-Hollinsworth et al., 2015). Some studies have also found that female gender is associated with greater depression or anxiety symptoms following disasters (Tang et al., 2014; La Greca et al., 2013) and also greater PTSD symptoms (Gordon-Hollinsworth et al.,2015). Findings regarding the relationship between age and post-disaster mental health have been mixed, and are discussed in more detail in section 3.2.21 below.

3.2.17 Most studies that have investigated the effect of disasters on children's mental health have focused on natural disasters, including tornados, earthquakes and hurricanes, or man-made disasters such as acts of terrorism. However, some studies have examined pandemic disasters and the prevalence rates and risk factors for mental health difficulties. For example, Sprang and Silman (2013) explored the experiences

of parents and their children (N=398 parents) in the USA, Mexico and Canada that had experienced a health-related pandemic (91 per cent experienced H1N1 influenza, 8 per cent SARS and 1 per cent other influenza). Results showed that 30 per cent of children that had been isolated or in quarantine met criteria for PTSD. Further analysis revealed that children who had experienced quarantine or isolation were significantly more likely to meet criteria for PTSD than children who did not. This finding suggests that in pandemic disasters, quarantine or isolation periods represent a risk factor for greater PTSD in children and young people.

3.2.18 Rather than exploring the impact of specific periods of isolation or quarantine after a disaster, McDermott et al., (2015) investigated the relationship between a newly defined social connectedness factor and PTSD in children after a cyclone disaster. Social connectedness was defined by the authors as comprising social interactions with others and feeling a sense of belonging to a social group or community, and low social connectedness could therefore be perceived as a proxy for the lack of social interaction experienced by children during periods of isolation or lockdown. The study involved children aged between eight to 13 years (N=804, Mean age= 10.22 years, SD= 1.24) from six schools in New Zealand that had experienced the cyclone disaster three months previously. Most parents (81 per cent) reported that their children had no known mental health difficulties in the year before the disaster. Child connectedness was measured using four questions adapted from standardised questionnaires; two about social participation (having friends and going to clubs or societies) and two about cohesion (sense of trust and belonging). Analysis involved exploring the relationship between different factors that could determine PTSD risk (such as age, gender, amount of exposure to the cyclone, pre-existing anxiety or depression symptoms and social connectedness) and PTSD symptomology.

3.2.19 Results of the McDermott et al., (2015) study revealed that social connectedness was the most important factor in explaining the level of PTSD symptoms experienced by children after the cyclone disaster. The study also found that children with low scores for social connectedness were 3.96 times more likely to experience severe to very severe PTSD than children with high social connectedness when the other factors (exposure, age and gender) were controlled for. This study suggests that children and young people with low social connectedness or imposed low social

connectedness due to health related isolation or quarantine, can be at greater risk of developing PTSD after a disaster.

3.2.20 Loades et al., (2020) carried out a review of the literature (63 studies) exploring the impact of loneliness and isolation on the mental health of children and young people. Sprang and Silman (2013) was the only study they identified that explored isolation in the context of a health related pandemic disaster. However, their review can provide an insight into loneliness/isolation-specific mental health difficulties experienced by children and young people with no previous known mental health conditions. Overall these studies demonstrated that social isolation and loneliness increase the risk of depression, and potentially anxiety, amongst children and young people. The review also revealed that the length of time loneliness lasted presented a greater risk to mental health than the extent of loneliness felt. This suggests that health related imposed periods of quarantine or isolation should aim to be as short as possible to reduce mental health difficulties, and any measures to reduce loneliness during confinement periods would be beneficial.

#### *Age as a mitigating factor*

3.2.21 Studies exploring the impact of disasters on the wellbeing and mental health of children and young people have produced mixed findings regarding the importance of age as a risk factor for greater mental health difficulties. Some studies have suggested that younger children are more likely to experience higher rates of PTSS or PTSD following a disaster (e.g. Lieber, 2017). For example, McDermott et al., (2005) found that primary school children had greater PTSD symptoms than secondary school children following a wildfire disaster in Australia.

3.2.22 Whereas other studies have suggested that instead older age is associated with greater mental health difficulties following a disaster. For example, Lau et al., (2010) found that children aged 15-18 years were more likely to have greater PTSD symptoms following an earthquake in China than children aged 11-14 years. Other studies found no relationship between age and PTSD. For example, Zhang et al., (2016) found no difference in PTSD scores after an earthquake in China amongst 1,623 children when looking at the symptoms reported for children aged under 14 years compared to those aged 14 years and above.



- 3.2.23 However, Tang et al., (2017) conducted a meta-analysis of 15 studies that explored the risk factors associated with PTSD in children after earthquakes. Results showed that older age was one of the significant risk factors for PTSD. Similarly, Gordon-Hollingsworth et al., (2015) found that older age in children (12 years and above) was a risk factor for PTSD in their meta-analysis of 70 studies of natural disasters in China, that comprised of a total of 88,045 participants.
- 3.2.24 In another meta-analysis of 11 studies, Tang et al., (2014) investigated the risk factors for depression in children following natural disasters and found that age was not a risk factor. Lai et al., (2014) also explored this relationship, and found no clear association between age and depressive symptoms in their review of 72 articles looking at post-disaster depression in children.
- 3.2.25 Taken together, these findings provide some evidence that older children are more likely to have greater PTSD symptoms, but not greater depressive symptoms, following a disaster. However, it is important to be aware of the factors that could moderate the relationship between older age and PTSD. It could be that older children are often more exposed to disasters, such as through a greater awareness of them (Gordon-Hollingsworth et al., 2015; Groom and Soureti, 2004). This view can be supported by meta-analyses carried out by Tang et al., (2014) and Tang et al., (2017), finding that greater exposure to the disaster such as experiencing injury, fear or bereavement, were significant risk factors for PTSD and depression in children as a result of natural disasters.
- 3.2.26 In addition, Saylor et al., (2003), in their study of PTSD in children that had been indirectly exposed to 9/11 through the media, found that older children (ages 8-11 years) had been exposed to a greater number of media images than younger children (under 8 years), and had greater PTSD symptoms. Overall, it does seem that older children are more vulnerable to PTSD following a disaster, but that this relationship must be explored carefully in terms of potential moderating factors such as exposure level.

### **3.3 (2) With previous international disasters, what therapeutic interventions were used to improve the mental health and wellbeing of children and young people, and were they successful or not?**

3.3.1 Research has explored the effectiveness of different interventions and strategies in promoting the recovery of children and young people after having experienced disasters. Mastern and Narayan (2012) reviewed previous research into childhood experience of mass disaster and trauma through the perspective of systems theory (Gottlieb 2007, Thelen & Smith 1998; Bronfenbrenner & Morris 2006, cited in Mastern and Narayan, 2012). This perspective views mass trauma experiences as a dynamic process in which the child as an individual is affected by their interaction with multiple systems including their relationships with others (e.g. peers, parents, teachers) and the wider systems of the natural and built environment (e.g. education, economy). The child's ability to cope/adapt is influenced by a number of characteristics, including protective factors or vulnerabilities (e.g. due to epigenetics, cognitive processes, level of social support etc.), as well as other risks, stressors and exposure dose. As a result, the authors advocate interventions that consider these different factors to promote recovery and resilience following a disaster. The next section explores interventions and protective factors.

#### **Cognitive skills and coping strategies**

3.3.2 Research has shown that cognitive skills and executive function abilities can reduce mental health difficulties and promote recovery after disasters. Terranova et al., (2009) examined the prevalence and trajectory of PTSS symptoms in children (N=152, Mean=11.5 years, SD=0.59) that had been affected by Hurricane Katrina in the USA. Results revealed that well developed cognitive abilities that regulate control, including attention (ability to concentrate) and inhibition (planning and ability to control own behaviour), reduced children's PTSD symptoms at both one and a half months and eight months post disaster.

3.3.3 In addition, La Greca (2013) explored the PTSS recovery trajectories of primary school aged children (N=568, Mean=9.33 years, SD=0.98) affected by Hurricane Andrew. Three trajectories of post-disaster PTSS were identified: resilient (37%), recovering (43%), and chronic distress (20%). Analysis showed that one of the

factors that separate children in the resilient group from the recovering and chronic distress groups was coping strategies that demonstrated better emotion regulation (i.e. coping strategies that involved less blame and anger).

