

Research Article

Potential psychosocial impact of COVID-19 on children: a scoping review of pandemics and epidemics

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Background

Physical distancing and health measures, such as school closures and work-at-home mandates, implemented to mitigate the transmission of COVID-19, will likely have far-reaching impacts on children's psychosocial health and well-being. We aimed to examine extant literature on pandemics and epidemics to draw comparisons regarding COVID-19 on children's psychosocial health and secondary outcomes, including nutritional, financial and child safety outcomes.

Methods

Articles were searched within the Medline, Global Health, PsycINFO, and CINAHL databases on 11 June 2020. Grey literature was also examined from the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) until 24 July 2020.

Results

A total of 8,332 articles were screened for eligibility by two independent reviewers. Of these, 7,919 and 413 articles were from academic databases and additional sources, respectively. Results on child outcomes were extracted and collated. Seventy-three articles met inclusion criteria. Children have faced significant challenges with 12% of articles indicating loneliness/depression, 19% anxiety, 7% grief, 10% stress-related disorders, 25% child abuse, 8% family conflict, and 12% stigma during pandemics/epidemics. Furthermore, 25% of articles indicated economic challenges, 23% negative academic impacts, 33% improper nutrition, and 21% reduced opportunities for play/increased screen time. These challenges were exacerbated among children who were female, have a disability, or who were a migrant/displaced child.

Conclusions

Pandemics and epidemics have had diverse and widespread negative consequences for children. Findings can inform the development and implementation of resources during the COVID-19 pandemic to protect child health and well-being.

In attempts to slow the spread of the Coronavirus Disease 2019 (COVID-19), daycares, schools, and recreational centres worldwide abruptly closed and have since had inconsistent reopening.¹ During the initial months of the

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pandemic, an estimated 1.4 billion children were out of school and childcare, without access to group activities, team sports, or playgrounds, which has significantly influenced the lives of children.² Simultaneously many parents have worked, and continue to work from home, whereas others are working in high-stress environments and/or facing unanticipated income loss. Collectively, these experiences have caused substantial and unique change for families. To inform policies aimed toward protecting today, it is imperative to draw parallels to past pandemics. Concerns regarding the impact of the COVID-19 pandemic on mental health impacts, academic losses, malnutrition and child abuse have been raised.³⁻⁷ An understanding of the potential impact of the COVID-19 pandemic on children is necessary to plan for the eventual return to socialized life, and to design programmes and policies that support families in the short- and long-term. The aim of this scoping review was to examine the impacts of previous and current pandemics/epidemics on children's mental health, nutrition, academic performance, and recreational habits, as well as family wellness.

METHODS

The five-stage Arksey & O'Malley's (2005) methodological framework for scoping reviews was used.⁸ Two avenues were implemented to identify existing literature: academic articles and grey literature searches.

ACADEMIC ARTICLES

Academic articles examining the relationship between child- and family-related outcomes during prior and current pandemics/epidemics were searched within the Medline, PsycINFO, Global Health, and CINAHL databases on June 11, 2020 (see **Online Supplementary Document**, Appendix 1). Sixteen searches were completed within each database. *Child*, *pandemic*, and *outcome of interest* were present within the title, keywords, and/or abstract of all identified articles. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines⁹, articles were screened independently by KM and TW for eligibility. Articles were screened at the title and abstract level, and if deemed eligible, a full-text screening was completed. Any disagreements were discussed to consensus. When a consensus could not be reached, KJ reviewed the article and conflicts were resolved. Articles were deemed eligible if they: (a) included children between 0 to 18 years old, (b) involved a prior or current pandemic/epidemic [exceptions to this include: (1) the Zika virus because this virus is associated with severe cognitive impairment and/or fatality which is not observed in those with COVID-19 and (2) HIV/AIDS which, although classified as a pandemic, does not transmit to children the same as COVID-19], (c) included a child- or family-related outcome of interest (e.g., nutritional, financial, and child safety outcomes) as specified in **Online Supplementary Document**, Appendix 1, (d) were written in English, and (e) were original research with the exception of case studies.^{10,11} No

limits were placed on the year of publication to broadly identify the extent of available literature examining child outcomes in prior and current epidemics/pandemics. The reference lists of all eligible articles were screened for eligibility following the steps above.

GREY LITERATURE

The grey literature was searched using Google Advanced (https://www.google.ca/advanced_search) within the World Health Organization (WHO; <https://www.who.int/>) and United Nations Children's Fund (UNICEF; <https://www.unicef.org/>). Grey literature searches within the WHO domain commenced on July 23, 2020 between 16:01 and 18:26 CDT and continued on July 24th, 2020 using the WHO and subsequently the UNICEF domain between 10:11 and 14:08 CDT. Sixteen searches were completed within each domain. Grey literature searches were restricted to portable document format (PDF) and those published in English. Only published reports were included herein. The first two pages (or 20 articles) of search results in Google Advanced were examined for each of the 32 searches. As a preliminary screen the following groups of terms were searched using the control + F function: (1) child, (2) pandemic, epidemic, virus, infectious, communicable, bacteria, influenza, quarantine, and (3) and outcomes of interest, such as, nutritional, financial, and child safety outcomes (see searches 17-32 in **Online Supplementary Document**, Appendix 1 for specific searches). If the above terms were not found, the report was excluded; whereas if any of the above terms were found a full-text review was conducted. The full texts of all reports were screened independently by KM and TW to determine whether they met eligibility criteria. All disagreements were discussed to consensus. When a consensus was not reached, a third reviewer KJ reviewed the report to resolve the conflict.

DATA EXTRACTION AND SYNTHESIS

Data from academic articles and grey literature reports were extracted based on pre-identified domains. All domains were selected based on recommendations made by Arksey & O'Malley's (2005) and expert librarians.⁸ All extracted data was independently reviewed for accuracy by KM and TW. Findings were collated based on the outcome of interest. Outcomes included: mental health, anxiety, loneliness/depression, stress, grief, stigma, nutrition, academics, entertainment, family conflict, child abuse, family economic impact.

RESULTS

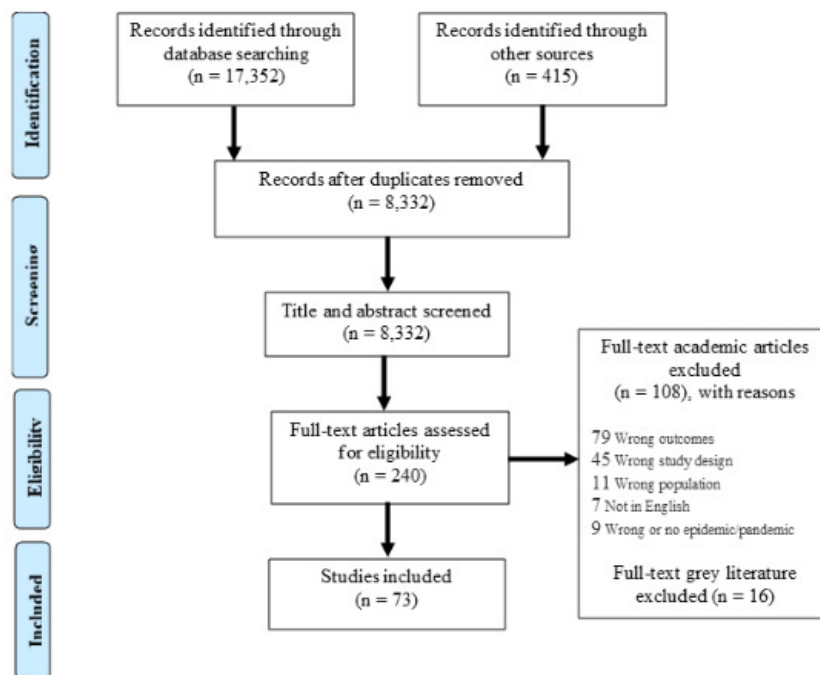
STUDY SELECTION

The literature searches yielded 17,352 academic articles and 320 grey literature documents. Ninety-five additional academic articles were included from the reference lists of eligible articles. In total, 9,435 duplicates were removed, leaving 8,332 articles and reports to be screened at the title and

