



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



## The impact of COVID-19 on child and adolescent mental health and treatment considerations

Denise A. Chavira<sup>a,\*</sup>, Carolyn Ponting<sup>a,b</sup>, Giovanni Ramos<sup>a</sup>

<sup>a</sup> University of California Los Angeles, Department of Psychology, USA

<sup>b</sup> University of California San Francisco, Department of Psychiatry and Biobehavioral Sciences, USA

The U.S. Surgeon General has warned that young people are facing “devastating” mental health effects as a result of the challenges experienced by their generation, including the coronavirus pandemic (U.S. Surgeon General, 2021). The World Health Organization (WHO, 2022) and the United Nations (United Nations, 2020) also have published numerous scientific and policy briefs that echo these sentiments on a global level. While there were already concerns about youth mental health prior to the COVID-19 pandemic, the past two years have exposed children and adolescents to unprecedented events such as repeated periods of quarantine, school closures, disrupted peer relationships, COVID-19 infections, loss of loved ones, and a general sense of unpredictability in their lives. Consistent with previous pandemics (e.g., H1N1 influenza, Ebola), a growing body of literature shows that the COVID-19 pandemic has had a deleterious impact on youth mental health (Meherali et al., 2021; Singh et al., 2020). Studies conducted at the onset and throughout the course of the pandemic have noted increased mental health problems among youth, with greater impact noted among vulnerable subgroups, such as those with pre-existing mental health problems, those with physical disabilities, racial and ethnic minorities, and sexual minorities (Hawke et al., 2020, 2021). COVID-19 has also created new challenges for mental health treatment, and the equitable delivery of quality services to those in need. The current paper provides an overview of youth mental health in the context of COVID-19 and addresses five timely questions: 1) How has COVID-19 affected youth mental health outcomes? 2) What factors have contributed to mental health risk and resilience during COVID-19? 3) How has COVID-19 affected mental health services utilization? 4) What has been the impact of evidence-based treatments during COVID-19? and, 5) What are future directions for clinical research and policy to mitigate the impact of COVID-19 on the mental health of youth?

### 1. Has COVID-19 affected youth mental health outcomes?

#### 1.1. Changes in youth mental health since the start of the pandemic

Studies that provide prevalence rates of probable mental health disorders in the general population immediately prior and after pandemic onset (i.e., March 2020) are scarce. One study that provides such data is the NHS Digital survey of youth mental health in England (NHS Digital, 2020), which reported that 17% of youth had a probable mental health disorder in July 2020 compared with 11% in 2017; these elevated rates persisted in 2021 (NHS Digital, 2021). Another study, using questionnaires completed by youth and parents in the U.S., also found significant increases: 31.7% versus 56.7% of youth were in the subclinical or clinical range for internalizing problems in 2018 compared to 2020, and 17.4% versus 56.2% were in the subclinical or clinical range for externalizing problems in 2018 compared to 2020 (Rosen et al., 2021).

Longitudinal studies that have looked at mental health symptoms broadly, also have found significant increases. For example, data from parent-child dyads in the U.S. who participated in at least two waves of data collection before and during the pandemic, showed a within-person increase in mental health problems after controlling for changes associated with maturation (Hussong et al., 2021). The UK Household Longitudinal Survey, which has been collecting data from youth (ages 10–16) since 2009, found a significant decrease in the proportion of adolescents with a “low level” of emotional and peer relationship problems and a decrease in those with a “high level” of prosocial behaviors (Hu & Qian, 2021). Adverse changes were stronger for girls, low-income families, and single parent households. Additionally, data from a 10-year longitudinal study in Spain (Ezpeleta et al., 2020) found increases in conduct, peer, prosocial, and total problems, following the lockdown. Unexpectedly, data from Ezpeleta et al. also showed decreases in emotional problems after the lockdown, a finding that the

\* Corresponding author. 1285 Franz Hall, PO Box 951563, Los Angeles, CA 90095, USA.

E-mail address: [dchavira@psych.ucla.edu](mailto:dchavira@psych.ucla.edu) (D.A. Chavira).

<https://doi.org/10.1016/j.brat.2022.104169>

Received 20 December 2021; Received in revised form 14 July 2022; Accepted 22 July 2022

Available online 31 July 2022

0005-7967/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

authors hypothesized was due to their use of parent-report data which may have underestimated adolescent distress.

Longitudinal studies examining the impact of the pandemic on anxiety and depression specifically, also report worsening in these symptom domains. Data from an ongoing study of adolescents (ages 13–16) in Australia, who completed surveys in the 12 months before COVID and two months after government restrictions and remote learning were implemented, found significant, albeit modest, increases in depressive symptoms and anxiety, and a decrease in life satisfaction, effects that were particularly pronounced among girls (Magson et al., 2021). Findings from adolescents in China (ages 11–16), revealed significant increases in depressive symptoms and decreases in sleep duration during the COVID-19 pandemic (Shujuan et al., 2021). Further, in a study of adolescents in the U. S., which included four pre-COVID time points and a fifth post-COVID time point, anxiety and depression symptoms were significantly higher than what would have been predicted by previous trajectories, and deviations in individual trajectories were associated with greater perceived impact of the pandemic (De France et al., 2021). In perhaps the only longitudinal population-based study, findings from a nationwide sample of youth (ages 13–18) in Iceland (surveys administered in 2016, 2018, and in October 2020), showed an increase in depressive symptoms and a decrease in mental wellbeing across all age groups during the pandemic compared with same age groups before the pandemic (Thorisdottir et al., 2021). Similarly, aggregated data from a collaborative of 12 longitudinal samples of adolescents across three countries (i.e., Peru, Netherland, and the US), also showed significant increases in depressive symptoms (median increase = 28%), however anxiety symptoms remained stable (Barendse et al., 2021).