- 3.3.4 These findings suggest that interventions that involve developing children's cognitive skills could be effective at improving children's mental health post disaster. This can be supported by a review by Bernstein and Pfefferbaum (2018) finding that posttraumatic growth (positive psychological change as a result of adversity) in children following disasters is related to coping strategies. For example, Cryder et al., (2006) investigated the posttraumatic growth of children aged six to 15 years after experiencing Hurricane Floyd. Posttraumatic growth was measured using a standard inventory that asked children questions about new possibilities, relationships with others, personal strength and appreciation of life. Results showed that greater coping abilities (measured by children reporting their abilities to deal with problems in the past, present and future) were associated with more posttraumatic growth after Hurricane Floyd.
- 3.3.5 A qualitative study by Mooney et al., (2017) can further support the importance of coping skills. The study carried out semi-structured interviews with children (N=38, aged 5, 9 and 15 years) from five schools in Canterbury, New Zealand that had experienced an earthquake 20 months before the study. Thematic analysis demonstrated that children who were coping effectively (according to parent and teacher reports) used three key strategies: (1) emotional regulation- dealing with emotions, not getting 'worked-up'; (2) positive reframing- positively interpreting their situation and accepting it as normal ; and (3) problem solving- working out new priorities and knowing what can be changed. The study found that use of these coping strategies was associated with less distress.

## **Schools**

- 3.3.6 The role of schools in assisting children and young people to recover post-disaster has been seen as vital in previous research of international disasters; schools can provide a safe space for children to recover and access support (Mastern et al., 2012; Masten & Osofsky 2010; Betancourt & Khan 2008; Ager et al. 2010; Kilmer,

Gil-Rivas, & MacDonald, 2010). For example, studies have described the importance of schools for children's mental health. Wang et al., (2020) discussed the importance of schools in a pandemic disaster: "Schools can actively promote a health-conscious schedule" and "integrate such health promotion materials into the school curriculum", as well as "offering an opportunity for students to interact with teachers and obtain psychological counselling".

- 3.3.7 Lau et al., (2010), in their study of the mental health difficulties of 3,324 children after an earthquake in China, found that being able to attend school was a protective factor. They found that children who were absent from school when their schools were open were more likely to state they wanted post-disaster counselling. Zhang et al., (2016) surveyed 1623 children at intervals of between two weeks and six months after an earthquake in China, and found that one factor that reduced PTSD symptoms was the ability to concentrate on academic studies in school when school re-started.
- 3.3.8 Kanter and Abramson (2014) review a whole school based intervention programme after a tornado in the USA. The review included interviews with school staff and health professionals six months after the tornado, during which time 500 pupils were living in temporary accommodation. The interview data highlighted interventions that were believed to be successful, which involved rapidly re-opening schools and then training teachers about different techniques they could use to engage with students, as well as hiring external counsellors to provide small group counselling sessions for the next academic year. The study provides some examples of how schools can support their students after a disaster and suggests that schools can provide an accessible and safe setting for children and young people to access early post-disaster wellbeing and mental health support.
- 3.3.9 Similarly, The Alberta Resilient Community Research Project (Lalani & Drolet, 2019) interviewed community influencers and social service providers about the different post-flood recovery and support programmes that existed for local people, which revealed the success of the school-based Hearts and Minds programme. This programme ran in eight local schools, and comprised of wellness coaches who worked alongside school staff and flood response family therapists. The programme

focused on developing children's emotional competencies, specifically: self-awareness, self-management, social awareness, responsible decision making, and relationship skills. Diverse activities were employed to develop these skills including meditation, one-to-one mentoring and music therapy. The aim was to develop children's resilience and reduce mental health difficulties. The Hearts and Minds programme also ensured children's basic needs were being met, and made referrals to mental health services if needed. Interviewees thought the programme was widely successful, with 20 per cent of children and young people accessing tailored mental health support through the scheme.

3.3.10 Salloum et al., (2008) evaluated a school based counselling intervention for children in three primary schools in the USA that had experienced hurricane Katrina. Altogether, 56 children that had moderate to severe PTSD symptoms took part in the intervention (age range= 7 to 12 years), and were randomly assigned to one of two treatment groups; one group received individual counselling and the other received group counselling. There were no controls. The intervention involved specialised 10 week counselling sessions that used Cognitive Behavioural Therapy (CBT) and narrative therapy techniques to address both grief and trauma. The session topics included restorative retelling, resilience and safety and reconnecting and an extra session just for parents to assist them in their child's recovery. A number of assessments were administered to children pre-intervention, post-intervention and at three weeks follow-up. These included measures of disaster exposure, PTSS, depression, distress and traumatic grief. Results revealed that there was a significant reduction in all of these outcome measures at post-intervention and follow-up compared to pre-intervention. In addition, while 53 per cent of participants met diagnostic criteria for PTSD at pre-intervention, this fell to only 13 per cent at post-intervention, and 4 per cent at follow-up. Whether children were assigned to the individual or group counselling intervention made no difference to their post-intervention mental health outcomes. Children also reported they found the counselling very helpful, scoring it on average 9.31 out of 10 (SD= 1.69; where 10 is the most helpful).

3.3.11 Chemtob et al., (2002) explored another whole school counselling intervention across 10 primary schools in Hawaii, which utilised a randomised control design to maximise the robustness of the research. The study involved screening children in all the schools for trauma-related symptoms as a result of a hurricane two years earlier. Children with the highest levels of trauma (N=248) were then randomly assigned to one of three treatment groups, in which children on the waiting list for treatment were used as controls. Treatment took the form of carefully structured counselling sessions on safety, loss, coping strategies, and the future. Counselling sessions were tailored for children, and involved play, expressive arts and talking. Children were either randomly assigned to receive four individual or group based counselling sessions. Before and after the counselling, children completed self-report questionnaires about trauma and were interviewed to assess PTSS. Results revealed that there was a significant reduction in child-reported trauma related symptoms between pre and post treatment. However, how the treatment was delivered (i.e. individual or group based counselling) had no effect on results. In addition, the PTSS symptoms of treated children and controls were compared pre and post intervention, and treated children were found to have fewer trauma symptoms than controls. Consequently, the study suggests that whole school counselling interventions after disasters are successful in improving children's mental health even two years after a disaster. The study additionally demonstrates that it is possible to carry out a successful randomised control intervention in a school setting.

3.3.12 School based counselling interventions have also been teacher-led. Wolmer et al., (2005) conducted a three year follow-up study of a teacher-led intervention for children who had experienced an earthquake in Turkey six months prior to the intervention. The intervention had involved teachers running eight two-hour sessions that involved cognitive behavioural techniques and psychoeducational modules.<sup>15</sup> Results of children's mental health assessments six weeks after the intervention revealed that the number of children who met criteria for probable PTSD fell from 32

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<sup>15</sup> The intervention involved different topics associated with recovery, from a CBT and psychoeducational (learning about emotions and mental health difficulties): "restructuring traumatic experiences, dealing with intrusive thoughts, establishing a safe place, learning about the earthquake and preparing for future earthquakes, mourning the ruined city, controlling body sensations, confronting posttraumatic dreams, understanding reactions in the family, coping with loss, guilt and death, dealing with anger, extracting life lessons, and planning for the future". (Wolmer et al., 2003)

per cent (pre-intervention) to 17%. At three year follow-up, the researchers assessed 33 per cent (N=67) of the original study participants and new control participants (N=220; children that not taken part in the intervention but had the same level of disaster exposure) for mental health difficulties and adaptive functioning (academic performance, social behaviour and general conduct) using child, parent and teacher questionnaires. Results revealed that the intervention participants overall demonstrated an overall decrease in PTSD symptoms compared to the six week post-test. However, no difference was found between their PTSD symptoms and those of controls. When exploring adaptive functioning, a difference was found, with intervention participants being rated significantly highly for adaptive functioning, compared to controls, by their teachers. Consequently, the study suggests that while potentially having no long term effect on PTSD symptoms, teacher led psychoeducational interventions can have a long lasting positive effect on adaptive functioning such as academic performance and conduct, which in turn has a positive effect on education.

3.3.13 The Journey of Hope programme is another intervention which has been shown to have a positive effect on children's social development. The intervention was developed in 2007 to help children cope after disasters through focusing on developing positive coping strategies based on emotional understanding. The intervention involves eight one hour sessions at school delivered by external trainers, of which seven deal with understanding emotions (e.g. fear, anxiety), and the final session focuses on how to cope in the future with these emotions. All sessions are group based and use different activities to engage the children, such as peer discussion, mindfulness and artistic expression. Powell and Thompson (2014) evaluated the use of the Journey of Hope intervention for children in three primary schools that had experienced a tornado in Alabama, USA, in 2011. Children were aged between eight to 11 years, and on preference of their teachers (non-random), they were allocated to receive the intervention (N=48) or were waiting list controls (N=54). Children completed self-report questionnaires of their coping and social skills and teachers completed a standardised questionnaire measure of children's behaviour and emotions. Results revealed that children in the intervention group were found to have acquired significantly higher coping skills and prosocial skills from

pre-test to post-test, compared to waiting list controls. No differences were found between emotional distress and behaviour problems between time points for both groups.