Table 1. Reference table describing epidemics/pandemics discussed throughout review

Event	Year	Location
COVID-19	2019-2020	Global
SARS	2002-2004	Global
Ebola	2013-2014	Mostly Guinea, Liberia Sierra Leone
H1N1	2009	Global
Measles	1951 - 1963	Global
Tuberculosis	Epidemics occurred throughout 18 th -20 th century, 1993 declared a public health emergency by WHO ¹²	Global
Spanish Flu	1918	Global

Abbreviations: COVID-19, Coronavirus disease 2019; EVD, Ebola Virus Disease; H1N1, Hemagglutinin Type 1 and Neuraminidase Type

**Figure 1. PRISMA flow diagram depicting the selection process articles and reports in the current scoping review**

abstract level. After excluding 8,018 articles/reports which did not meet eligibility, 326 full-texts were assessed (Figure 1). Collectively, 35 articles and 38 reports were included, which assessed child well-being during previous and current pandemics/epidemics. The characteristics of all studies included are in Tables 2-4.

ANXIETY

In total, 21% reported on symptoms of anxiety. Of these papers, one suggested minimal to no anxiety, one indicated increased levels of anxiety, and the remaining indicated prevalence rates. The lack of security and confusion regarding the changing environment during a pandemic can instill fear and panic in children.¹³⁻¹⁵ Sprang et al., 2013 reported that generalized anxiety, which represented 20% of diagnoses, was the most commonly diagnosed disorder in youth during and after the H1N1 pandemic.¹⁶ Elsewhere,

most children were concerned about the pandemic, which resulted from them being uninformed, misinformed, and having unanswered questions about the nature and mode of transmission (Table 2).¹⁷⁻²⁰ Such concerns contributed to anxiety and feelings of guilt and responsibility if a family member fell ill.^{13-16,20-25} In contrast, an Australian study found that 90% of children had minimal or no parent-reported anxiety due to school closure during the H1N1 pandemic.²⁶

The COVID-19 pandemic represents the first large-scale pandemic during which mass media is a major source of misinformation, defined as “incorrect or misleading information” by Merriam-Webster dictionary.^{18,27,28} This misinformation could lead to unnecessary anxiety as illustrated above. One study reported that 36% of adolescent participants thought that mass media was alarming and caused wide distrust in social networks.¹⁸ However, a 2011 hospital-based study reported reduced concern when the news,

regarding the H1N1 pandemic, was read alongside a health-care worker.¹⁷ Collectively, the literature highlights that anxiety has been a significant challenge during pandemics for children largely due to miscommunication and influence from the mass media.

LONELINESS/DEPRESSION

Overall, 12% of papers reported on depression and/or loneliness, of which one indicated an increase in depression, and the remaining indicated prevalence rates of depression symptomology. Due to confinement, physical distancing requirements, and stay-at-home orders during previous pandemics, children altered their way of play.²⁹ Qualitative data collected from children impacted by the Ebola epidemic suggest that they are "*lonesome [and] no longer enjoy [their] childhood*" – Boy, Sierra Leone.²⁹ Similarly, children hospitalised during the Severe Acute Respiratory Syndrome (SARS) pandemic were only allowed one visitor at a time which caused feelings of loneliness, fearfulness, and sadness, while parents could not be a source of comfort or support for their child.^{20,30} Data from previous pandemics, and from the current COVID-19 pandemic, indicate that children experience depression.²⁵ Factors that correlated with higher levels of depression include living in a rural region, gender, school grade level, level of optimism, and location (Table 2).^{15,21–24,31} Pandemics and epidemics highlight how isolation can lead to feelings of loneliness, sadness, and symptoms of depression.

STRESS

Overall, 10 % of included papers reported on the influence of a pandemic or epidemic on stress-related disorders in children. Of these, 57% indicated the presence of post-traumatic stress disorder (PTSD), 29% on adjustment struggles, and 14% on acute stress disorder. Pandemics typically disrupted the structure and routine of children's lives, causing difficulties in adjustment, stress reactions, and trauma.^{14–17,32} Stress may manifest in different ways for different age groups of children¹⁴ (Table 2). However, school-aged children tend to manifest symptoms of stress through behavioural issues, such as being withdrawal from friends and family, as well as decreased interest in daily activity.¹⁴ Children affected by grief, such as orphaned children, often experience further isolation, have more nightmares about the death of their parents, and live in ongoing fear about what the future will hold.^{29,33} Also, in an American study, 30% of children who isolated or quarantined during the H1N1 pandemic met criteria for a PTSD diagnosis, a stark contrast to the 1.1% of non-isolated children who met criteria.¹⁶ Importantly, the intergenerational impacts of parental mental health is evident; in the same study, PTSD was diagnosed in 85.7% of children who had parents with PTSD resultant of the pandemic.¹⁶ The extant literature demonstrates how sudden changes, such as, the disruption of routine or the death of a parent can lead to stress-related disorders, including PTSD.

GRIEF

In total, 7% of included articles reported on grief. Of these articles, 40% indicated there is a need for attention and counselling services for grieving children and adolescents, while 20% indicated physical distancing measures complicated matters. Whereas both children and adults grieve, the manifestations of grief change with age³⁴ (Table 4). The loss of a loved one during a time of physical distancing is a unique circumstance, in which standard processes of closure, such as funerals and family gatherings, are restricted. This poses a new threat to grieving children, in which feelings of isolation may be exacerbated.³⁵ The threat to the emotional well-being of children due to loss of peers, loved ones, or teachers is significant and has been well-documented.^{14,29} Professionals in pediatrics and pandemic preparedness stressed the importance of involvement of children and families in pandemic planning, clear communication to the public, and accounting for missing plans and services, such as grief and bereavement counselling for children.³⁶ These findings demonstrate grief in children and adolescents can present itself through different manifestations and indicate that in times of physical distancing, the negative mental health impacts of grief can be exacerbated.

STIGMA

Overall, 12% of papers reported outcomes related to children experiencing stigma as a result of a pandemic or epidemic. The stigma surrounding infectious disease typically impacts those who are diagnosed with or have family infected by a disease (as reported in 86% the articles/reports presented here) and children of certain ethnic backgrounds, such as children from countries where a disease originated (as reported in 28% of the articles/reports presented here).^{13,33,37–39} In a study focussed on Ebola survivors, in which 20% of the sample was children, 26% of participants were stigmatized by the public.³⁸ The isolation associated with stigma increases the risk of harm to a child's psychological well-being.^{13,29,37,39,40} The psychological impact of stigma can lead to social rejection, complete isolation, and exclusion from social events.²⁹ Children may be discriminated against, especially those orphaned as a result of a pandemic.^{22,33,37} During the Ebola epidemic, children's drawings of their peers who were orphaned due to Ebola were images of children who were ostracised, isolated, and discriminated.⁴⁰ Moreover, children orphaned due to Ebola, but who remain sero-negative, are less likely to be adopted by families.⁴¹ In some of these cases, relatives, neighbours, or friends adopt the child, although over 20% of adults surveyed believe these children are not properly supervised or well-fed.²⁹ In summary, the findings suggest that stigma is mostly problematic for children who are associated with the disease, such as children who were infected, had family who was infected, or are from countries where the disease originated.