While most studies have reported declining mental health outcomes related to the pandemic, a few longitudinal studies have noted significant improvements. One study, conducted with youth (ages 12–16) in the Netherlands, found no change in internalizing symptoms and improved psychosomatic health from pre-COVID to post-COVID time-points (i.e., after lockdown restrictions) (van der Laan, 2021). Another study in the UK found an increase in the proportion of youth showing little or no conduct problems (Hu & Qian, 2021). In a sample of adolescents from China (ages 14–19), there was a decline in anxiety and depression as well as improved sleep (Li et al., 2021). Finally, at least two longitudinal studies provide support for the potential benefit of the pandemic on substance use and related problems in youth, with 1) declines in cigarette smoking, e-cigarette use, and alcohol intoxication (Thorisdottir et al., 2021), and 2) decreases in alcohol consumption (17% decline) and alcohol related harms (35% decline) (Clare et al., 2021).

While explanations for inconsistent findings regarding the impact of the pandemic on mental health across studies are not entirely clear, some possibilities include: 1) variability in pandemic assessment time-points (e.g., some assessments occur during initial lockdown restrictions, and others at later points during the pandemic), 2) the use of parent versus child report, 3) differential restriction guidelines across countries, and 4) social-contextual factors (e.g., parent employment status, exposure to pandemic stressors). Another explanation, at least with regard to emotional problems such as anxiety, is that the quarantine and related restrictions (e.g., remote learning) have provided a brief respite from school and sanctioned avoidance of many situations that may trigger anxiety symptoms in youth (e.g., social encounters, academic pressures, etc.).

Cumulatively, findings from these studies do indeed suggest that there has been a change for the worse in mental health functioning among children and adolescents. However, in most studies the effects have been modest, and a handful of studies have suggested improvement in some mental health symptoms post-pandemic. Most consistently, the pandemic seems to have negatively impacted mood with increasing levels of depressive symptoms found in the majority of longitudinal studies. Overall, data also show increases in anxiety as well as peer and

social problems. Importantly, the deleterious effects of the pandemic do not seem to be uniform across all symptom domains, and in some instances, longitudinal data suggest improvements in mental health outcomes such as conduct problems, substance use, and sleep. Moreover, the impact of COVID-19 has not been universal—girls and marginalized groups seem to fare worse (Hu & Qian, 2021; Hawke et al., 2021). Unfortunately, many of our studies thus far are based on youth who are non-Latinx White or Asian and from high income countries, creating knowledge gaps regarding the impact of COVID-19 on communities of color and youth mental health in other parts of the world, particularly lower- and middle-income countries.

### 1.2. Changes in youth mental health during the course of the pandemic

Studies examining changes in mental health symptoms during the course of the pandemic elucidate factors that may be increasing or mitigating negative mental health outcomes. A particularly noteworthy study in this regard is the Co-SPACE study, a UK-based longitudinal online survey of parents and adolescents, who have participated monthly since the fifth day of lockdown in March 2020 (Creswell et al., 2021). Based on data from more than 8700 families over one year (March 2020–2021), increases in parent-reported child behavioral and attentional difficulties coincided with escalated government restrictions, when most children were not attending in-person school. Specifically, levels of hyperactivity and conduct problems increased over a four-month period (March–July) while emotional symptoms remained stable and then declined during June–July (Raw et al., 2021). Similarly, in a study of adolescents and young adults in New York (Hawes et al., 2021), analyses showed that symptoms of depression and anxiety peaked around late April/early May 2020 and then decreased through May–July. Higher levels of anxiety and depression coincided with periods of peak infection rates and decreases co-occurred with declines in pandemic related stressors and COVID-19 infection rates.

## 2. What factors have contributed to mental health risk and resilience during COVID-19?

Various factors have contributed to the harmful impact of the pandemic on youth mental health, including individual (e.g., age, gender, disability), familial (e.g., parent-child conflict, domestic violence), community (e.g., access to peers and teachers, learning environment), and social (e.g., racism, economic status) level determinants. While the relative impact of these determinants is unknown, the sheer number of pandemic related stressors that a youth has experienced has been shown to be positively associated with levels of internalizing and externalizing symptoms early in the pandemic and six months later (Rosen et al., 2021). The continued examination of these factors and their complex interplay is critical to the identification of risk and protective factors that can be leveraged to improve treatments for youth during this COVID context.

### 2.1. Individual determinants of youth mental health during COVID

Findings from the Millennium Cohort study, a nationally-representative birth cohort study among British individuals born at the turn of the new century (Connelly and Platt, 2014), provide some support for the effects of an individual's pre-existing mental health problems on mental health outcomes during the pandemic. In a study by Essau and de la Torre-Luque (2021), four psychopathological profiles (i.e., low-symptom, high symptom, emotion-dysregulation, and substance/behavioral addictions) were identified using pre-pandemic data. During lockdown, adolescents in the high-symptom and emotional-dysregulation classes had the worst outcomes; specifically, they had more stress, conflict and loneliness, and lower levels of perceived social support than adolescents in the other groups. These data are consistent with studies that have found that the pandemic has

been particularly stressful for children and adolescents with neurodevelopmental disorders, such as autism, ADHD, and intellectual disabilities (Raw et al., 2021; Summers et al., 2021).

Whether other stressors such as early life adversity (e.g., child abuse and neglect, domestic violence, parental psychopathology) place youth at higher risk for experiencing negative mental health outcomes during the pandemic compared to youth without such adversity, is less straightforward. In one longitudinal study, adolescents without early life stressors exhibited clinically significant increases in anxiety and depression, while those with early life stressors displayed a more stable pattern (Cohen et al., 2021). In a different longitudinal study, which included youth 3–7 years prior to the pandemic, greater exposure to early life stressors predicted higher levels of symptoms of depression during the pandemic, and higher levels of perceived stress during the pandemic significantly mediated this association, even after controlling for demographic covariates and earlier levels of depression (Gotlib et al., 2021). Based on these findings, it would seem that previous adversity may increase risk for some and inoculate others. Understanding how early life stressors may affect sensitivity for pandemic related stress is an important direction for future research (Wade et al., 2020).