- 3.3.14 Similarly, Powell and Bui (2016) evaluated the use of Journey of Hope in older children that had experienced a tornado in Oklahoma in USA in the year before. School counsellors at three secondary schools invited children aged 11 to 15 years who had had difficulties coping to take part, and children that accepted were assigned by teachers to the intervention group (N=61) or were waiting list controls (N=49). The same questionnaires were measured as those used in Powell and Thompson (2014). Results revealed no difference in emotional distress and behaviour problems for children in the intervention group at post-test. However, the intervention group reported a significant increase in positive coping skills and prosocial behaviours between pre-test to post-test, and this was also a significant increase compared to controls. In addition, a subset of children (N=16) in the intervention group were interviewed about their experiences, and content analysis suggested that children felt the intervention had improved their relationships with friends and assisted them in managing their emotions.
- 3.3.15 A number of studies have looked specifically at trauma-informed schools, these are schools that have programmes in place that make them ready to deal with childhood trauma that includes trauma due to disasters. These programmes are often found in schools in Australia, USA and New Zealand that are frequently affected by natural disasters such as earthquakes, hurricanes, tornados and bush fires. Multiple tiered programmes are advocated that include more than one intervention aimed at different groups of students as well as involving parents and school staff (Berger, 2019).
- 3.3.16 Le Brocque et al., (2017) discussed the effectiveness of a trauma-informed school programme of resources and related training called “Childhood Trauma Reactions: A Guide for Educators from Preschool to Year 12”, which has been created for use in schools in Australia and New Zealand. The guide provides detailed guidance from psychologists to assist school staff in identifying the children that are most at risk of experiencing difficulties following a disaster, and how children of different age groups may respond to disasters and the different behaviours that could indicate they are



struggling (Kenardy et al., 2011). The guide also explains how teachers can support children after traumatic events, through: (1) monitoring their symptoms over time; (2) maintaining routines, (3) talking about the traumatic event, (4) setting clear and firm limits/expectations of behaviour, (5) using a 'buddy' or support system, (6) providing safe relaxation periods, (7) providing choices to help children regain a sense of control, (8) anticipate difficult times and plan ahead, (9) prepare children and adolescents for situations which may trigger reactions, (10) focus on strengths and positives, and (11) help students to build a support system (Kenardy et al., 2011). Le Brocque et al., (2017) found that the guide and the associated training seem to have been effective in equipping school staff to better support their pupils post-disasters, as 92.5 per cent of 364 school staff attending training sessions stated they would be able to use the resources in a post-disaster situation, and 84.5 per cent stated the training helped them to gain a greater understanding of child trauma reactions.

3.3.17 Garfin et al., (2014) explored the effect of another multi-tiered school based mental health programme (though not trauma specific) on the PTSS experienced by primary school children after an earthquake in Chile. Children across nine schools in Chile aged seven to eight years old participated in a school led intervention (either a general intervention or a mental health specific intervention) between three to six months after experiencing the earthquake. These interventions were government funded and often used in these schools since 1995; schools decided whether pupils had the general or specific intervention. Garfin et al., (2014) randomly selected 117 children that had received either intervention to be interviewed about their experiences, and 25.6 per cent of the children met criteria for probable PTSD. Results revealed that children that had attended the mental health specific intervention were found to have significantly lower earthquake related worry and lower (but not significantly lower) PTSS.

3.3.18 Another way that schools can assist in children's post-disaster recovery and resilience is through providing an environment in which children can share and tell stories about their disaster experiences. For example, Bateman and Danby (2013) investigated the effectiveness of telling stories about disaster experiences in a preschool in New Zealand that had been affected by the Christchurch earthquakes nine months previously. Teacher-child story telling conversations were recorded, and

transcripts revealed that children were able to open up to their teachers about their feelings, and responded to their teacher's acknowledgement and support. This small scale study suggested that schools can help young children to reflect on their traumatic experiences and be beneficial to recovery.

3.3.19 Mutch (2018) describes another story telling project in three New Zealand schools that involved each school telling their earthquake stories, with the pupils at the centre. Different mediums were used to express these stories; one school created an illustrated book, another built mosaic panels, and the third made a documentary film. All children involved found their story telling experiences to be positive and helpful, further suggesting the diverse ways in which schools can help children to recover after disasters.

### **Community programmes**

3.3.20 Research has found that a sense of community solidarity can help children and young people to recover after a disaster. Hawdon and Ryan (2012), for example, found that adolescents that engaged in community events felt a sense of social solidarity with community members, and these adolescents were found to have higher levels of wellbeing nine months after a school shooting disaster.

3.3.21 Decosimo et al., (2019) evaluated a UNICEF funded community based psychosocial expressive arts programme designed to improve children's mental health in post-Ebola Liberia. The programme involved children (N=870, ages 3-18 years) taking part in expressive arts activities two to three times a week, such as engaging in story-telling activities. Results from child and parent interviews pre and post intervention revealed that children's mental health difficulties were significantly lower after the intervention programme had taken place.

### **Social support**

3.3.22 Numerous studies have found that social support from peers, teachers or family members can be a protective factor, and result in children having less mental health difficulties after a disaster than those without this support (Lau et al., 2010; Ye Zhang, 2016; Gordon-Hollingsworth et al., 2015). For example, Wickrama and Kaspar,

(2007) studied the relationship between mental health and PTSD in adolescents (N=325) in Sri Lanka after a tsunami. Results showed that positive mother-child relationships moderated the effect of tsunami exposure (e.g. losing homes or possessions) on adolescents' mental health through reducing PTSD and depressive symptoms.

3.3.23 Similarly, Garfin et al., (2014) explored the mental health difficulties experienced by primary school aged children (aged 7 to 8 years) that had received a school based intervention (either general or mental health specific) following exposure to an earthquake in Chile. While the results overall demonstrated the success of the mental health specific intervention in reducing earthquake-related worry and PTSD symptoms, the child-reported relationship with caregivers was found to have a greater impact on children's mental health. Results revealed that the unavailability of caregivers to discuss the earthquake, as well as caregiver-child conflict were associated with PTSD symptomology, even when type of intervention, level of exposure to the earthquake, gender, and pre-earthquake child emotional and behavioural problems, were controlled for.

3.3.24 In addition, Gil-Rivas and Kilmer (2013) explored children's adjustment (N=68, Mean=8.5 years, SD=1.1) at one and two years after Hurricane Katrina using child and parent reports through interviews. Results revealed that child-reported parent warmth and acceptance (e.g. child believing their parent really understands them) was associated with less child depressive symptoms. Whereas child-reported parent distress and unavailability to talk were associated with greater child PTSS.

3.3.25 Further support for the importance of parents can be found in a review of the role of parents in children's post-disaster mental health by Cobham, McDermott, Haslam and Saunders (2016). The review found that overall parent related factors were found to relate to increased risk or protection for their children's post-disaster mental health difficulties. Protective factors identified by the review included good communication. Studies found that the length and nature of conversations that parents had with their children after disasters emerged as important. While disaster related conversations were helpful for children compared to no conversations, very long in-depth conversations were shown to be related to greater PTSS. Greater

feelings of family connectedness have also been linked to less PTSS and depression in children post-disaster. Consequently, the authors advocate the use of parent and family related therapies to support children's post-disaster mental health, such as Disaster Recovery Triple P, which involves a two hour presentation that informs parents about the risk and protective factors associated with different parenting styles.

3.3.26 Social support from peers has also been found to be important for children's post-disaster recovery. Banks and Weems (2014) investigated the effect of family and peer support on children's distress following a hurricane using data from two studies. In study one, children aged seven to 18 years (N=1906) that had experienced hurricane Katrina took part in the study. Social support was measured using a standardised child reported questionnaire that required children to rate how true statements were on a five point scale, such as "do you think your friends care about you?" Results revealed that higher peer social support was associated with lower PTSD symptoms, anxiety and depression when hurricane exposure, negative life events, age and gender were controlled. Higher family support was associated with depression alone. Study two used the same questionnaires, and involved a six month follow-up of children (N=192, age range 8 to 15 years) exposed to hurricane Katrina, at 24 months after the hurricane and then at 30 months. This time longitudinal data revealed that peer support was associated with PTSD, anxiety and depression at time one and follow-up, while family support was not associated with any symptoms. As a result, the study suggests that peer and family support and both important to children's post-disaster recovery, but that peer support may have a stronger positive effect.

3.3.27 The importance of the medium through which this social interaction takes place has also been tested. Hawdon and Ryan (2012) investigated the value of face to face compared to online social support from friends and family in improving the wellbeing of adolescents following a school shooting in the USA. The study collected data from 543 school pupils in the week following the shootings and compared this to the pupils' wellbeing five months after the shootings. Results revealed that face-to-face interaction with family members significantly improved wellbeing. Pupils that had the most face-to-face interaction with family members had the highest wellbeing scores.

This differed from virtual communication. Although communicating with family and friends virtually was also related to wellbeing, further analysis revealed that greater virtual communication reduced wellbeing, as these pupils were less likely to communicate face to face. Virtual communication was only effective alongside face-to-face communication. These results suggest that face-to-face communication after a disaster is more beneficial to the recovery of children and young people.