NUTRITION

A total of 33% articles provided evidence that pandemics and epidemics have a significant impact on children's nutritional status.^{23,29,42-48} Due to pandemic-related school closures, many families (one study reported 41% of participants) have lost access to subsidized meal programs, thereby finding themselves in a position where they must provide meals for their children. In many circumstances, these meals are less nutritious than those provided by the school.^{42,43,47,49,50} Concurrently, pandemic-related increases in unemployment have also impacted the quality and volume of food that families can afford, thus having a further negative impact on children's nutrition.²² One UNICEF report anticipates food insecurity will increase by 80% from last year in West and Central Africa, largely due to the COVID-19 pandemic.⁵¹ These losses are further exacerbated by decreased food availability and increased food costs due to border closures, market closures, and quarantine requirements. These restrictions create obstacles to acquire nutritional foods for economically-disadvantaged families.^{29,31,33,39,45,52-55} Taken together, these obstacles lead to child malnutrition.^{48,51,56-59} During the COVID-19 pandemic, Italian students' intake of potato chips, red meat, and sugary drinks increased significantly, whilst the number of meals per day increased by 1.15 ± 1.56 .⁴⁴ In contrast, during and immediately subsequent to the Ebola epidemic in Sierra Leone, diagnoses of both moderate-acute and severe-acute malnutrition doubled, from 3.6% to 8.2%, and 1.5% to 3.5%, respectively.²³ Due to COVID-19, an estimated 67,500 children in Mozambique alone will require treatment for malnutrition in the next 9 months.⁶⁰ Conclusively, the findings suggest that nutrition is often negatively impacted by pandemics either by over-eating inexpensive, unhealthy food, or by facing varying levels of starvation.

ACADEMICS

During pandemics and epidemics, 23% of the articles highlighted academic impacts on children. Twenty-three percent of these articles revealed unequal access to learning tools, such as radios, televisions, and power supply in rural regions.^{22,50,61,62} During the Ebola epidemic, lectures were accessed through radio. Some lacked both access and finances to buy batteries for the radio.²⁹ This unequal access is also evidenced during the COVID-19 pandemic, as 1.6 billion children were crisis schooled at home.⁵³ Furthermore, a UNICEF COVID-19 report indicated that internet access for school children ranged from 1-2% in low income countries to < 50% in most countries.⁵³ These observations are now described as the "digital divide," resultant of differences in socioeconomic status and pre-existing vulnerabilities.^{50,63-66}

During school closures children struggle to complete their schoolwork from home, causing learning delays in some and increasing the risk of dropout for others.^{15,18,58,61,67} For example, Cui et al. indicated only 58% of children completed their school work online.¹⁵ Females, those with ill caregivers, those who have a disability, or are in an eco-

nomically-disadvantaged household were especially at-risk for learning challenges during pandemics/epidemics.^{22,33,50,53,57,61,68} School closures also disrupt the development of children socially and emotionally and also impact the development of coping skills.^{13,63} These findings and reports indicate that school closure impacts child learning, widens the socioeconomic gap, and impacts child development.

ENTERTAINMENT

Twenty-one percent of articles discussed the nature of children's activity during a pandemic or epidemic. Play is critical for healthy development and self-confidence.^{20,22,48} Yet, subsequent to home confinement, reduced access to group activities, playgrounds, team sports, and spaces for socialization, evidence from pandemics and epidemics point toward changes in the way children play.^{15,43,44,48,49,69-71} One report indicated most children only played at home and did not play in groups (Table 4).²⁹

A unique consequence of the COVID-19 pandemic is significantly increased screen time due to confinement in a time where technology has greatly advanced.³¹ Whereas online communities help to keep children socially connected, engage in play and education, risks for negative outcomes, including reduced online safety (i.e. sexual exploitation), privacy concerns, harmful marketing practices and cyberbullying, must also be acknowledged and monitored.^{27,65,72,73}

FAMILY CONFLICT

Family conflict is on the rise during pandemics and epidemics, as indicated by 8% of articles.^{13,61} Pandemics and epidemics have demonstrated that increased stress due to confinement and economic pressures can lead to an increase in familial conflict and child exploitation.⁶³ These outcomes are often related to authoritarian parenting styles, a parenting style found to be ill-suited for pandemic situations.¹⁵ During the Ebola epidemic, parents qualitatively described changes in parenting styles and disciplinary methods. Moreover, parents exposed to the virus reported significantly more household conflict and personal anxieties, as well as an increased preference for harsh punishment. In contrast, parents not exposed to the virus experienced decreased preferences for harsh punishment by 28.1%.⁷⁴

In addition to changes in parenting styles, parent-child relationships may suffer during quarantine due to altered communication and social interactions.⁷⁵ A new-found focus on responsibilities, such as household tasks, also had negative impacts on the parent-child relationship.⁷⁵ These findings suggest family conflict and relationships between parents and children are negatively impacted by quarantine resultant of pandemics and epidemics.

CHILD ABUSE

Heightened levels of stress and isolation for families in the home, coupled with reduced access to social supports for children during pandemics, creates opportunity for in-

creased risk of child abuse as indicated by 25% of included articles.^{49,62,65,75-77} During the Ebola epidemic, 89% of reported cases of rape in Liberia were against children ages 0-17. The report further indicated rape and violence, specifically, were common amongst girls and increased during Ebola in West Africa.⁷⁸ Child abuse is often associated with a lack of effective coping strategies during periods of elevated stress. Child maltreatment reports during the COVID-19 pandemic include increased sexual assault, child trafficking, child marriage. Parental substance abuse also increases which is associated with greater levels of child maltreatment.^{39,50,60,79,80} Physical distancing during COVID-19 has disrupted protective social networks and safe spaces for children, resulting in an elevated risk of child exploitation.^{48,79,81,82} Extant literature suggests specific groups of children may experience more harm. For example, girls are more likely to experience gender-based violence, be sexually exploited, and suffer from increased rates of teenage pregnancy during a pandemic or epidemic.^{50,68,78,80} Limited research to date during the COVID-19 pandemic points toward negative mental health outcomes associated with child abuse including anxiety, trauma, and psychological relapse.^{13,54} In brief, the literature indicates increased instances of child abuse during pandemics and epidemics, especially for girls.

FAMILY ECONOMIC IMPACT

Twenty-five percent of articles described the socioeconomic impact on families during pandemics and epidemics. Pandemic-related closures place additional stress on caregivers to find childcare or provide childcare themselves at the expense of missing work.^{15,26,43,70,71,75,83} After the 2009 H1N1 pandemic, 27% of parents reported work absenteeism and 18% lost wages.⁸³ In contrast, one study focused on the H1N1 pandemic found the majority of parents did not lose any time at work. However, this sample contained many “stay-at-home parents”, thus influencing the number of missed work days.⁶⁹ Economic downturns caused by pandemics can also result in job loss, increased poverty, and price hikes for daily goods and services.^{48,57,61,77,84,85} Those from a low socioeconomic background and those with pre-existing vulnerabilities face harsher economic impacts during economic downturns related to pandemics.^{39,50,81} Notably, during 2008 Kentucky school closures consequent to an influenza outbreak, only 14.9% of parents had the opportunity to work from home.⁴⁹ This is alarming, given the acuity of work from home directives imposed on an unprecedented number of employees, many of whom are concurrently parenting from home, during the COVID-19 pandemic.^{70,75,77} The majority of studies found that many parents lose income during pandemics, due to work absenteeism and job loss; low socioeconomic status households are disproportionately impacted.