## 2.2. Familial determinants of youth mental health during COVID

Numerous studies have reported increased rates of anxiety and stress among adults during this pandemic, however, parents/caregivers, caregivers of adults, and those in both roles, have reported significantly worse mental health compared with those without caregiving roles (Czeisler et al., 2021). Approximately 1 in 4 parents reported worsening mental health during the pandemic and many parents have found themselves overwhelmed with having to juggle home school with work demands as well as other household and family commitments (Liang et al., 2021). Parental stress has been particularly high among single-adult households, low-income families, and in families where children have special educational needs or neurodevelopmental disorders (Hu & Qian, 2021; Summers et al., 2021). The elevated level of caregiver stress is concerning given prior robust relationships between caregiver stress and youth mental health outcomes (Bakoula et al., 2009).

Longitudinal studies, while limited, also support the impact of parenting and family functioning variables on child wellbeing. For example, some data show that increased parent-child conflict pre-pandemic predicted increases in youth mental health problems at multiple post-pandemic follow-up time points (Magson et al., 2021). In another study, where daily diaries were administered to parent-child dyads for a 14-day period before the pandemic, and during the pandemic, parents' negative affect was found to have increased during the pandemic. Contrary to hypotheses, however, this increase was not accompanied by poorer parenting behaviors (Janssen et al., 2020). Other daily diary studies that have included contextual factors such as employment and working from home conditions provide a more complex snapshot of familial influences. In a study which included a 15-day period during the early phase of the pandemic, researchers found that youth with parents who had experienced job loss reported greater increases in parent-child conflict, as well as decreases in self-reported positive affect and increases in negative affect (Wang, Toro, et al., 2021). Parents' working from home status predicted increases in parental warmth, which in turn predicted increases in child positive affect and decreases in child negative affect. As expected, levels of parent-adolescent conflict were higher among low-income families who were more likely to work in hourly and essential service sector jobs, and more vulnerable to job loss, infection, and financial stress during the pandemic (Perry-Jenkins et al., 2020). According to the authors, factors related to working from home such as financial stability, job security, professional autonomy, and schedule flexibility may buffer parents against psychological distress and negative parenting behaviors (Perry-Jenkins et al., 2020; Wang, Toro, et al., 2021). Importantly, the

burden of COVID has not been equal, and families who are socio-economically disadvantaged have found themselves at greater risk for parent-child conflict and poor mental health outcomes.

## 2.3. Community (peer and school) determinants of youth mental health during COVID

Peer and social relationships during the pandemic have received heightened attention given that quarantine restrictions and remote learning have limited important social experiences for both children and adolescents. These restrictions may be particularly impactful for adolescents, who increasingly rely on peers for support and are in a developmental stage characterized by social exploration (Orben et al., 2020). As schools have transitioned to remote learning, youth have lost access to peer and teacher-student relationships that can often serve as vital sources of social support (Feeney & Collins, 2015). Some youth have also experienced educational setbacks and delays in their social and emotional skills related to the pandemic. Longitudinal studies confirm that higher levels of government restrictions, which often have included school closures and cancellation of in-person activities, have coincided with poorer mental health outcomes (Barendse et al., 2021). Many are concerned that such restrictions have also led to heightened levels of loneliness among youth, which is noteworthy given previous links between loneliness and mental health outcomes, especially depression (Loades et al., 2020). Findings from the Co-SPACE study found that adolescents who reported higher loneliness during the first 11 weeks of the pandemic, had significantly higher levels of concurrent mental health difficulties (Cooper et al., 2021). However, loneliness during the first 11 weeks of the pandemic did not predict poorer mental health one month later. Continued research examining loneliness is necessary considering the ongoing nature of this pandemic, and previous research which has found that duration of loneliness is more important than intensity when it comes to mental health outcomes (Cooper et al., 2021).

## 2.4. Social (Neighborhood, race/ethnicity and economic) determinants of youth mental health during COVID

Many racial and ethnic minority groups, particularly those who face systemic inequities and economic stressors, are disproportionately represented among those who have experienced infection and covid related deaths, work jobs that have put them at elevated risk for infection, and have been hardest hit by the economic consequences of the pandemic (Page et al., 2020). Refugees and immigrants in the US, especially those who are low-income and undocumented, have been particularly vulnerable to the effects of the pandemic given; 1) lack of health insurance or access to primary care providers, hospitals, and testing, 2) critical language and technology barriers limiting access health and educational services, and 3) exclusion from government relief packages (Page et al., 2020). Further, some groups such as the Asian community, have been traumatized by being scapegoated as the source of COVID-19 in the U. S. and subjected to numerous incidents of discrimination (Cheah et al., 2020). Increases in Anti-Asian prejudice are particularly concerning given the robust relationships between racism, perceived discrimination and anxiety and depression in youth and adults (Paradies et al., 2015). Further, the fact that the pandemic began right before a resurging racial crisis in the U. S. related to the police killings of Black individuals, cannot be overlooked, given the added racial stress and trauma that Black communities have had to endure. The differential burden of the pandemic underscores the importance of considering the mental health needs of racial and ethnic minority youth in this context to ensure that existing disparities are not widened.

## 2.5. Protective factors of youth mental health during COVID

While most studies have focused on factors that increase risk for psychological distress during the pandemic, others have sought to

examine protective factors. In a study which combined two longitudinal samples of children and adolescents, assessed prior to the pandemic, during the stay-at-home orders, and six months later, the authors examined how family behaviors during the stay-at-home orders were related to changes in psychopathology across the pandemic. Findings revealed that having a structured routine, less passive screen time, lower exposure to news media about the pandemic, and to a lesser extent, more time in nature and getting adequate sleep were associated with reduced psychopathology (Rosen et al., 2021). Other studies that have assessed family factors have found that social support and closeness to parents were significantly associated with lower psychological distress at follow-up (Cooper et al., 2021). Indeed, future studies are advised to consider how personal and collective strengths may have reduced the impact of the pandemic on youth mental health, especially considering recent data showing that different sources of youth resilience (i.e., contextual, familial, individual) have differential protective effects against contextual stressors and mental health problems (e.g., depressive symptoms, somatic symptoms) (Ramos, Ponting, Bocanegra, et al., 2021).