## Therapies

3.3.28 Some studies have explored the use of specific therapies to assist in the post-disaster recovery of children and adolescents. Newman et al., (2014) carried out a meta-analysis of post-disaster interventions aimed at reducing children's mental health difficulties. The interventions identified were: different variants of Cognitive Behavioural Therapy (CBT), Eye Movement Desensitization and Reprocessing (EMDR)<sup>16</sup>, Exposure, Relaxation, Psychological First Aid, and Psychological Debriefing/Crisis Intervention. The meta-analysis included 24 studies of children and adolescents aged five to 16 years (N=2630, Mean age= 10.9 years, SD= 2.3) that had experienced natural or man-made disasters on average one year before beginning an intervention. Results revealed that children that had received an intervention were significantly more likely to have a reduction in PTSD symptoms than children that had not (control children), with a medium effect size reported. In addition, a large effect size was found for the differences in pre versus post PTSD symptoms in children that had received an intervention, further suggesting that post-disaster psychological therapies are effective in improving the mental health of children and adolescents.

3.3.29 Newman et al., (2014) then explored factors that could moderate the effect of the interventions. First, type of intervention had an effect on the success of the intervention, as EMDR studies (though there were only two) were found to show the greatest improvement in children's PTSD symptoms. Fernandez et al., (2007) was

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<sup>16</sup> EMDR requires the patient to "focus on the traumatic memory (target), while being exposed to a bilateral sensory stimulation, thus helping and accelerating adaptive processing." (Fernandez et al.,2007)

one of the two EMDR studies included, which explored the effectiveness of EMDR as an intervention to aid the recovery of 22 children in Italy (age range= 7-11 years) that were buried in the rubble of their school after it collapsed due to an earthquake. The children received EMDR treatment over one year, with an average of 6.5 sessions each that lasted between 30 to 90 minutes. Results revealed that the treatment was very successful, with only three of the 22 children still meeting PTSD diagnostic criteria after treatment. Newman et al., (2014) also explored other moderating factors for successful interventions and found that individual therapy was found to be more successful than group therapy, as was therapy carried out by health professionals compared to teachers. Interventions in which children's parents were involved also showed better outcomes, and timely interventions (within four months of disaster exposure) were more successful. Age was also found to be a moderating factor, with children aged 10-11 years and 12-16 years more likely to show greater improvement than children aged 5-9 years.

3.3.30 Tsuji et al., (2017) reviewed research that had explored the effectiveness of interventions using CBT to support children that had PTSD as a result of a disaster. The review found that studies that had used CBT, and specifically trauma-focused CBT (TF-CBT) to treat PTSD in children seemed to be largely successful. TF-CBT includes a focus on relaxation skills, cognitive behavioural skills, coping skills, trauma narratives and enhancing safety. In fact, the authors stated "TF-CBT may be one of the best interventions for children and adolescents who have been exposed to disasters". However, the review found that most TF-CBT studies were not randomised controlled trials, so it was not possible to provide robust evidence for success. Jaycox et al., (2010) was one study reviewed that randomly allocated children (N=1095, mean age= 11.6 years) that had experienced Hurricane Katrina to receive TF-CBT or another school focused version of CBT called Cognitive Behavioural Intervention for Trauma in Schools (CBITS). At pre-test, 60 per cent met criteria for elevated PTSD symptoms. CBITS was delivered in schools through 10 group sessions and one to three individual sessions. TF-CBT was delivered in a private clinic as 12 individual sessions with parents. Results were explored at 10 month follow-up to the interventions, and revealed that children's PTSD post-test scores improved after taking part in either intervention, compared to their pre-test

scores. Greater improvement was found in the TF-CBT group, with mean PTSD scores for the group moving into the normal range, with 43 per cent of children remaining at risk of PTSD. For the CBITS group, 65 per cent of children remained at risk of PTSD.

3.3.31 Another form of therapy that has been used to assist children's post-disaster recovery is play therapy. Shen (2002) investigated the impact of short term group play therapy on children in Taiwan that had experienced an earthquake. Children were recruited from one primary school in Taiwan (N=65, mean age= 8 to 12 years) if they were identified as being at high risk of maladjustment, and were randomly assigned to a control group with no play therapy or the intervention group with play therapy. A playroom was designed for the study, and the intervention group had 10 40-minute play therapy sessions there over a month. At post-test (one day after the intervention finished) results revealed that children receiving the intervention scored significantly lower for (child reported) symptoms of anxiety, worry and suicide, and higher for life adjustment (parent reported) than children in the control group. No difference was found for depression.

## 4. Conclusions

This REA aimed to provide a structured approach to understand the impact of COVID-19 and previous international disasters on children and young people's wellbeing and mental health, in order to reveal risk and protective factors, as well as possible therapeutic interventions. As a result, two questions were addressed, which will now be explored in turn.

(1) How have disasters and the closure of schools affected the wellbeing and mental health of children and young people, and have any risk or protective factors been identified:

(a) In relation to COVID-19 research?

(b) In relation to international disasters research?

(2) With previous international disasters, what therapeutic interventions were used to improve the mental health and wellbeing of children and young people, and were they successful or not?

### 4.1 1(a) COVID-19 research

4.1.1 The international research suggests that the mental health and wellbeing of children during COVID-19 has been influenced by COVID-19 response factors such as isolation, with studies finding a proportion of children have been adversely affected and show an increase in depression, anxiety and behavioural problems such as irritability and hyperactivity. However, two studies have also explored positive outcomes (Pisano, Galimi & Cerniglia, 2020; Romero et al., 2020), with one finding that almost all children (92.7%) were reported by their parents as adapting to the COVID-19 restrictions (Pisano, Galimi & Cerniglia, 2020). Ishimoto et al., (2020) was able to separate out the effects of school closure compared to isolation on children's mental health, which suggested that it is isolation rather than school closure that is



negatively affecting children's mental health and wellbeing. However, it is likely that this finding is affected by cultural differences, and it is also the case that the effects of school closure may differ over time as school closures continue and/or when children return to school and have fallen behind educationally.

- 4.1.2 COVID-19 studies in the UK have suggested that children and young people's mental health and wellbeing have been adversely affected by COVID-19. Bignardi et al., (2020), was the only UK COVID-19 study to include pre-COVID-19 data, and found no difference in primary school aged children's anxiety or emotional problems, but found a marked increase in depression. A number of risk factors for greater mental health difficulties have emerged, including poverty, pre-existing mental health and neuro-developmental disorders and older age. Potential protective factors include less media exposure to COVID-19 and positive parenting techniques such as having calm conversations with children.

### **Limitations**

- 4.1.3 As the COVID-19 pandemic is a recent, ongoing disaster, there was limited research that explored the impact of the pandemic on the wellbeing and mental health of children and young people. The research that has been included in this REA has a number of limitations. First, the majority of studies included in this REA used online surveys that were advertised on social media or on internet platforms, this meant that the participants decided for themselves if they would like to take part, and self-selected samples like these are rarely representative of their populations. Self-selected samples are unlikely to mirror the demographic factors of the population, such as socio-economic status, age or gender. Secondly, only two studies (Bignardi et al., 2020; Ishimoto et al., 2020) were able to compare COVID-19 data with pre-COVID-19 baseline data. Although some questionnaires did ask parents to estimate what their child's behaviour was like before COVID-19, this is less reliable than having pre-COVID-19 mental health data using a standardised reliable mental health assessment measure or screening tool.
- 4.1.4 Thirdly, several studies used bespoke questionnaires to understand children's mental health or wellbeing, rather than standardised validated screening measures that can also allow data to be compared with other samples (Orgilés et al., 2020; Pisano,

Galimi & Cerniglia, 2020; Co-Space, 2020a; Co-Space, 2020b, Co-Space, 2020c). Some studies (Spinelli et al., 2020; Xie et al., 2020; Zhou et al., 2020; Romero et al., 2020) did use standardised measures that allowed for national comparisons. Standardised screening measures can additionally give an indication of whether a child's mental health difficulties, such as depression or anxiety, reached criteria for a diagnosis of a mental health disorder. Knowing the severity of children and young people's mental ill health is important to understand the extent of the impact of the pandemic.

- 4.1.5 Consequently, the COVID-19 research identified in this REA demonstrates the need for further research with pre-COVID-19 baseline data, standardised questionnaires, representative samples, and longitudinal or follow-up data. This research can then provide us with robust evidence that explores the impact of COVID-19 on the mental health and wellbeing of children and young people. There are some research studies that are aiming to provide this level of research evidence. For example, Cardiff University are investigating the social and psychological impact of the pandemic on 300 Welsh primary school children (aged 4-7 years) and their families. These children had previously been referred by their teachers to Cardiff University's Neurodevelopmental Assessment Unit for being 'at risk' of having mental health difficulties. Consequently, the study is able to utilise pre-existing mental health data in order to understand if the pandemic has had an effect on young children's mental health.
- 4.1.6 Finally, as discussed in the methodology, this REA does not represent an exhaustive list of COVID-19 research that investigates the impact of wellbeing and mental health on children and young people. There are other factors that could not be included, due to time constraints and/or lack of research, that have affected children during the COVID-19 pandemic. These include domestic abuse, migrant status, gender, and parent and child pre-existing mental health disorders or additional educational needs (Fegert et al., 2020). Further research is needed to explore the role of these factors on the mental health and wellbeing of children and young people.