DISCUSSION

The COVID-19 pandemic, and subsequent school closures, loss of social contact, impoverished diets, greater screen

time, and reduced physical activity and outdoor time have adverse effects on child mental health.^{31,44,53,63,71} Alarmingly, many families are facing greater food insecurity, due to losses to school lunch programs or household income, or because of decreased food availability,^{45,47,59} and socioeconomic stress and confinement have contributed to increase familial conflict and child abuse.⁵³

Scoping reviews are intended to identify the extent of knowledge and gaps in an area of research.⁸ One gap that was found herein was that mental health outcomes/diagnoses were lacking in specificity. Some studies did have the percentage of diagnoses, such as anxiety and depression, but most approached mental health outcomes from a general perspective, pointing toward a need for additional research on child mental health outcomes both now and after the pandemic. Of the research that did indicate prevalence of diagnoses, minimal studies had pre-pandemic data to compare to pandemic data, and much of the literature included short-term outcomes only. Thus, it is difficult to draw direct comparisons between pre-pandemic and during/post-pandemic data. Therefore, longitudinal studies are warranted to identify long-term sequelae of pandemic-related childhood mental health consequences. One unique aspect related to the COVID-19 pandemic is the increased amount of screen time for children. Although there are many positive outcomes to having access to these technologies, the long-term mental health effects are not currently well known, therefore, the impact of increased technology use on children should be monitored over time.

We acknowledge the limitations of this scoping review. Scoping reviews are not intended to analyze the quality of the included studies. Additionally, our search strategy covered a broad range of outcomes, thus necessitating a balance between breadth and depth. We also restricted our search to English-language publications only, raising the possibility that relevant studies in other language may have not been identified. Another limitation of the current study is that COVID-19 has had greater impacts on most individuals in some significant way. Therefore, one should keep this in mind as a limitation when making comparisons with epidemics or pandemics that may have a smaller scale impact (e.g. measles). Also, societal factors such as geographical location, culture, government, and socioeconomic status can pose a challenge for generalizing the results to the greater population (see Tables for identifying regions).

This scoping review also adds to the literature in several ways. A comprehensive search strategy, from both academic and grey literature databases, to identify relevant articles was comprehensive and included diverse child-related outcomes to ensure as much breadth and depth as was possible which would help guide the development of future research. This review may be viewed as a starting point toward creating programs and solutions for the many challenges children face during pandemics, including the prevention of long-term impacts subsequent to the COVID-19 pandemic, with particular emphasis on mental health services and resources, for children facing food insecurity, maltreatment, and economic disadvantage.

CONCLUSIONS

Insight gleaned from pandemics and epidemics provide evidence on the negative impacts, including psychosocial, nutritional, financial, and child safety outcomes, pandemics and epidemics can have on children and their families, which can help inform family-centered policies. Increased psychological supports for children and their families are essential both now and for years to come.

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DECLARATIONS

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AUTHORSHIP CONTRIBUTIONS

K. M. and T. W. contributed to developing the study design, data collection and collation, as well as writing, editing, and approving the manuscript.

K. J. led the development of the study design and data collection; wrote, edited and approved the manuscript.

L. R. contributed to developing the study design and editing the manuscript.

J. P. oversaw the review for the duration of the project as senior author; contributed to developing the study design; wrote parts of the manuscript; and, was involved in the editing process.

All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

COMPETING INTERESTS

The authors completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf, and declare no conflicts of interest.

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Table 2. Academic articles found through scoping review searches 1-14

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
Aitken 2010 ⁴²	H1N1	Australia	1292 over 18 years	Cross-sectional	94% have food for 3 days of isolation 54% have food and water for 3 days of isolation if utility services were stopped - Households with children less prepared for 3 days of isolation
Borse 2011 ⁶⁹	H1N1	USA	554 elementary school children	Cross-sectional	70% of children stayed home 30% left home during the school closure (most commonly to playgrounds) - Households in which adults were employed, 24% left home
Buzzi 2020 ¹⁸	COVID-19	Italy	2064 13-20 years	Cross-sectional	Regarding pandemic: 35% little/no concern 51.2% moderate concern 14.5% extreme concern 36% believed media exaggerated COVID-19 and distrusted media networks 36.8% concerned about school closures
Casanova 2020 ¹⁹	COVID-19	Italy	75 (25 cancer patients receiving treatment, 25 cancer patients in follow-up post-treatment, 25 peers with no cancer) 15-21 years	Qualitative	- Large number of patients expressed worry about the virus; not seen in healthy peers - Patients burdened by parental concerns, while healthy peers did not - Patients deemed public health measures appropriate; healthy peers deemed them excessive
Chow 2013 ⁷⁵	Influenza (general)	Australia	23 parents of children aged 6 months – 3 years	Qualitative	- Parent-child relationships worsened; communication centred around responsibilities - Older siblings were more understanding when told they had to stay home due to a sick child, but younger ones would act out.
Cui 2020 ¹⁵	COVID-19	China	33 hospital representatives	Cross-sectional	15% of hospitals opened online mental health services for children: - One hospital provided child services: 45% had anxiety 22% had insomnia 13% had depression 13% had somatic symptoms 8% had other concerns - School closures created fear, frustration, boredom, lack of in-person contacts with friends, teachers and classmates 58% of children finished online schoolwork 3% of children who experienced trauma due to the infection were diagnosed with PTSD - Increased conflict in child-parent relationships, authoritative parenting styles are not well suited to coping with the pandemic
Denis-Ramirez 2017 ⁴⁰	Ebola	Sierra Leone	24 8-14 years	Qualitative	- Orphans experienced name calling, distancing, othering, driving away, fear from family and friends, exhaustion, and rejection - Psychological impact of stigma included psychological distress, ostracization, and abandonment

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
Effler 2010 ²⁶	H1N1	Australia	223 parents of school children (elementary - grade 7)	Cross-sectional	90% reported school closure caused little-no anxiety for their child 55% indicated that school closure caused moderate-severe disruption to family routine
Epson 2015 ⁴³	General ILI	USA	67 school aged children	Cross-sectional	3% reported missed subsidized school meals as a challenge
Etard 2017 ³⁸	Ebola	Guinea	802; 20% < 18 years	Longitudinal	98.9% of participants reported stigmatisation
Green 2018 ⁷⁴	Ebola	Liberia	201 Parents of children aged 3-4	Longitudinal	- Parental preference for harsh parenting methods from pre-EVD to post-EVD decreased by 28.1%, - Exposure to EVD associated with increased parent preferences for harsh punishment - Parents exposed to EVD reported significantly more household conflict and personal anxieties
Ji 2017 ²⁵	Ebola	Sierra Leone	18 EVD survivors; 8 aged 12-30, 8 aged 31-50, 2 aged > 51	Cross-sectional	- High proportions of positive symptom scores in EVD survivors: 83.3% obsessive-compulsive 83.3% anxiety, 94.4% hostility, 94.4% phobic anxiety, 72.2% paranoid ideation
Johnson 2008 ⁴⁷	Influenza B	USA	355 school-aged children	Cross-sectional	41% of responding households lost access to subsidized lunch programs
Kamara 2017 ²³	Ebola	Sierra Leone	143 27 under age of 17	Cross-sectional	- Depression, anxiety disorders, grief, social problems most prevalent disorders - EVD survivors and bereaved relatives experienced grief, mild depressive, anxiety symptoms, stigma - MAM diagnoses increase by 4.6% in community and 2.8% increase in health facilities ($P < 0.001$) - SAM diagnoses 2% increase from pre to post outbreak ($P < 0.003$) with ¼ completing monthly treatment
Kodish 2019a ⁴⁶	Ebola	Sierra Leone	42 key informants and community informants	Qualitative	- Impacts on feeding practices and food chains affect nutrition - Breast feeding halted - Some struggle switching to formula - Pandemic increased purchase of affordable, unhealthy food - Increased orphans, new caregivers take on feeding responsibilities - Nutritional challenges for infants and young children
Kodish 2019b ⁴⁵	Ebola	Guinea and Sierra Leone	105 adults/parents	Qualitative	- Challenges related to infant and young child nutrition during EVD: - Limited nutrition programming - Decreased health system access - Poor caregiving - Nutritional response implementation challenges - Increased rate of malnutrition - Household food insecurity - Changing breast feeding