### 3. Has COVID-19 impacted mental health services and service use?

#### 3.1. Mental health service utilization during COVID

The increase in youth mental health treatment need and accompanying service delivery challenges have resulted in new trends in help-seeking across varying contexts. During the pandemic, there have been changes to youths' utilization of psychological services from assessment to psychotherapy. For instance, early in the pandemic, psychological assessments in outpatient settings stalled while clinics developed best-practices for remote and hybrid assessment services (Farmer et al., 2020). In pediatric inpatient psychiatric units, in-person caseloads dropped approximately 40%, likely related to fear of contagion and strict shelter-in-place orders (Ugueto & Zeni, 2021). Concurrently, there was an increase in visits to emergency departments for mental health problems (Leeb et al., 2020), which was likely related to delays in needed care for youth with high impairment as well as fewer intervention options for youth with lower-acuity presentations.

While calls to initiate youth psychological service in outpatient settings reached an all-time low in April 2020, clinics have seen a steady increase following the end of shelter-in-place orders (Hoffnung et al., 2021). To respond to the greater need for mental health services and establish continuity of care during the pandemic, mental health agencies have transitioned from in-person to fully remote services in a relatively short period of time (Barney et al., 2020). Clinics have primarily relied on telehealth approaches—using audio-only calling or videoconferencing to facilitate interactions between mental health providers and clients. Though existing data suggest that telehealth approaches can be efficacious in treating youth with externalizing disorders (Sullivan et al., 2021), internalizing disorders (Ros-DeMarize et al., 2021), and trauma-related disorders (Racine et al., 2020), few studies to date have tested whether virtual treatment is as effective as in-person care among children (Greenwood et al., 2022).

Despite initial concerns about the effectiveness of telehealth and implementation barriers (e.g., lack of training, technological issues, attitudes about teletherapy), mental health providers working with youth have reported positive experiences, including decreases in no-shows and cancellations, and an increased ability to reach clients who experience barriers to attending face-to-face services such as lack of time or transportation (Barnett, Sigal, et al., 2021; Cunningham et al., 2021). However, some data from community mental health clinics in the U.S. suggest that the shift to remote services has been more successful for adults compared to youth. For example, in the first month of the pandemic, when in-person cases were transferred to telehealth, youth were more likely than adults to terminate existing mental health services

(Hoffnug et al., 2021). Additionally, as lockdown restrictions have lifted, youth have returned to face-to-face mental health services and decreased telehealth attendance at significantly higher rates than adults. Unfortunately, recent data also have shown that telehealth service utilization rates during the pandemic mirror disparities present in pre-pandemic in-person care. For example, during the course of the pandemic, racial and ethnic minority youth have been less likely to seek psychological assessments (Stewart et al., 2021) or attend telehealth psychotherapy visits (Childs et al., 2021) compared with non-Latinx White youth. Additionally, following shelter in place orders, youth in rural areas had lower retention rates than those in urban areas (Ainslie et al., 2021). These studies show that while mental health professionals and families have been able to adapt to virtual care as a result of shelter in place orders, adults have had an easier time engaging in remote interventions compared with youth. Further, similar to in person mental health care, disparities in utilization of remote services based on race/ethnicity and geography have persisted.

#### 3.2. Barriers to service use during COVID

While significant strides have been made in the delivery of remote services, barriers persist and disproportionately affect mental health care among marginalized groups (Cunningham et al., 2021). Despite data showing increased access to technology among the general population, low-income families, people of color, and rural communities still have less access to broadband internet, and technological devices such as desktop/laptop computers, compared with more affluent non-Latinx White families (Pew Research, 2021). As such, it is not surprising that some families have been less able to engage with telehealth services during the pandemic (Childs et al., 2021; Stewart et al., 2021). Lack of privacy may be another barrier that has deterred service use in this COVID context. Low-income and immigrant families are more likely to live in overcrowded or multi-family households, where private spaces to engage in therapy are sparse (Guadagno, 2020; Hernández et al., 2016). This can be a significant liability for youth where family stress and conflict may be contributing to mental health difficulties, especially among sexual and gender minority youth living in non-affirming settings (Salerno et al., 2020). Lastly, youth experiencing pandemic related stressors such as parental job loss, eviction, or bereavement, often have elevated need for mental health services but may have difficulty accessing care, due to familial economic and housing stability (Cénat et al., 2020). Given many clinics' present adoption of hybrid models of care (i.e., in person and remote), we urgently need research that considers issues of equity and inclusion in the implementation of telehealth services to effectively address barriers to care for marginalized groups (Lattie et al., 2022; Ramos, Ponting, Labao, & Sobowale, 2021) and ensure safety.

### 4. What has been the impact of evidence based treatments during COVID?

Data from this review suggest that interventions that address depression and anxiety, peer problems and loneliness, as well as related problems (e.g., negative affect, intolerance of uncertainty) are particularly relevant in this COVID-19 context. Cognitive behavior therapy (CBT) and behavior therapies (BT) are gold-standard interventions for youth with anxiety and depressive disorders (Levy et al., 2022; Zhou et al., 2015), and a growing body of literature supports the delivery of these interventions using telehealth and virtual modalities (Hill et al., 2018; Lyneham & Rapee, 2006; Shirotaki et al., 2022). CBT protocols that have been adapted to teach skills relevant to pandemic related distress (e.g., psychoeducation about grief, coping with uncertainty) are currently being tested for efficacy. For example, school based mental health professionals in several U.S. states have been trained to deliver a seven-session group CBT program to reduce COVID-19 related distress to children returning to in-person learning. Clinical outcome data are

pending however school-based providers endorse the program's feasibility, acceptability, and utility for students (Rodríguez-Quintana et al., 2021). Additionally, data suggest that telehealth based CBT for youth with internalizing symptoms during the pandemic has been associated with significant reductions in youth depression (Uysal et al., 2022). Based on extant data, CBT and BT appear to be promising treatment approaches for COVID related psychological distress as well as general mental health problems (e.g., anxiety and depression) using novel modes of service delivery.