## **4.2 1(b) International disasters**

- 4.2.1 Research exploring the effect of international disasters on children's mental health revealed that a substantial proportion of children are adversely affected by disasters, and have been found to have elevated symptoms of, or reach diagnostic criteria for, PTSD and depression. Studies have shown that even indirect exposure to disasters through the media can result in PTSS and PTSD.
- 4.2.2 Studies additionally demonstrated a number of risk factors for more severe mental health difficulties experienced by children after disasters. These were revealed to include greater exposure to the disaster itself, pre-existing mental health difficulties and experiencing isolation or quarantine. Indeed, a recent review (Loades et al., 2020) found that isolation increases the risk of anxiety and depression amongst children and young people, which increases alongside the amount of time spent in isolation. There is also evidence that children experiencing isolation or lacking in social connectedness after a disaster are more likely to have greater PTSS than children who are not isolated. Older age was also presented as a risk factor for greater PTSD, but not depression, following a disaster, which could be because older children are more likely to have greater exposure to a disaster and understand the impact.

### **Limitations**

- 4.2.3 This section focused on understanding the impact that previous international disasters have had on children and young people, with a particular focus on the effect of age and school closure, in accordance with policy needs as outlined in the methodology section. Potential risk factors for children having greater post-disaster mental health were outlined in this REA as they emerged from the literature reviewed. However, these risk factors do not represent an exhaustive list, and there are other factors such as gender, socio-economic status, and parent and child pre-existing mental health conditions, that have not been explored in any depth due to the rapid nature of this REA, and the need to refine the inclusion criteria to facilitate this rapidity.

4.2.4 The inclusion criteria for research used in this REA was literature that had been published in the last 20 years, in high income countries. These criteria were used to refine the literature search within the time constraints, and to help to ensure the literature used was relevant and applicable to the UK. However, this meant that high quality longitudinal research that has been undertaken to explore children's mental health and wellbeing as the result of HIV/AIDS pandemics and wars or civil conflict, were not included in this REA. It could be the case that this research could provide useful insights into the long term impact of COVID-19, as HIV/AIDS pandemics and war, like COVID-19, affect everyone and change daily life. In the planned follow-up to this REA, we will aim to explore this literature, to determine if risk and protective factors could be considered to be applicable to the COVID-19 pandemic. This follow-up review will also allow us to explore risk factors, such as gender, socio-economic status, and parent and child pre-existing mental health conditions in greater depth.

### **4.3 (2) International disaster interventions**

4.3.1 The intervention literature revealed different types of protective factors and interventions that can improve the wellbeing and mental health of children and young people. First, developed cognitive skills and positive coping strategies, such as the ability to control behaviour and understand emotions, were shown to be associated with reduced post-disaster mental health difficulties and greater post-traumatic growth. Community programmes were found to increase children's wellbeing and reduce mental health difficulties. A number of studies also found that social support from parents and peers can protect against post-disaster mental health difficulties such as depression and PTSS, even when other factors such as disaster exposure are taken into account. One study (Hawdon & Ryan, 2012) also found that face to face communication was more beneficial to children's post-disaster recovery than virtual communication.

4.3.2 Most interventions identified were whole school based interventions that involved specific programmes aimed at supporting the recovery of pupils after disasters. The interventions involved counselling, expressive arts, storytelling and CBT and

demonstrated reductions in PTSD and PTSS, as well as increasing coping skills and prosocial behaviour. Some interventions involved external providers, while others utilised existing school counsellors or teachers, with all reporting some level of success. Whether interventions were individual or group based was also shown to have no effect on results when directly compared. Consequently, it seems that schools can be perceived as appropriate environments for conducting successful post-disaster interventions.

- 4.3.3 Other interventions included specific therapies such as CBT and EMDR, which were found to significantly reduce children's post-disaster PTSD. A meta-analysis (Newman et al., 2014) also suggested that older children were more likely to show more improvement through specific therapies than younger children and that timely interventions (within four months after a disaster) reported higher levels of success.

#### Limitations

- 4.3.4 Overall it seems clear that using some form of post-disaster intervention to improve children and young people's mental health and wellbeing is better than no intervention at all. However, it is difficult to interpret the quality of each intervention as randomised control trials are not often used and pre disaster mental health data for children are rare. Some interventions instead relied on anecdotal reports from teachers or involved small scale qualitative interviews, which made it difficult to determine the extent in which children's mental health improved as a result of the intervention, or whether the findings would be applicable to other children. Nevertheless, studies that used a randomised control design or just a control group, did demonstrate evidence that interventions can improve children's mental health difficulties and increase adaptive functioning and prosocial behaviour.
- 4.3.5 In addition, the interventions described in this REA were predominantly designed to support children and young people that have experienced natural disasters, such as earthquakes, tornados and hurricanes, rather than pandemic disasters. We included all interventions identified through the library searches that directly aimed to improve post-disaster mental health in children and young people, regardless of the type of disaster. This was because we found very little evidence of interventions for

disasters that were comparable to the current COVID-19 pandemic. For example, EMDR was specifically designed to reduce PTSD symptoms such as traumatic flashbacks that have occurred as the result of short term acute events, therefore interventions like EMDR may not be applicable to pandemic disasters. The majority of interventions identified in this REA involved reducing PTSD or PTSS, and early COVID-19 research has demonstrated an increase depression and anxiety, particularly in children that have experienced isolation through home confinement (e.g. Xie et al., 2020). However, the COVID-19 pandemic is still continuing, and with a lack of COVID-19 research, in particular robust longitudinal research, it seems important to consider the different types of interventions used in international disasters, as it is difficult to predict the long term effect of COVID-19 on the mental health of children and young people.

### **Final comments**

4.3.6 Finally, the literature identified in this REA suggests that children and young people are vulnerable to the effects of disasters, and it is therefore likely that a significant proportion of children will need post-disaster mental health support following the COVID-19 pandemic. The COVID-19 research so far has suggested that though there are some positive effects of the pandemic and isolation, a proportion of children have been negatively affected, as demonstrated through greater behavioural problems, worries, and depression. The international disasters research demonstrates examples of risk factors to be aware of that appear to be similar to the new COVID-19 research studies. In both it seems that secondary school aged children are more at risk of greater mental health difficulties compared to primary school aged children, and children with additional needs or pre-existing mental health difficulties, as well as children that have had greater levels of exposure to the disaster. Some international studies revealed that exposure to the media could make children more likely to have increased PTSS, and early COVID-19 data does suggest children and young people are finding media exposure affects their wellbeing.

- 4.3.7 International disaster research also identified that isolation and quarantine are risk factors that can lead to children having greater mental health difficulties, in particular PTSD and depression, compared to those who have not experienced isolation (Loades et al., 2020; Sprang & Silman, 2013). Similarly, COVID-19 literature has also suggested that social isolation and home confinement seem to be having a greater effect on children's mental health and wellbeing than other factors such as infection risk or worries, or even school closure. For example, Orgilés et al., (2020) found that Spanish children had more behavioural problems than Italian children, which the authors thought were due to Spanish children experiencing greater quarantine restrictions. For older adolescents, Rauschenberg et al., (2020) found that those who reported experiencing greater social isolation during the pandemic were more likely to be suffering from greater psychological distress.
- 4.3.8 In terms of protective factors, early COVID-19 studies have demonstrated the importance of parents' wellbeing and parenting techniques in reducing children's negative behaviours and worries during the pandemic. Indeed, Spinelli et al., (2020) found that parenting and parents' wellbeing had a much larger effect on children's wellbeing than the local COVID-19 infection risk. This again emerges as similar to the findings of international disaster research, with several studies demonstrating the importance of social support from family and friends in reducing the immediate and long term effects of disasters.
- 4.3.9 Consequently, despite the clear differences in disaster type, with international disasters primarily focusing on earthquakes, tornados and hurricanes, compared to the current health pandemic, it does seem that there are many similarities so far in the findings, which does suggest that international disaster research can prove useful when trying to understand the anticipated impacts of COVID-19 on children and young people's mental health and wellbeing. Indeed, Horesh and Brown (2020) in their recent article on the clinical implications of COVID-19, state that the COVID-19 pandemic involves many characteristics of mass trauma events<sup>17</sup>, and should therefore be seen as such. They believe that "this is the time to understand the

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<sup>17</sup> Mass trauma events are defined as large scale traumatic events, and can be "broadly defined to include natural disasters, technological disasters, wars, environmental degradation, organized violence, and systematic institutional racism and other forms of structural inequity" (Witting, 2018).

status of this crisis as a traumatic event”. The authors state that it is important that the discourse around COVID-19 starts to change, as words like anxiety or stress are constantly mentioned, yet terms such as trauma and PTSD are not used, when the impact of previous traumatic events suggests that an increase in trauma and PTSD is expected.