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
					◦ Delivery of food assistance ◦ Funding diverted from nutrition to EVD containment/treatment
Koller 2010 ²⁰	SARS	Canada	21 5-19	Qualitative	• One visitor at a time in hospital was difficult for children and family • Patients lonely, fearful and sad • Visits from family show support • Hospital staff need to be calm for children to feel comfortable • Miscommunication and misinformation about virus caused anxiety, confusion, fear in children • Isolation and news resulted in fear of the "worst case scenario" • Play/distraction important for psychosocial care
Koller 2006 ³⁰	SARS	N/A	23 (5 children aged 6-18, 10 parents and 8 health care workers were interviewed)	Qualitative	• Changes in play: confined to home, no extracurriculars, no social spaces • Children were unhappy, lonely, heartbroken for the loss of loved one • Emotional well-being was disrupted; changes in friendships, bereavement, loss of care and intimacy with parents • Problematic food availability/prices • 16,600+ children orphaned by EVD • Relatives, friends, neighbors often care for orphans, despite stigma • >20% of adult participants stated orphans were not properly supervised/fed • Survivors/children related to victims of EVD suffer social isolation • Lack of studying from home during school closure; children were too hungry/busy working • Girls less likely to study than boys
Liang 2020 ³²	COVID-19-19/2020	China	584 14-35	Cross-sectional	• Men scored higher in mental health (General Health Questionnaire-12) and PTSD measurements (indicating worse mental health and more PTSD) • Lower education level associated with symptoms of PTSD and worse mental health • 14-35 age bracket found no significant effect of age and mental health scores; can be generalized to ages 14-18
Miller 2010 ⁷¹	H1N1	N/A	63 parents	Cross-sectional	• Decreased activity rates in grade 9-12 students
Murray 2010 ¹⁴	H1N1	USA	N/A	Qualitative	• Fears result from unanswered questions and misconceptions • Infants experience detachment and regression • Preschoolers have sense of guilt or responsibility for pandemic • Toddlers experience stress if their environment changes • School-aged children at risk for adjustment reactions due to stress • Adolescent stress may be exacerbated by pandemic due to other developmental changes • PTSD may result due to enduring adjustment difficulties • Children experience significant grief due to loss of family/peers
Nicholas 2010 ³⁶	General Pandemics	Canada	290 professionals in pandemic planning and pediatrics (working with children and youth)	Mixed methods	• Grief bereavement counselling for children is needed
Page 2011 ¹⁷	H1N1	United Kingdom	144 clinical records, not all were children, but specified results for children separately (49 under the age of 16)	Qualitative	• Children were found to be vulnerable to media

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
					• Child mental health was especially impacted by H1N1 • Age < 16 associated with having moderate/severe H1N1 concerns • Children/adolescents were overrepresented amongst patients who expressed significant concern about H1N1
Pietrobelli 2020 ⁴⁴	COVID-19	Italy	41 children and adolescents	Longitudinal	• No changes in fruit and vegetable intake ($P=0.055$) • Potato chip, red meat, sugary drink intakes increased during lockdown ($P=0.005-0.001$) • Number of meals per day increased by 1.15 ± 1.56 (more in males - 1.64 - than females - 0.58) • Sports activities decreased by 2.3 ± 4.6 hours/day ($P=0.003$) • Screen time increased by 4.85 ± 2.4 hours/day ($P<0.001$) • Inverse correlation b/w change in sports participation and change in number of meals/screen time
Street child 2015 ³³	Ebola	Sierra Leone	12,023 ≤ 18	Mixed methods	• Difficulty re-homing "EVD orphans" • Children of parents with EVD face stigma themselves • Orphaned children tend to isolate themselves, have nightmares about deaths of parents, live in constant fear • 91% orphans are reliant on food aid • Loss of parent linked to malnutrition • Orphans struggle with return to education
Sprang 2013 ¹⁶	H1N1, SARS, and Influenza	USA and Canada	586 parents	Mixed methods	• 30% quarantined children had PTSD • 1.1% of non-isolated children had PTSD • Symptoms: avoidance/numbing (57.8%), reexperiencing (57.8%), and arousal (62.5%) • 85.7% of parents who met criteria for PTSD also have children who meet criteria • Pediatric diagnoses during/after pandemic: ◦ Acute stress disorder= 16.7%, ◦ Adjustment disorder=16.7%, ◦ PTSD= 6.2% • Diagnoses during/after the pandemic for youth: ◦ Adjustment disorder=20% ◦ PTSD= 1.4% • Gender played no role
Xie 2020 ²⁴	COVID-19	China	1784 grades 2-6	Cross-sectional	• 18.9% had anxiety symptoms • Students worried about contracting virus had higher Child Depression Inventory-S scores than those who were not worried about getting the virus (37.3% were worried) • 22.6% had depressive symptoms • Wuhan students received higher scores on a depression and anxiety scale than those in Huangshi; greater risk of depressive symptoms • Those who were pessimistic about pandemic had higher scores on the anxiety/depression scale than those who were optimistic about the pandemic; pessimists had increased risk of depressive symptoms (50.9% of students were optimistic)

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
Zhou 2020 ²¹	COVID-19	China	8079 12-18	Cross-sectional	- Anxiety symptoms lower in city vs. rural (32.5% vs. 47.5%) - Proportion of male students with depression/anxiety lower than female students (41.7 vs. 45.5/36.2% vs. 38.4%) - The total proportion of the students with anxiety was 37.4% (mild-severe symptoms) - Comorbid depressive and anxiety symptoms was 31.3% - Nervousness, anxious or on-edge (53.6%), worrying (47.3%), becoming easily annoyed or irritable (47%) are common symptoms of anxiety - COVID education higher among those without symptoms - Depression symptoms in cities were lower than rural (37.7% vs. 47.5%) - As the grade increased so did the frequency of depressive symptoms - Total depression in sample 43.7% - Little interest in pleasure/doing things (53.9%), feeling tired or low energy (48.4%), poor appetite or overeating (45.6%) are common symptoms of depression

Abbreviations: COVID-19, Coronavirus disease 2019; EVD, Ebola virus disease; H1N1, Hemagglutinin Type 1 and Neuraminidase; Type 1ILI, Influenza like illness; MAM, moderate acute malnutrition; N/A, not applicable; PTSD, post-traumatic stress disorder; SAM, severe acute malnutrition; SARS, severe acute respiratory syndrome