Interventions that address common factors that contribute to a diverse set of psychological problems are likely to be useful given the varied emotional impacts of the pandemic. The Unified Protocol for Transdiagnostic Treatment of Emotional Disorders in Children and Adolescents (Ehrenreich et al., 2009), which works from the underlying theoretical framework that difficulties with managing emotions (e.g., avoidance of emotions, perception of emotions as uncontrollable, intolerance of uncertainty) have a central role in a wide range of behavioral and emotional problems, may be a useful intervention to consider in the pandemic context (Cassielo-Robbins et al., 2021). In the Unified Protocol, cognitive behavior and third wave behavior strategies, such as cognitive flexibility, mindful emotional awareness, values aligned action and labeled praise, are used to address intense negative emotional states that contribute to an array of problems. In a recently published case example, where the Unified Protocol was adapted for parenting concerns during the pandemic and delivered remotely, improvements were reported in parental depression, anxiety and traumatic stress symptoms and child anxiety symptoms (Ehrenreich-May et al., 2021).

Other promising data come from single session interventions targeting transdiagnostic mechanisms. A recent RCT examining the efficacy of an online single session intervention teaching behavioral activation or growth mindset principles (i.e., that psychological traits and states are malleable) (Schleider et al., 2021) found that youth in both single session intervention groups showed significantly greater symptom improvements in depression and hopelessness compared with a control group immediately post-intervention as well as three months post-treatment. Though both interventions treated youth with elevated symptoms, research moving forward can assess the extent to which brief transdiagnostic interventions can be applied to youth in a more preventive capacity, which may be particularly relevant given that pandemic related stressors may increase risk for mental health problems among certain individuals and groups, and COVID variants may necessitate future restrictions and lockdowns.

Given the prevalence of caregiver/parenting stress and family conflict as well as their associated impact, interventions that address behavioral problems and improve the family environment are also needed during this COVID context. Among numerous behavioral parent training programs available, Parent-Child Interaction Therapy (PCIT) (Eyberg & Funderburk, 2011) may be especially well-suited to reach families during the pandemic, given that "in-vivo" coaching of parenting skills can be delivered remotely in a very similar fashion as clinic-based PCIT (Gurwitsch et al., 2020). Community therapists delivering PCIT remotely mostly have found the switch to a virtual format acceptable, and see their ability to coach parents in their naturalistic settings as a benefit (Barnett, Sigal, et al., 2021). These impressions align with findings from a study examining the outcomes of a clinic serving primarily Latinx families during the pandemic, where switching delivery of PCIT from in-person to a virtual model of delivery did not impact clinical outcomes; medium to large effects were still seen with regard to child internalizing and externalizing symptoms (Garcia et al., 2021). Further, previous studies have found that PCIT significantly reduced caregiver stress (Valero Aguayo et al., 2021) and promoted secure attachment between caregivers and youth (Blizzard et al., 2018), findings that are particularly important considering the prominence of caregiver stress and the protective role of supportive parent-child relationships during the pandemic (Cooper et al., 2021).

## 5. What are future directions for research and policies to mitigate the impact of COVID on youth mental health?

### 5.1. Longitudinal and developmental research

Continued longitudinal and developmental research is necessary if we are to eclipse the devastating effects of this pandemic on youth mental health. In the context of the COVID-19 pandemic, models of developmental psychopathology that consider the complex interplay of factors that instigate and mitigate risk for negative mental health outcomes should be used to inform future research directions (Wade, 2020). For instance, the pandemic has exposed youth to multiple stressors (e.g., educational setbacks, social isolation, family conflict, loss of family members, discrimination) that have created a cumulative risk for mental health problems. For some youth, the effects of the pandemic may not be observed immediately but manifested later at critical periods of development and brain maturation, and in given social contexts. Understanding the timing of pandemic related effects is another important research direction. Lastly, as discussed by Wade and colleagues (2020), the pandemic may have sensitizing effects: 1) Pre-pandemic adversity (e.g., economic hardship, prior health conditions, early trauma, racism) may make some youth more sensitive to the effects of pandemic related stress (e.g., isolation, quarantine), and 2) The pandemic itself may be an event that lowers the threshold for tolerating future stress; this may be particularly prominent among those who have not experienced prior life adversity. A thoughtful and effective mental health treatment response to COVID-19 relies on such research.

### 5.2. Transporting interventions to the community

Given the ongoing and emerging effects of the pandemic and associated pandemic related stressors, it is critical to adjust our intervention programming to be inclusive of those with existing vulnerabilities and subthreshold clinical symptoms. This shift may be particularly useful for low-income and marginalized groups who have been disproportionately affected by the pandemic but lack access to critical resources (health, mental health, social, educational) to mitigate pandemic related stress. Delivering mental health care in non-traditional settings like school and primary care may be especially effective in reaching youth from low-income households and those from racial and ethnic minority backgrounds, given that these settings are easier to access and associated with less stigma than mental health specialty clinics (Ali et al., 2019; Hodgkinson et al., 2017). Mental health programming in schools to assist youth with peer integration and processing negative emotions may be particularly useful (Hertz & Barrios, 2021). Additionally, primary care may be well-positioned to screen for common pandemic-related adverse events, respond with education about the effects of these events on health, and refer families to community or behavioral health services (Tomaz & Castro-Vale, 2020).