4.3.10 In this REA, various interventions have been identified that have been successful in reducing mental health difficulties and increasing prosocial and adaptive behaviours, which could potentially be considered as post COVID-19 interventions. It seems that interventions are better than no intervention. The interventions discussed here have mainly involved interventions that are disaster-specific. Indeed, McDermott (2014) stated that it is important that more than the usual mental health provision is provided to children recovering from a disaster. He believes that all-encompassing post-disaster interventions are needed, so that “wide reaching, low intensity interventions can be provided to all families, while greater intensity interventions can be reserved for those individuals with higher need”. This REA has been conducted during the COVID-19 pandemic, as a result the full impact of COVID-19 on the mental health of children and young people is currently unknown. Further robust longitudinal research is needed to understand the impact of the pandemic, and which interventions are the most appropriate.



## **5. Recommendations**

- 5.1 1. Interventions in Wales should be evidence-based, informed by the findings in the REA, and should be evaluated to understand how effective they are in the Wales context, and why.
- 5.2 2. Further research is needed to understand the impact of the COVID-19 pandemic, and which interventions are the most appropriate. A follow-up to this REA in approximately six months, which addresses gaps due to the rapidity of this REA, as well as reviewing new COVID-19 research to better understand the impact of the pandemic on children and young people, is advised. In particular, this follow-up REA could include research about pandemics or disasters from more than 20 years ago that could be relevant, and research from previous international disasters (and perhaps new COVID-19 research) that addresses the impact of the family environment and relationships on children's mental health and wellbeing.

## Reference section

American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders: DSM-5. Arlington, VA, American Psychiatric Association.

Andrew, A., Cattan, S., Dias, M.C., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, A. and Sevilla, A. (2020). [Learning during the lockdown: real-time data on children's experiences during home learning.](#)

Asbury, K., Fox, L., Deniz, E., Code, A. and Toseeb, U., 2020. [How is COVID-19 affecting the mental health of children with Special Educational Needs and Disabilities and their families?.](#)

Banks, D.M. and Weems, C.F., 2014. Family and peer social support and their links to psychological distress among hurricane-exposed minority youth. *American Journal of Orthopsychiatry*, 84(4), p.341.

Bateman, A. and Danby, S., 2013. Recovering from the earthquake: Early childhood teachers and children collaboratively telling stories about their experiences. *Disaster prevention and management*, 22(5), pp.467-479.

Berger, E., 2019. Multi-tiered approaches to trauma-informed care in schools: A systematic review. *School Mental Health*, pp.1-15.

Bernstein, M. and Pfefferbaum, B., 2018. Posttraumatic growth as a response to natural disasters in children and adolescents. *Current psychiatry reports*, 20(5), p.37.

Bevan Foundation. (2020). [Bevan Foundation response to the Children Committee.](#)

Burns, T. and F. Gottschalk (eds.) (2019), [Educating 21st Century Children: Emotional Well-being in the Digital Age.](#)

Chemtob, C.M., Nakashima, J. and Carlson, J.G., 2002. Brief treatment for elementary school children with disaster-related posttraumatic stress disorder: A field study. *Journal of clinical psychology*, 58(1), pp.99-112.

Cheng, S., Keyes, K.M., Bitfoi, A., Carta, M.G., Koç, C., Goelitz, D., Otten, R., Lesinskiene, S., Mihova, Z., Pez, O. and Kovess-Masfety, V., 2018. Understanding parent–teacher agreement of the Strengths and Difficulties Questionnaire (SDQ): Comparison across seven European countries. *International journal of methods in psychiatric research*, 27(1), p.e1589.

Child Poverty Action Group CPAG. (2020). [The impact of school closures on children living in poverty in Wales.](#)

Children's Commissioner for England. (2020). [We're all in this together?](#)

Cobham, V.E., McDermott, B., Haslam, D. and Sanders, M.R., 2016. The role of parents, parenting and the family environment in children's post-disaster mental health. *Current Psychiatry Reports*, 18(6), p.53.

Cryder, C.H., Kilmer, R.P., Tedeschi, R.G. and Calhoun, L.G., 2006. An exploratory study of posttraumatic growth in children following a natural disaster. *American Journal of Orthopsychiatry*, 76(1), pp.65-69.

Cullinane, C. and Montacute, R. (n.d.). [COVID-19 and Social Mobility Impact Brief #1: School Shutdown.](#)

Decosimo, C.A., Hanson, J., Quinn, M., Badu, P. and Smith, E.G., 2019. Playing to live: outcome evaluation of a community-based psychosocial expressive arts program for children during the Liberian Ebola epidemic. *Global Mental Health*, 6(3).

Department for Education, 2020. [Critical workers who can access schools or educational settings.](#)

Eisenberg, N., 2006, December. Empathy-related responding and prosocial behaviour. In *Novartis Foundation Symposium* (Vol. 278, p. 71). Chichester; New York; John Wiley; 1999.

Emerging Minds (2020a). [Co-SPACE Study - 1st Update.](#)

Emerging Minds (2020b). [Co-SPACE Study - 2nd Update.](#)

Emerging Minds (2020c). [Co-SPACE Study - 3rd Update.](#)

Emerging Minds (2020d). [Co-SPACE Study - 4th Update.](#)

Evidence for Action. (2020). [From the global epicenter of the COVID-19 pandemic, insights on helping families and children cope.](#)

Feo, P., Di Gioia, S., Carloni, E., Vitiello, B., Tozzi, A.E. and Vicari, S., 2014. Prevalence of psychiatric symptoms in children and adolescents one year after the 2009 L'Aquila earthquake. *BMC psychiatry*, 14(1), p.270.

Fernandez, I., 2007. EMDR as treatment of post-traumatic reactions: A field study on child victims of an earthquake. *Educational and Child Psychology*, 24(1), p.65.

Furr, J.M., Comer, J.S., Edmunds, J.M. and Kendall, P.C., 2010. Disasters and youth: a meta-analytic examination of posttraumatic stress. *Journal of consulting and clinical psychology*, 78(6), p.765.

Garfin, D.R., Silver, R.C., Gil-Rivas, V., Guzmán, J., Murphy, J.M., Cova, F., Rincón, P.P., Squicciarini, A.M., George, M. and Guzmán, M.P., 2014. Children's reactions to the 2010 Chilean earthquake: The role of trauma exposure, family context, and school-based mental health programming. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(5), p.563.

Gil-Rivas, V. and Kilmer, R.P., 2013. Children's adjustment following Hurricane Katrina: The role of primary caregivers. *American journal of orthopsychiatry*, 83(2-3), p.413.

Goldschmidt, K., 2020. The COVID-19 pandemic: Technology use to support the wellbeing of children. *Journal of Pediatric Nursing*.

Goodman, R., 1997. The Strengths and Difficulties Questionnaire: a research note. *Journal of child psychology and psychiatry*, 38(5), pp.581-586.

Gordon-Hollingsworth, A.T., Yao, N., Chen, H., Qian, M. and Chen, S., 2018. Understanding the impact of natural disasters on psychological outcomes in youth from Mainland China: a meta-analysis of risk and protective factors for post-traumatic stress disorder symptoms. *Journal of Child & Adolescent Trauma*, 11(2), pp.205-226.

Götzinger, F., Santiago-García, B., Noguera-Julián, A., Lanaspá, M., Lancella, L., Carducci, F.I.C., Gabrovska, N., Velizarova, S., Prunk, P., Osterman, V. and Krivec, U., 2020. COVID-19 in children and adolescents in Europe: a multinational, multicentre cohort study. *The Lancet Child & Adolescent Health*.

Guo, J., Chen, L., Wang, X., Liu, Y., Chui, C.H.K., He, H., Qu, Z. and Tian, D., 2012. The relationship between Internet addiction and depression among migrant children and left-behind children in China. *Cyberpsychology, Behavior, and Social Networking*, 15(11), pp.585-590.

Hawdon, J. and Ryan, J., 2012. Well-being after the Virginia Tech mass murder: The relative effectiveness of face-to-face and virtual interactions in providing support to survivors. *Traumatology*, 18(4), pp.3-12.

Hiromi Tsujii, M.S., Yoshiyuki Tachibana, M.D., Makiko Okuyama, M.D. and Takashi Igarashi, M.D., 2017. Intervention for post-traumatic stress disorder in children after disaster: A literature review. *International Journal of Child and Adolescent Health*, 10(1), pp.7-15.

Holmes, E.A., O'Connor, R.C., Perry, V.H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R.C., Everall, I. and Ford, T., 2020. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*.

Horesh, D. and Brown, A.D., 2020. Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(4), p.331.

Hossain, M.M., Sultana, A. and Purohit, N., 2020. [Mental health outcomes of quarantine and isolation for infection prevention: A systematic umbrella review of the global evidence.](#)

Hu, M., Zheng, L., Xia, Q., Deng, Y.X., Hu, G. and Zhen, S., 2007. An investigation into the prevalence and related factors of anxiety in middle school students of Hunan Province. *Chinese Journal of Clinical Psychology*, 15(6), p.592.