Table 3. Academic articles were found through scoping review searches 15-16

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
Andersson 1992 ⁸⁴	Measles epidemic	Mexico	1211 children <5	Mixed Methods	• Monetary cost and loss of household reserve capital • Average loss of 18.8 workdays per case of measles • Local pharmacies reported increased cost of drugs • Families often sold livestock to pay for medical care • Families with measles in household: • 70% incurred financial loss
Borse 2011 ⁶⁹	H1N1	USA	554 households with elementary school children	Cross-sectional	• 83% did not lose time at work • The probability of losing work for a household with only one working parent is 9% • When both parents are employed, the probability of losing work is 42%
CDC 2008 ⁴⁹	Influenza	Kentucky	480 children School district A = low SES (327) School district B = higher SES (145)	Mixed Methods	• 29.1% had an adult that had to miss work • 15.7% have lost pay • 10% children in school district A (lower SES) relied more on school meal plans • 14.9% had the option to work from home • 39.8% had a "non-working" member
Chen 2011 ⁸³	H1N1	Taiwan	232 parents/caretakers of children ages 6-13	Cross-sectional	• 27% reported workplace absenteeism • 18% reported wage loss • 23% felt moderately inconvenienced by school closure • 73% supported the school closure
Chow 2013 ⁷⁵	Pandemic influenza (general)	Australia	23 parents of children aged 6 months – 3 years	Qualitative	• Many nominated impact on work as one of the largest daily life disturbances • Work absenteeism increased and pay decreased • Impact on employee-employer relationship
Cui 2020 ¹⁵	COVID-19	China	33 hospitals	Cross-sectional	• Parent job loss adds stress on family
Effler 2010 ²⁶	H1N1	Australia	223 parents of school children during school closure	Cross-sectional	• 45% reported taking >1 day off work for childcare (1-5 days, median 3 days) • 35% had to arrange childcare • 10% cared for themselves at home
Epson 2015 ⁴³	Epidemic ILI (general)	USA - Colorado	35 households (representing 67 students)	Cross-sectional	• 80% reported closure not challenging • 20% reported challenges • 14% reported that ≥1 day missed work • 9% reported lost pay • 63% did not anticipate challenges to school closure; 6 of 8 who anticipated challenges indicated all the adults in the household worked out of the home

First author and year	Crisis	Country	Participants (N; ages)	Study Design	Key findings
Esposito 2011 ⁸⁵	H1N1	Italy	389 children < 15	Mixed methods	- No major effect # of days missed: 08/09 seasonal H3N2: mothers lost 5.9 fathers lost 3.4, siblings missed 3.9 days of school 09/10 pandemic H1N1 missed days: mothers lost 5.9, fathers lost 3.3 and siblings missed 4.1
Gift 2010 ⁷⁰	H1N1	USA - Pennsylvania	214 households (269 students)	Cross-sectional	69% reported zero missed workdays, of the remaining ~ 40% missed 5 workdays during school closures - School closure > week may result in more missed work - Older siblings can reduce missed work
Johnson 2008 ⁴⁷	Influenza B	North Carolina	220 households (438 adults, 355 school aged children)	Cross-sectional	54% employed outside the home 18% were able to work from home 18% of adults stayed home due to school closures (all employed at schools) 76% had a form of childcare 10%, special childcare arrangements due to school closures 3% spent > 1 day overnight for childcare 1% spent extra money on childcare
Kavanagh 2012 ⁸⁶	H1N1	Victoria, Australia	133 households of employed parents, 33 schools (school aged children)	Cross-sectional	52% of parents took time of work to care for quarantined children 42% (without leave) vs. 58% (leave), $P=0.08$ took time off work 73% pay loss without leave vs. 21%, with leave $P<0.001$ - of those who lost pay, 42% experienced further financial consequences
Miller 2010 ⁷¹	H1N1	N/A	63 parent responses for 176 grade 5-8 students; 188 student responses for 240 grade 9-12 students	Cross-sectional	20%, nanny/babysitter for childcare 30% had caregivers stay home from work to care for them ≥ 1 day a week 9% in upper school reported caregivers staying home from work to care for them

Abbreviations: COVID-19, Coronavirus disease 2019; H1N1, Hemagglutinin Type 1 and Neuraminidase Type 1ILI, Influenza like; Influenza A virus subtype, H3N2; SES, Socio-economic Status; SARS, severe acute respiratory syndrome. See **Online Supplementary Document**, Appendix 1 for details.

Table 4. Grey literature reports found through searches 17-32 (see Appendix 1)

Reference	Crisis	Country	Key findings
Centers for disease control and prevention 2008 - Impact of Seasonal Influenza-Related School Closures on Families ⁴⁹	Influenza	USA	42.9% households had at least one child enrolled in meal program - School district B households (higher SES) were less likely to have children participating in meal programs than school district A households (lower SES) ($p < 0.05$) 10.0% of households with children in meal programs had difficulty replacing school-provided meals
Canadian Medical Association Journal 2020 - Addressing the indirect effects of COVID-19 on the health of children and young people ³¹	COVID-19	Nepal	- Adverse childhood experiences (maltreatment, poverty, food insecurity) are associated with mental health problems, obesity, cardiovascular disease - Adverse experiences are more common for children experiencing mandated social isolation, particularly for vulnerable populations - Closures increase food insecurity in those dependent on school meals - Pandemic-related financial loss has reduced food security, access to markets, preventative nutrition deficiency programs, and decreased access for treatments for nutritional deficiencies - These factors may result in the increase of children suffering with acute malnutrition 2,426 children and adolescents (6–17 yr.) in China showed a reduction of 7.3 hours per week in physical activity during isolation 30 hr/week increase in screen time compared to pre-pandemic - Prolonged screen time causes feelings of sadness, irritability, concentration difficulties, resulting in mood disorder in adolescents - Physical distancing is challenging for those with additional needs - Increase in family violence is expected, likely to be associated with greater nonaccidental injury and mental trauma in children
Coalition to Support Grieving Students 2020 - Supporting grieving students during a pandemic ³⁵	COVID-19	N/A	School supports are reduced due to school closures increasing social isolation felt by grieving children
End Violence Against Children 2020 - Leader's Statement: Violence against Children; a Hidden Crisis of the COVID-19 Pandemic ⁶⁵	COVID-19	N/A	- Online communities important to children's learning/play - Increased cyberbullying, risky online behavior, exploitation - Lockdowns, school closures, loss of income, movement restrictions, overcrowding, and high levels of stress and anxiety increase the risk for maltreatment, gender-based violence, sexual exploitation - Refugees, migrants, those living without parental care, those with disabilities experience exacerbated risk for violence due to lack of access to supports such as teachers, friends, and social workers
Food and Agriculture Organization 2020 - The state of food security and nutrition in the world ⁵²	COVID-19	Global	- Food supply disruptions, loss of livelihoods, remittances as a result of COVID-19 create barriers for accessing nutritious foods - Difficulties for low SES families to maintain healthy diets
Humanitarian Country Team 2020 - Occupied Palestinian Territory COVID-19 Humanitarian Response Plan ⁵⁴	COVID-19	Palestinian Territory	- Food insecurity levels rise on the West Bank (herders/farmers/fishers are particularly vulnerable) - Increased levels of violence in children, greater risks of anxiety, trauma, psychological relapse
United Nations Office for the Coordination of Humanitarian Affairs and Food and Agriculture Organization 2020 - Flash Appeal; for Covid-19 ⁶⁰	COVID-19	N/A	67,500 children will require treatment for malnutrition in the next 9 months in Mozambique 3,000 children are being treated for SAM and 40,000 cases of pellagra since March 2019 - Negative coping mechanisms due to financial struggles; increased child marriage, transactional sex, reduced opportunities for schooling