### 5.3. Digital mental health

Considering the increase in demand for mental health services among youth during and following the COVID-19 pandemic (Saunders et al., 2022) and the limited availability of providers specialized in working with youth (Radez et al., 2021), digital mental health interventions such as online and app-based programs are well positioned to improve service availability for youth and their families. Digital modalities are often transportable and self-directed, and can help address the shortage of mental health professionals, mitigate logistic barriers to service utilization, decrease costs of evidence-based treatment implementation, and engage youth in care who may not seek services otherwise (Kazdin, 2019; Ramos & Chavira, 2020). Furthermore, metanalytic work suggests that evidence based interventions like CBT are effective for youth when delivered digitally (Hollis et al., 2017; Punukollu & Marques, 2019).

Evidence for the potential utility of these technologies with children and adolescents during the pandemic already exist. For instance, data suggests that youth who report mental health concerns are open to using app based technology. In observational studies, youth reporting high levels of psychological distress, loneliness and COVID-19 related worries were more likely to be using mental health apps than those without psychological distress (Rauschberg et al., 2021). With regard to whether digital technologies can alleviate symptoms, there are several examples of low-intensity self-directed digital programs that have shown to be effective in reducing overall distress, hopelessness, anxiety, and depression during the pandemic (Ching et al., 2022; Schleider et al., 2021).

Although digital mental health interventions for youth exist, most commercially available programs have not been empirically tested and are not derived from evidence-based principles that support mental health improvement (Lui et al., 2017; Wasil et al., 2019, 2020). Additionally, initial data suggest certain subgroups (e.g., young children) might benefit less from teletherapy (Copson et al., 2022) or app-based mental health interventions (Grist et al., 2017). As such, efforts to evaluate the quality of digital mental health interventions, the comparative utility of various technologies (e.g., app-based versus video therapy) and adjunctive support (e.g., parent assisted versus self-directed) across diverse samples of youth are needed.

#### 5.4. Policy implications

It is undeniable that the scoping effect of the pandemic on children and their family's mental health requires mobilization at the legislative and policy levels. Initial legislative responses to the pandemic have included the Coronavirus Aid, Relief, and Economic Security (CARES) Act, which has provided funding for certified community behavioral health clinics, and suicide prevention programs (Goldman et al., 2020). Funding directed towards the Federal Communications Commission also has facilitated the roll out of telehealth services (e.g., infrastructure, telehealth devices) for eligible health care providers (Goldman et al., 2020). In the absence of universal healthcare, improving insurance coverage for underinsured communities as well as frontline workers (i. e., from medical providers to farmworkers) who are also those most affected by the pandemic, is vital for health equity. Additional funding aimed toward prevention programs that educate youth about pandemic related stress and teach important coping strategies is also critical. Moving forward, it is also important for mental health clinics and training sites to develop curricula that cover multiple digital modalities (e.g., online, apps, virtual reality) with different levels of professional support (e.g., self-directed, coach-assisted, fully involved telehealth). Importantly, community mental health providers and policy makers agree that training efforts must be met with expanding insurance reimbursement for remote services, and funding for technological support within clinics for best outcomes (Arevian et al., 2020).

#### 6. Conclusions

A growing body of evidence suggest that the COVID-19 pandemic has affected youth in significant ways, many of which are still emerging in this dynamic context. Findings from these studies have also revealed that the pandemic is not the "great equalizer" and that certain groups, lower-income and racial/ethnic minority groups, specifically, have been disproportionately affected. Longitudinal studies have already elucidated many of the important targets to improve youth mental health including those that reside in the familial and peer realms. It is imperative to translate these findings into clinical practice to improve mental health outcomes for youth exposed to pandemic related stressors. Given existing data on digital mental health services and evidence-based treatments, an effective treatment response is in reach. However, additional research, funding, and policy changes are necessary in order to effectively address the mental health needs of our youth during these

unprecedented times.

#### CRedit authorship contribution statement

**Denise A. Chavira:** Conceptualization, Writing – original draft, Writing – review & editing. **Carolyn Ponting:** Conceptualization, Writing – original draft, Writing – review & editing. **Giovanni Ramos:** Conceptualization, Writing – original draft, Writing – review & editing.

#### Acknowledgements

This work, specifically the preparation and writing of this article, was supported by grant funding awarded to DAC from the National Institutes of Health [R61MH119270, P50MH126337].