International Federation of Red Cross and Red Crescent Societies, n.d. [What is a disaster?](#)

Ishimoto, Y., Yamane, T., Matsumoto, Y. and Kobayashi, K., 2020. The Impact on Children's Mental Health of School Closures to Prevent the Spread of the Novel Coronavirus (COVID-19). *Preprints*.

Jaycox, L.H., Cohen, J.A., Mannarino, A.P., Walker, D.W., Langley, A.K., Gegenheimer, K.L., Scott, M. and Schonlau, M., 2010. Children's mental health care following Hurricane Katrina: A field trial of trauma-focused psychotherapies. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, 23(2), pp.223-231.

Kanter, R.K. and Abramson, D.M., 2014. School interventions after the Joplin tornado. *Prehosp Disaster Med*. 2014;29(2):214-217.

Kenardy, J., De Young, A., Le Brocque, R., and March, S., 2011. Childhood Trauma Reactions: A Guide For Teachers From Preschool To Year 12. *CONROD*, University of Queensland.

Kobor, M., Odgers, C., Schmidt, K. and Vent-Schmidt, R., 2020. [The long-term biological effects of COVID-19 stress on kids' future health and development.](#)

La Greca, A.M., Lai, B.S., Llabre, M.M., Silverman, W.K., Vernberg, E.M. and Prinstein, M.J., 2013, August. Children's postdisaster trajectories of PTS symptoms: Predicting chronic distress. In *Child & youth care forum* (Vol. 42, No. 4, pp. 351-369). Springer US.

Lai, B.S., La Greca, A.M., Auslander, B.A. and Short, M.B., 2013. Children's symptoms of posttraumatic stress and depression after a natural disaster: Comorbidity and risk factors. *Journal of affective disorders*, 146(1), pp.71-78.

Lai, B.S., Osborne, M.C., Piscitello, J., Self-Brown, S. and Kelley, M.L., 2018. The relationship between social support and posttraumatic stress symptoms among youth exposed to a natural disaster. *European journal of psychotraumatology*, 9(2), pp. 1-11

Lalani, N. and Drolet, J., 2019. Impacts of the 2013 Floods on Families' Mental Health in Alberta: Perspectives of Community Influencers and Service Providers in Rural Communities. *Best Practices in Mental Health*, 15(2), pp.74-92.

Langille, D., Rasic, D., Kisely, S., Flowerdew, G. and Cobbett, S., 2012. Protective associations of school connectedness with risk of depression in Nova Scotia adolescents. *The Canadian Journal of Psychiatry*, 57(12), pp.759-764.

Lau, J.T., Yu, X., Zhang, J., Mak, W.W., Choi, K.C., Lui, W.W. and Chan, E.Y., 2010. Psychological distress among adolescents in Chengdu, Sichuan at 1 month after the 2008 Sichuan earthquake. *Journal of Urban Health*, 87(3), pp.504-523.

Le Brocque, R., De Young, A., Montague, G., Pocock, S., March, S., Triggell, N., Rabaa, C. and Kenardy, J., 2017. Schools and natural disaster recovery: the unique and vital role that teachers and education professionals play in ensuring the mental health of students following natural disasters. *Journal of psychologists and counsellors in schools*, 27(1), pp.1-23.

Lee, J., 2020. Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health*, 4(6), p.421.

Li, J.L., Chen, X., Zhao, C.H. and Xu, Y., 2016. Prevalence of depression in Chinese children and adolescents: A meta-analysis. *Chinese Journal of Child Health Care*, 24(3), pp.295-298.

Liberty, K., Tarren-Sweeney, M., Macfarlane, S., Basu, A. and Reid, J., 2016. Behavior problems and post-traumatic stress symptoms in children beginning school: A comparison of pre-and post-earthquake groups. *PLoS currents*, 8.

Lieber, M., 2017. Assessing the mental health impact of the 2011 Great Japan Earthquake, tsunami, and radiation disaster on elementary and middle school children in the Fukushima Prefecture of Japan. *PLoS one*, 12(1)

Loades, M.E., Chatburn, E., Higson-Sweeney, N., Reynolds, S., Shafran, R., Brigden, A., Linney, C., McManus, M.N., Borwick, C. and Crawley, E., 2020. Rapid Systematic Review: The Impact of Social Isolation and Loneliness on the Mental Health of Children and Adolescents in the Context of COVID-19. *Journal of American Academy of Child & Adolescent Psychiatry*.

Liu, H., Shi, Y., Auden, E. and Rozelle, S., 2018. Anxiety in rural Chinese children and adolescents: comparisons across provinces and among subgroups. *International journal of environmental research and public health*, 15(10), p.2087.

Masten, A.S. and Narayan, A.J., 2012. Child development in the context of disaster, war, and terrorism: Pathways of risk and resilience. *Annual review of psychology*, 63, pp.227-257.

Maughan, B., Collishaw, S. and Stringaris, A., 2013. Depression in childhood and adolescence. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 22(1), p.35.



McDermott, B., 2014. Disasters, children and families: Have we arrived at a comprehensive model of emotional health care? *Australian Journal of Emergency Management, The*, 29(1), p.10.

McDermott, B., Berry, H. and Cobham, V., 2012. Social connectedness: A potential aetiological factor in the development of child post-traumatic stress disorder. *Australian & New Zealand Journal of Psychiatry*, 46(2), pp.109-117.

McDermott, B.M., Lee, E.M., Judd, M. and Gibbon, P., 2005. Posttraumatic stress disorder and general psychopathology in children and adolescents following a wildfire disaster. *The Canadian Journal of Psychiatry*, 50(3), pp.137-143.

McNeil, C., Parkes, H., Statham, R., Hochlaf, D., and Jung, C. 2020. [Children Of The Pandemic Policies Needed To Support Children During The Covid-19 Crisis.](#)

Mercuri, A. and Angelique, H.L., 2004. Children's responses to natural, technological, and na-tech disasters. *Community Mental Health Journal*, 40(2), pp.167-175.

Ministry of Health, Labour and Welfare. (2019). 2019 White paper on Suicide Prevention in Japan. Tokyo, Japan: Nikkei Printing

Mooney, M., Tarrant, R., Paton, D., Johal, S. and Johnston, D., 2017. Getting through: Children's effective coping and adaptation in the context of the Canterbury, New Zealand, Earthquakes of 2010-2012. *Australasian Journal of Disaster and Trauma Studies*, 21(1), p.19.

Mutch, C., 2018. The role of schools in helping communities copes with earthquake disasters: the case of the 2010–2011 New Zealand earthquakes. *Environmental Hazards*, 17(4), pp.331-351.

Newman, E., Pfefferbaum, B., Kirlic, N., Tett, R., Nelson, S. and Liles, B., 2014. Meta-analytic review of psychological interventions for children survivors of natural and man-made disasters. *Current psychiatry reports*, 16(9), p.462.

Nuffield Foundation. (2020a). [\*The impact of COVID-19 on mainstream schools in England: Returning Pupils to School.\*](#)

Nuffield Foundation. (2020b). [\*The impact of COVID-19 on mainstream schools in England. Pupil engagement in remote learning\*](#)

OECD. (2020a). [\*Combatting COVID-19's effect on children.\*](#)

Office for National Statistics. (2020). [\*Coronavirus and homeschooling in Great Britain: April to June 2020.\*](#)

Orgilés, M., Morales, A., Delvecchio, E., Mazzeschi, C. and Espada, J.P., 2020. Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. [Preprint]. *PsyArXiv Preprints*

Pan, X., Liu, W., Deng, G., Liu, T., Yan, J., Tang, Y., Dong, W., Cui, Y. and Xu, M., 2015. Symptoms of posttraumatic stress disorder, depression, and anxiety among junior high school students in worst-hit areas 3 years after the Wenchuan earthquake in China. *Asia Pacific Journal of Public Health*, 27(2)

Pfefferbaum, B., Nitiéma, P., Tucker, P. and Newman, E., 2017, October. Early child disaster mental health interventions: a review of the empirical evidence. *Child & Youth Care Forum* 46(5), pp. 621-642

Pfefferbaum, B., Nitiéma, P. and Newman, E., 2019, August. A meta-analysis of intervention effects on depression and/or anxiety in youth exposed to political violence or natural disasters. *Child & Youth Care Forum*, pp. 1-29

Pisano, L., Galimi, D. and Cerniglia, L., 2020. A qualitative report on exploratory data on the possible emotional/behavioral correlates of Covid-19 lockdown in 4-10 years children in Italy. [Preprint]. *PsyArXiv Preprints*

Powell, T.M. and Bui, T., 2016. Supporting social and emotional skills after a disaster: Findings from a mixed methods study. *School Mental Health*, 8(1), pp.106-119.