Reference	Crisis	Country	Key findings
Onyango 2019 ⁷⁸	Ebola	West Africa	89% rape cases in Liberia were against children - Girls have increased responsibility in home, increasing opportunity for exploitation and sexual violence - Girls became heads of households during the Ebola pandemic - Girls who lost parents to Ebola forced to engage in transactional sex to afford food/housing - Children were afraid of rape shared these stories with each other - Most girls believed teenage pregnancy was rising and 10% stated that girls were being forced into prostitution due to loss of family members - Teenage pregnancy increased 65% from impacts of Ebola
Plan International 2015 ²⁹	Ebola	Liberia and Sierra Leone	- Stigma faced by large number of children due to social isolation - Few children were completing studies during school closure - Data suggests girls are less likely to home study than boys - Many parents are uneducated and cannot help children with schoolwork, children are too hungry to focus/busy working - Sports such as football, volleyball, kickball etc. could not be played and places of socialization were closed ~ 70% of children in Sierra Leone and Liberia played at home ~ 82 and ~ 85% in Sierra Leone and Liberia did not play in groups in groups, respectively. - Children grieving were unhappy, lonely, heartbroken - Interviews suggested that the emotional well-being of children was challenged by disrupted friendships, bereavement, a loss of hope in education, loss of care and intimacy with parents - Food availability/increased prices were problematic
Save the children 2020 - Learning must go on: recommendations for keeping children safe and learning during and After the COVID-19 Crisis ⁵⁰	COVID-19	N/A	- Marginalized children may not have access to distanced education - Many low SES families rely on school-provided meals - Low SES families will reduce income further - Children who live in countries already in conflict situations face greater challenges - Girls more likely to drop out of school with school closures - Reduced access to schools for girls results in increased labour, forced marriage, early pregnancy, domestic/sexual violence - Teenage pregnancy doubled to 14,000 during Ebola, girls were attacked/raped in quarantined home - Disruption of routines difficult for children with disabilities who require stability - Closures put children with disabilities at a greater risk of abuse
The Alliance for Child Protection in Humanitarian Action 2020 - COVID-19: Protecting Children from Violence, Abuse, and Neglect in the Home ⁷⁹	COVID-19	N/A	- Quarantine instills fear/panic in children - Children are experiencing disrupted family connections, support and fear of the disease - Discrimination/stigma against children greater risk for psychosocial distress and violence - Increased risk of violence and exploitation can result in psychological distress, negative impact on development
The Government of Quebec 2020 - How children and teens experience bereavement ³⁴	COVID-19	N/A	How children and adolescents react to loss of loved ones is dependent on their age, maturity, culture, relationship with the departed and support network
Thomas 2014 ⁵⁶	Ebola	West Africa	Food supply shortages mentioned (up to 40% of farmers in Sierra Leone abandoned farms) which may lead to malnutrition in children

Reference	Crisis	Country	Key findings
Ukraine 2020 - Emergency Response Plan for the COVID-19 Pandemic ⁶⁷	COVID-19	Ukraine	- Those most vulnerable to food insecurity include farmers and owners of local food markets - Minorities face barriers to learning from home language instruction and lack of supports - Children with disabilities struggle more with home learning due to lack of access to equipment and services
UN 2020 - A joint Statement on nutrition in the context of the COVID-19 pandemic in Asia and the Pacific ⁵⁵	COVID-19	Asia and the Pacific	- Lost income increases food insecurity - School closures eliminate subsidized meals for low SES children - Quarantine has increased the trend of non-diversified diets, increased consumption of processed foods, decreased consumption of nutritious foods (whole fresh fruits and vegetables) - Food systems and supply chains are being disrupted by lockdowns and restrictions - Infants, young children, pregnant women, breastfeeding mothers face risks to nutritional status - School closures prevent children from accessing crucial school health and nutrition services, including nutritious school meals
UN 2020 - COVID-19 Nepal preparedness and response plan ⁵⁸	COVID-19	N/A	Education of children has been disrupted, threatening continuity of education for children and the community
UNDP 2014 - Assessing the socio-economic impacts of Ebola Virus Disease in Guinea, Liberia and Sierra Leone ⁷⁷	Ebola	Guinea, Liberia and Sierra Leone	Reduction in employment, increased poverty and decreased food security
UNICEF 2020 - UNICEF Response to the COVID-19 Pandemic: Background Paper for the Executive Board ⁵³	COVID-19	N/A	- Strain on mental health of children and caregivers increased pressures and risk of violence against children, child marriage - Child protection is at risk due to lack of social services and family separation (child protection decreases by 25%) - Children with disabilities have an increased risk of violence, sexual abuse and exploitation - There is a marked increases in child poverty: 106 million children living in poor households by end of 2020 - Pandemic-related nutritional issues include: - Disruptions to food supply chains and local food markets - Increasing poverty reduces access to nutritious foods - Reduced access to essential nutrition services, including school meals (369 million children use) and services to prevent/treat stunting, wasting and micronutrient deficiencies
UNICEF 2020 - All means all: equity and inclusion in COVID-19 EIE response ⁶⁴	COVID-19	N/A	- Vulnerable children may struggle in continuing education online: - Confinement may have psychosocial impacts - Increased safety risks for vulnerable (e.g. child abuse in the home) - Neglect in children with disabilities - Greater isolation for girls and increased care for ill relatives and siblings
UNICEF 2020 - Children's Rights and Digital Business During COVID-19 and Beyond ²⁷	COVID-19	N/A	- Issues that may arise with increase in online access for children: - Access and equity - Rights for technology and content in education - Safety of children online - Fighting the spread of misinformation - Data protection and privacy for children - Surveillance and Infection Control - Digital marketing and responsible commercial practices

Reference	Crisis	Country	Key findings
			◦ Cybersecurity for children ◦ Supporting play and participation ◦ Innovating to support children's rights
UNICEF 2020 - The Socio-economic Impact of COVID-19 on Children and Young People in the Eastern Caribbean Area ⁶¹	COVID-19	Eastern Caribbean Area	• Education affected by prolonged interruption of courses and exams • Half have no internet and 40% relied on access outside the home • Reductions in future academic performance and increased dropout rates • Quarantine increases stress resulting in violence and neglect for children (exacerbated by unemployment and poverty) • Pronounced reductions in wages or earnings
UNICEF 2020 - COVID-19 and its implications for protecting children online ⁷³	COVID-19	N/A	• ↑ Internet use ↑ risk of sexual exploitation due to greater online contacts • Quarantine means that families are in closer contact, increasing child abuse online and offline • Extended unstructured time online=increased cyberbullying • Covid-19 introduced the use of instant messaging, online gaming and chat services to children with less online experience, who are also less resilient to harmful behavior
The alliance for child protection in humanitarian action - COVID-19 protecting children from violence, abuse and neglect in home ⁷⁹	COVID-19	N/A	• Common risk factors for violence, abuse and neglect: ◦ Increased poverty and food insecurity due to job loss ◦ Reduced access to education in person or online ◦ An increase in children's digital activity and a decrease in caregiver monitoring, which exposes them to greater digital risks ◦ ↑ children's digital activity ↓ in monitoring=greater digital risks ◦ Absence of school provided meals ◦ Disruption of peer/social support networks for children/caregivers ◦ Disruption of community/social support services ◦ Children/caregivers routines are broken down ◦ Increased alcohol and/or substance use by adolescents/caregivers ◦ Additional childcare arrangements
UNICEF 2020 - Framework for reopening schools 2020 ⁶⁸	COVID-19	N/A	• Interruption of education has long-term impacts (e.g. ↓ social cohesion, ↑ inequality, and poor health outcomes) • School closures impact's child ability to learn • Children less likely to return to school when out for a prolonged time • Being out of school ↑ risk of threats such as teenage pregnancy, sexual exploitation, child marriage, and violence • School closures interrupts services (e.g. immunization, feeding, mental health) • School closures cause stress/anxiety due to ↓ interaction and disrupted routines • Increased negative impacts for marginalized children
UNICEF 2020 - Gender-responsive social protection during COVID-19: Technical note ⁸⁰	COVID-19	N/A	• Economic shock will impact low income families the most • Long-term effects expected to ↑ homicides and violent assault • Longer-term and gendered impacts for children • Child marriage for girls increases disproportionately during times of crisis