#### References

- Ainslie, M., Brunette, M., & Capozzoli, M. (2021). Telemedicine among medicaid beneficiaries in community mental health care during the first three months of the 2020 COVID-19 state of emergency. *Health Services Research, 56*(S2). <https://doi.org/10.1111/1475-6773.13758>, 29–29.
- Ali, M. M., West, K., Teich, J. L., Lynch, S., Mutter, R., & Dubenitz, J. (2019). Utilization of mental health services in educational setting by adolescents in the United States. *Journal of School Health, 89*(5), 393–401. <https://doi.org/10.1111/JOSH.12753>
- Arevian, A. C., Jones, F., Moore, E. M., Goodsmith, N., Aguilar-Gaxiola, S., Ewing, T., Siddiq, H., Lester, P., Cheung, E., Ijadi-Maghsoodi, R., Gabrielian, S., Sugarman, O. K., Bonds, C., Benitez, C., Innes-Gomberg, D., Springgate, B., Haywood, C., Meyers, D., Sherin, J. E., & Wells, K. (2020). Mental health community and health system issues in COVID-19: Lessons from academic, community, provider and policy stakeholders. *Ethnicity & Disease, 30*(4), 695. <https://doi.org/10.18865/ED.30.4.695>
- Bakoula, C., Kolaitis, G., Veltsista, A., Gika, A., & Chrousos, G. P. (2009). Parental stress affects the emotions and behaviour of children up to adolescence: A Greek prospective, longitudinal study. *Stress: The International Journal on the Biology of Stress, 12*(6), 486–498.
- Barendse, M., Flannery, J., Cavanagh, C., Aristizabal, M., Becker, S. P., Berger, E., ... Pfeifer, J. (2021). Longitudinal change in adolescent depression and anxiety symptoms from before to during the COVID-19 pandemic: An international collaborative of 12 samples.
- Barnett, P., Goulding, L., Casetta, C., Jordan, H., Sheridan-Rains, L., Steare, T., ... Johnson, S. (2021). Implementation of telemental health services before COVID-19: Rapid umbrella review of systematic reviews. *Journal of Medical Internet Research, 23*(7), Article e26492.
- Barnett, M. L., Sigal, M., Green Rosas, Y., Corcoran, F., Rastogi, M., & Jent, J. F. (2021). Therapist experiences and attitudes about implementing internet-delivered parent-child interaction therapy during COVID-19. *Cognitive and Behavioral Practice, 28*(4), 630–641. <https://doi.org/10.1016/J.CBPRA.2021.03.005>
- Barney, A., Buckelew, S., Mesheriakova, V., & Raymond-Flesch, M. (2020). The COVID-19 pandemic and rapid implementation of adolescent and young adult telemedicine: Challenges and opportunities for innovation. *Journal of Adolescent Health, 67*(2), 164–171. <https://doi.org/10.1016/J.JADOHEALTH.2020.05.006>
- Blizzard, A. M., Barroso, N. E., Ramos, F. G., Graziano, P. A., & Bagner, D. M. (2018). Behavioral parent training in infancy: What about the parent-infant relationship? *Journal of Clinical Child and Adolescent Psychology, 47*(sup1), S341–S353.
- Cassello-Robbins, C., Rosenthal, M. Z., & Ammirati, R. J. (2021). Delivering transdiagnostic treatment over telehealth during the COVID-19 pandemic: Application of the unified protocol. *Cognitive and Behavioral Practice, 28*(4), 555–572. <https://doi.org/10.1016/J.CBPRA.2021.04.007>
- Cénat, J. M., Dalexis, R. D., Kokou-Kpolou, C. K., Mukunzi, J. N., & Rousseau, C. (2020). Social inequalities and collateral damages of the COVID-19 pandemic: When basic needs challenge mental health care. *International Journal of Public Health, 65*(6), 717–718. <https://doi.org/10.1007/S00038-020-01426-Y>, 2020, 65(6).
- Cheah, C. S. L., Wang, C., Ren, H., Zong, X., Cho, H. S., & Xue, X. (2020). COVID-19 racism and mental health in Chinese American families. *Pediatrics. https://doi.org/10.1542/peds.2020-021816*. Epub 2020.
- Childs, A. W., Bacon, S. M., Klingensmith, K., Li, L., Unger, A., Wing, A. M., & Fortunati, F. (2021). Showing up is half the battle: The impact of telehealth on psychiatric appointment attendance for hospital-based intensive outpatient services during COVID-19. *Telemedicine and e-Health, 27*(8), 835–842. <https://doi.org/10.1089/tmj.2021.0028>
- Ching, B. C., Bennett, S. D., Morant, N., Heyman, I., Schleider, J. L., Fifield, K., ... Shafran, R. (2022). Growth mindset in young people awaiting treatment in a paediatric mental health service: A mixed methods pilot of a digital single-session intervention. *Clinical Child Psychology and Psychiatry, 13591045221105193*.
- Clare, P. J., Aiken, A., Yuen, W. S., Upton, E., Kypril, K., Degenhardt, L., ... Peacock, A. (2021). Alcohol use among young Australian adults in may-june 2020 during the COVID-19 pandemic: A prospective cohort study. *Addiction*.
- Cohen, Z. P., Cosgrove, K. T., DeVille, D. C., Akeman, E., Singh, M. K., White, E., Stewart, J. L., Aupperle, R. L., Paulus, M. P., & Kirlic, N. (2021). The impact of COVID-19 on adolescent mental health: Preliminary findings from a longitudinal