Powell, T. and Thompson, S.J., 2014. Enhancing coping and supporting protective factors after a disaster: Findings from a quasi-experimental study. *Research on Social Work Practice*, 26(5), pp.539-549.

Rauschenberg, C., Schick, A., Goetzl, C., Roehr, S., Riedel-Heller, S.G., Koppe, G., Durstewitz, D., Krumm, S. and Reininghaus, U., 2020. Social isolation, mental health and use of digital interventions in youth during the COVID-19 pandemic: a nationally representative survey. [Preprint]. *PsyArXiv Preprints*

Reiss, F., 2013. Socioeconomic inequalities and mental health problems in children and adolescents: a systematic review. *Social science & medicine*, 90, pp.24-31.

Romero, E., Laura López-Romero, Beatriz Domínguez-Álvarez, Paula Villar, and Jose Antonio Gómez-Fraguela. *Testing the effects of COVID-19 confinement in Spanish children: The role of parents' distress, emotional problems and specific parenting* (2020). [Preprint]. *PsyArXiv Preprints*

Salloum, A. and Overstreet, S., 2008. Evaluation of individual and group grief and trauma interventions for children post disaster. *Journal of Clinical Child & Adolescent Psychology*, 37(3), pp.495-507.

Saylor, C.F., Cowart, B.L., Lipovsky, J.A., Jackson, C. and Finch Jr, A.J., 2003. Media exposure to September 11: Elementary school students' experiences and posttraumatic symptoms. *American Behavioral Scientist*, 46(12), pp.1622-1642.

Senedd Research (2020a), [Coronavirus: Equality issues.](#)

Senedd Research (2020b), [Coronavirus: What has been the impact on schools and pupils.](#)

Senedd Research (2020c). [Coronavirus: the gradual return to school.](#)

Shen, Y.J., 2002. Short-term group play therapy with Chinese earthquake victims: Effects on anxiety, depression and adjustment. *International Journal of Play Therapy*, 11(1), p.43.

Spinelli, M., Lionetti, F., Pastore, M. and Fasolo, M., 2020. Parents and Children Facing the COVID-19 Outbreak in Italy. [Preprint]. *The Lancet*

Sprang, G. and Silman, M., 2013. Posttraumatic stress disorder in parents and youth after health-related disasters. *Disaster medicine and public health preparedness*, 7(1), pp.105-110.

Sutton Trust. (2020). [COVID-19 Impacts: School Shutdown.](#)

Tang, B., Deng, Q., Glik, D., Dong, J. and Zhang, L., 2017. A meta-analysis of risk factors for post-traumatic stress disorder (PTSD) in adults and children after earthquakes. *International journal of environmental research and public health*, 14(12), p.1537.

Tang, B., Liu, X., Liu, Y., Xue, C. and Zhang, L., 2014. A meta-analysis of risk factors for depression in adults and children after natural disasters. *BMC public health*, 14(1), p.623.

Terranova, A.M., Boxer, P. and Morris, A.S., 2009. Factors influencing the course of posttraumatic stress following a natural disaster: Children's reactions to Hurricane Katrina. *Journal of Applied Developmental Psychology*, 30(3), pp.344-355.

Tobia, V. and Marzocchi, G.M., 2018. The strengths and difficulties questionnaire-parents for Italian school-aged children: psychometric properties and norms. *Child Psychiatry & Human Development*, 49(1), pp.1-8.

UNESCO (2020). [COVID-19 Educational Disruption and Response.](#)

Wang, G., Zhang, Y., Zhao, J., Zhang, J. and Jiang, F., 2020. Mitigate the effects of home confinement on children during the COVID-19 outbreak. *The Lancet*, 395(10228), pp.945-947.

Wan, P.F., Sun, Y.J. and Jin, Y., 2005. Characteristics of anxiety and the related risk factors among adolescent students in Dalian City. *Chin J Behav Med Sci*, 14(5), pp.36-438.

Weems, C.F., Taylor, L.K., Costa, N.M., Marks, A.B., Romano, D.M., Verrett, S.L. and Brown, D.M., 2009. Effect of a school-based test anxiety intervention in ethnic minority youth exposed to Hurricane Katrina. *Journal of Applied Developmental Psychology*, 30(3), pp.218-226.

Welsh Government. (n.d.). [Attendance at local authority settings during the coronavirus \(COVID-19\) pandemic: 22 to 26 June 2020](#). [Accessed 6 July 2020].

Welsh Government. [Attendance at local authority settings during coronavirus COVID-19 pandemic](#).

Wickrama, K.A.S. and Kaspar, V., 2007. Family context of mental health risk in Tsunami-exposed adolescents: Findings from a pilot study in Sri Lanka. *Social Science & Medicine*, 64(3), pp.713-723.

Witting, A., 2018. Introduction to the Special Issue on Systemic Approaches to Mass Trauma. *Contemporary Family Therapy* 40, 223–225.

Wolmer, L., Laor, N., Dedeoglu, C., Siev, J. and Yazgan, Y., 2005. Teacher-mediated intervention after disaster: a controlled three-year follow-up of children's functioning. *Journal of Child Psychology and Psychiatry*, 46(11), pp.1161-1168.

World Health Organisation WHO. (2020). [WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020](#).

Xie, X., Xue, Q., Zhou, Y., Zhu, K., Liu, Q., Zhang, J. and Song, R., 2020. Mental health status among children in home confinement during the coronavirus disease 2019 outbreak in Hubei Province, China. *JAMA pediatrics*.

Xu, D.D., Rao, W.W., Cao, X.L., Wen, S.Y., An, F.R., Che, W.I., Bressington, D.T., Cheung, T., Ungvari, G.S. and Xiang, Y.T., 2020. Prevalence of depressive symptoms in primary school students in China: a systematic review and meta-analysis. *Journal of Affective Disorders*.

Xu, W., Yuan, G., Liu, Z., Zhou, Y. and An, Y., 2018. Prevalence and predictors of PTSD and depression among adolescent victims of the Summer 2016 tornado in Yancheng City. *Archives of psychiatric nursing*, 32(5), pp.777-781.

Yeung, N.C., Lau, J.T., Yu, N.X., Zhang, J., Xu, Z., Choi, K.C., Zhang, Q., Mak, W.W. and Lui, W.W., 2018. Media exposure related to the 2008 Sichuan Earthquake predicted probable PTSD among Chinese adolescents in Kunming, China: A longitudinal study. *Psychological trauma: theory, research, practice, and policy*, 10(2), p.253.

Zhang, Y., Zhang, J., Zhu, S., Du, C. and Zhang, W., 2017. Prevalence of probable posttraumatic stress disorder and determination of its relationship with everyday functioning in children and adolescents by using generalized estimating equations. *Asia-Pacific Psychiatry*, 9(2), p.e12262.

Zhou, S.J., Zhang, L.G., Wang, L.L., Guo, Z.C., Wang, J.Q., Chen, J.C., Liu, M., Chen, X. and Chen, J.X., 2020. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. *European Child & Adolescent Psychiatry*, pp.1-10.

## Appendix A

Key search terms:

**Disaster:** pandemic; epidemic; disaster; crisis; post; recovery; Isolation; quarantine; seclusion; solitary detention; lockdown; social distanc\*; physical distanc\*; social support; SARS; MERS; Swine flu; bird flu; avian influenza; COVID; COVID-19; Coronavirus; Ebola

**Schools:** school closure; college closure; nursery closure; kindergarten closure; informal schooling; middle school; elementary school; high school; university closure; child care closure; disruption of education; school disruption; disruption of schooling

**Mental health:** Mental health; mental illness; mental wellbeing; anxiety; withdrawal; social phobia; depression; grief; stress; sleep dysregulation; reduced self-esteem; Obsessive Compulsive Disorder; paranoia; self-harm; trauma; emotional trauma; post-traumatic stress; posttraumatic growth; traumatic loss; stress and trauma related disorders

**Interventions:** Intervention(s) ; treatment(s); therapy; therapies; counselling; post disaster; post crisis; disaster recovery; crisis recovery; pandemic recovery; epidemic recovery; recovery stage

**Children/young people:** student; pupil; children; infant; adolescent; teenager; young people

*Sources and databases searched:* ASSIA, Barnados, BASE, BEI, TRC, ERC, British Library catalogue, Campbell library of systematic reviews, Centers for Disease Control and Prevention CDC, Child Poverty Action Group, Children's Society, Cochrane Library, EPPI Centre, Equality & Human Rights Commission, ERIC and Education Database, HMIC, MEDLINE, PsychInfo, Embase, Institute for Fiscal Studies, King's Fund Library Catalogue, NHS Evidence, NSPCC, Nuffield Foundation, PAIS, Parliamentary Research Services, Public Health England, Public Health Wales, Royal College of Psychiatrists, Social Care Online, Social Science for Emergency Response, Social Science Premium Collection, Social Services Abstracts, Sociological Abstracts, UK Children's Commissioners' websites, UNICEF, WHO Europe