Reference	Crisis	Country	Key findings
UNICEF 2020 - Humanitarian Action for Children: Coronavirus (COVID-19) Global Response ⁴⁸	COVID-19	N/A	• Vulnerable children are in danger of dropping out of school because of significant inequities in accessing remote learning, widening the education gap • Negative developmental impacts on children due to ↓ access to play, care etc. • Quarantine is isolating women and children in homes that are not safe • 106 million additional children will be in poor households by end of 2020 • School closures negatively impact learning, health, nutrition, protection and well-being • School interruptions create a risk of permanent dropout, especially for girls, children from poor households and children with disabilities • Internet access ranged from 1-86% depending on the region with most <50% • Poorer households in low-middle income countries have poorer access to technologies (e.g. TV, radio, and power supply) • 369 million have missed school meals which are relied upon by many • 265 million estimated to face starvation by end of the year • Estimates say children < 5 years with wasting disease could increase by 15 per cent over the first year of the pandemic (higher increases expected in Africa)
UNICEF 2020 - Migrant and Displaced Children in the Age of COVID-19: How the Pandemic Is Impacting Them and What Can We Do to Help ³⁹	COVID-19	N/A	• Misinformation ↑ discrimination and xenophobia towards migrant children • Border restriction reduces relief needed by marginalized children • 80% of children in Yemen are malnourished and rely on humanitarian aid • Migrant/displaced children experience ↑ effect of limited access to education due to language barriers for refugees and enrolment issues • Online learning results in unequal access due to poor electricity in remote locations and refugee camps • Economic downturns ↑ child married or sexual exploitation, domestic violence, social exclusion, and separation from care-givers • Migrant/displaced children unaccompanied due to disruptions in protection services, resulting in increased living on streets and greater risk for harms
UNICEF 2020 Reaching out to Partners in the Time of COVID-19: Key results for Children Nutrition ⁵¹	COVID-19	West Central Africa region (WCA)	• 80% increase in food insecurity expected for people in the WCA region • Increased food insecurity and COVID-19 effects are expected to ↑ level of SAM by 20%
UNICEF 2020 - Safe to Learn during COVID-19 ⁶³	COVID-19	N/A	• School closure results in ↓ social interactions crucial in developing social-emotional skills, normal development, and building coping skills • School closures will especially affect disabled, indigenous, refugee children, those in remote or rural areas, in countries with ongoing crisis, and those with limited access to family support networks or online education • Girls and children with disabilities are at a greater risk for violence • ↑ Gender inequalities, ↑ risk for child marriage and teenage pregnancies • Confinement and economic pressures in historic pandemics ↑ stress ∴ increasing family conflict, violence against children and exploitation
UNICEF 2020 - Scope of Food crisis as COVID-19 poses new risks to Nutritional needs of Children Malawi ⁵⁹	COVID-19	Malawi	• ↑ Food insecurity results in undernutrition and poor feeding practices • Small farm holders are particularly at risk for food insecurity • Vitamin A access expected to ↓ due to reduced access to health care facilities • School closure, market disruptions, suspension of nutrition programs, and poverty is expected to ↑ nutrition deficiencies, obesity, and undernutrition ↓ quality, quantity, frequency and diversity of diet

Reference	Crisis	Country	Key findings
			Adolescent girls at risk for not having psychosocial support and ↑ GBV
UNICEF 2020 - Yemen Five Years on Report ⁸⁷	COVID-19	Yemen	School closures, lockdowns, curfews, and the worsened economic conditions ↑ risk for violence, forced marriage, sexual exploitation, and reduced access to child protection
UNICEF 2020 COVID-19 response: considerations for children and adults with disabilities ⁶⁶	COVID-19	N/A	Children with disabilities are at risk for exclusion from education if remote learning is not accessible or they do not have assistive devices
Save The Children 2020 - Keeping Children Safe Online During the COVID-19 Pandemic ⁷²	COVID-19	N/A	- Survey in Thailand showed youth spend a lot of time playing online games, watching movies, using Facebook or suffering the internet - Youth have ↑ exposure to harmful content such as violence, self-harm, inappropriate advertising to children, and misinformation about COVID 19 - Online communities allow play, and continued education but ↑ online exposure ↑ risk of cyberbullying, sexual exploitation and risky behaviour - Children may talk more to strangers due to increased time online, and worry about what is happening in the world around them - Online platforms raise privacy concerns surrounding visible home environments and links can be misused for stealing information
UNICEF 2020- Technical Note: On COVID-19 and Harmful Practices ⁸²	COVID-19	N/A	- School closure → learning loss and drop out to care for sick and work - Quarantine reduces safe spaces resulting in ↑ tensions, violence in homes - Quarantines ↑ GBV, sexual exploitation, forced early marriage, teenage pregnancy, separation from friends and caregivers, and ↓ protection - Adolescent girls are more affected by pandemics due to ↑ loss of education, loss of reproductive health services, and social networks - Fear of infection, violence and mistreatment by health workers prevents adolescent girls from seeking health services - Loss of family can ↑ risk of abuse of children, especially in adolescent girls - Discrimination of those suspected to be infected → violence against children - Marginalized adolescents (e.g. disability) are vulnerable to stigma and abuse - Young children are more affected by loss of livelihood, poverty, unemployment, disruption in skill building activity, loss of aspirations and empowerment
United Nations Human Rights oPT 2020 - The rights of children amid COVID-19 ²²	COVID-19	Palestine Territory	↑ Depression, anxiety, isolation, uncertainty, worry, boredom, and rejection Low income has made access to quality food for children a challenge - Long periods from school ↓ chances marginalized children will return - Confinement ↑ risk for child abuse and being forced into crowded conditions - Children with reduced freedoms (e.g. detained) ↑ risk for violence, abuse, GBV - Vulnerable to abuse include children in poverty, with a disability, living on the streets, with underlying conditions, and with refugee status
WHO 2001 - A human rights approach to tuberculosis ⁵⁷	Tuberculosis	N/A	- Households may lose income or acquire debt due to TB - When child caregiver is occupied with caring for a relative with TB, the child may be neglected; become malnourished, or lose education

Reference	Crisis	Country	Key findings
WHO 2014 - Psychological First Aid during Ebola virus disease outbreaks ³⁷	Ebola	N/A	• Child pre-existing mental/physical disabilities ↑ risk for discrimination • Young girls at ↑ risk for violence due to self-protection challenges • Orphaned children experienced stigma and rejection from the community • Stigma/discrimination → isolation of children putting them at ↑ risk for harm
WHO 2020 - Global status report on preventing violence against children ⁸¹	COVID-19	N/A	• Physical distancing has ↑ risk of intra-family violence and online abuse • Child abuse and witnessing of violence between parents/caregivers increased • Spikes in calls to helplines about child abuse and intimate partner violence • Declines in # of child abuse cases referred to child protection services • ↑ in online harms, including sexual exploitation and cyber-bullying due to ↑ internet use by children

Abbreviations: COVID-19, Coronavirus disease 2019; EVD; Ebola virus disease; GBV, gender-based violence; UN, United Nations UNICEF, United Nations Children's Fund; WHO, World Health Organization, UNDP; United Nations Development Programme



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