- sample of healthy and at-risk adolescents. *Frontiers in Pediatrics*, 440. <https://doi.org/10.3389/fped.2021.622608>
- Connelly, Roxanne, & Platt, Lucinda (2014). Cohort Profile: UK Millennium Cohort Study (MCS). *International Journal of Epidemiology*, 43(6), 1719–1725. <https://doi.org/10.1093/ije/dyu001>.
- Cooper, K., Hards, E., Moltrecht, B., Reynolds, S., Shum, A., McElroy, E., & Loades, M. (2021). Loneliness, social relationships, and mental health in adolescents during the COVID-19 pandemic. *Journal of Affective Disorders*, 289, 98–104.
- Copson, R., Murphy, A. M., Cook, L., Neil, E., & Sorensen, P. (2022). Relationship-based practice and digital technology in child and family social work: Learning from practice during the COVID-19 pandemic. <https://doi.org/10.1177/25161032221079325>, 4(1), 3–19.
- Creswell, C., Shum, A., Pearcey, S., Skripkauskaitė, S., Patalay, P., & Waite, P. (2021). Young people's mental health during the COVID-19 pandemic. *The Lancet Child & Adolescent Health*, 5(8), 535–537.
- Cunningham, N. R., Ely, S. L., Barber Garcia, B. N., & Bowden, J. (2021). Addressing pediatric mental health using telehealth during coronavirus disease-2019 and beyond: A narrative review. *Academic Pediatrics*, 21(7), 1108–1117. <https://doi.org/10.1016/j.acap.2021.06.002>
- Czeisler, M.É., Rohan, E. A., Melillo, S., Matjasko, J. L., DePadilla, L., Patel, C. G., ... Rajaratnam, S. M. (2021). Mental health among parents of children Aged < 18 Years and unpaid caregivers of adults during the COVID-19 pandemic-United States, December 2020 and February- March 2021. *Morbidity and Mortality Weekly Report*, 70(24), 879.
- De France, K., Hancock, G. R., Stack, D. M., Serbin, L. A., & Hollenstein, T. (2021). The mental health implications of COVID-19 for adolescents: Follow-up of a four-wave longitudinal study during the pandemic. *American Psychologist*.
- Ehrenreich-May, J., Halliday, E. R., Karlovich, A. R., Gruen, R. L., Pino, A. C., & Tonarely, N. A. (2021). Brief transdiagnostic intervention for parents with emotional disorder symptoms during the COVID-19 pandemic: A case example. *Cognitive and Behavioral Practice*, 28(4), 690–700. <https://doi.org/10.1016/j.cbpra.2021.01.002>
- Ehrenreich, J. T., Goldstein, C. R., Wright, L. R., & Barlow, D. H. (2009). Development of a unified protocol for the treatment of emotional disorders in youth. *Child & Family Behavior Therapy*, 31(1), 20–37. <https://doi.org/10.1080/07317100802701228>
- Essau, C. A., & de la Torre-Luque, A. (2021). Adolescent psychopathological profiles and the outcome of the COVID-19 pandemic: Longitudinal findings from the UK Millennium cohort study. *Progress In Neuro-Psychopharmacology & Biological Psychiatry*, 110, Article 110330. <https://doi.org/10.1016/j.pnpb.2021.110330>
- Eyberg, S. M., & Funderburk, B. W. (2011). *Parent-child interaction therapy protocol*. Ezpeleta, L., Navarro, J. B., de la Osa, N., Trepate, E., & Penelo, E. (2020). Life conditions during COVID-19 lockdown and mental health in Spanish adolescents. *International Journal of Environmental Research and Public Health*, 17(19), 7327.
- Farmer, R. L., McGill, R. J., Dombrowski, S. C., Benson, N. F., Smith-Kellen, S., Lockwood, A. B., Powell, S., Pynn, C., & Stinnett, T. A. (2020). Conducting psychoeducational assessments during the COVID-19 crisis: The danger of Good intentions. *Contemporary School Psychology*, 25(1), 27–32. <https://doi.org/10.1007/S40688-020-00293-X>, 2020, 25(1).
- Feeney, B. C., & Collins, N. L. (2015). A new look at social support: A theoretical perspective on thriving through relationships. *Personality and Social Psychology Review*, 19(2), 113–147.
- García, D., Blizard, A. M., Peskin, A., Rothenberg, W. A., Schmidt, E., Piscitello, J., Espinosa, N., Salem, H., Rodriguez, G. M., Sherman, J. A., Parlade, M. V., Landa, A. L., Davis, E. M., Weinstein, A., Garcia, A., Perez, C., Rivera, J. M., Martinez, C., & Jent, J. F. (2021). Rapid, Full-scale change to virtual PCIT during the COVID-19 pandemic: Implementation and clinical implications. *Prevention Science*, 22(3), 269–283. <https://doi.org/10.1007/S11221-021-01211-0/TABLES/3>
- Goldman, M. L., Druss, B. G., Horvitz-Lennon, M., Norquist, G. S., Patakowsky, K. K., Brinkley, A., Greiner, M., Hayes, H., Hepburn, B., Jorgensen, S., Swartz, M. S., & Dixon, L. B. (2020). *Mental health policy in the era of COVID-19*, 71(11). <https://doi.org/10.1176/APPI.PS.202000219>. <https://doi.org/10.1176/APPI.PS.202000219>
- Gotlib, I. H., Borchers, L. R., Chahal, R., Gifuni, A. J., Teresi, G. I., & Ho, T. C. (2021). Early life stress predicts depressive symptoms in adolescents during the COVID-19 pandemic: The mediating role of perceived stress. *Frontiers in Psychology*, 11, Article 603748. <https://doi.org/10.3389/fpsyg.2020.603748>
- Greenwood, H., Krzyzaniak, N., Peiris, R., Clark, J., Scott, A. M., Cardona, M., Griffith, R., & Glasziou, P. (2022). Telehealth versus face-to-face psychotherapy for less common mental health conditions: Systematic review and meta-analysis of randomized controlled trials. *JMIR Mental Health*, 9(3), Article e31780. <https://doi.org/10.2196/31780>, 2022.
- Grist, R., Porter, J., & Stallard, P. (2017). Mental health mobile apps for preadolescents and adolescents: A systematic review. *E176 Journal of Medical Internet Research*, 19(5). <https://doi.org/10.2196/JMIR.7332>, 2017, <https://www.jmir.org/2017/5/E176>, 19(5), e7332.
- Guadagno, L. (2020). Migrants and the COVID-19 pandemic: An initial analysis. [www. iom.int](http://www.iom.int).
- Gurwirth, R. H., Salem, H., Nelson, M. M., & Comer, J. S. (2020). Leveraging parent-child interaction therapy and telehealth capacities to address the unique needs of young children during the COVID-19 public health crisis. *Psychological Trauma: Theory, Research, Practice, and Policy*, 12(S1), S82.
- Hawes, M. T., Szenczy, A. K., Klein, D. N., Hajcak, G., & Nelson, B. D. (2021). Increases in depression and anxiety symptoms in adolescents and young adults during the COVID-19 pandemic. *Psychological Medicine*, 1–9. <https://doi.org/10.1017/S0033291720005358>
- Hawke, L. D., Barbic, S. P., Voineskos, A., Szatmari, P., Cleverley, K., Hayes, E., ... Henderson, J. L. (2020). Impacts of COVID-19 on youth mental health, substance use, and well-being: A rapid survey of clinical and community samples: Répercussions de la COVID-19 sur la santé mentale, l'utilisation de substances et le bien-être des adolescents: Un sondage rapide d'échantillons cliniques et communautaires. *Canadian Journal of Psychiatry*, 65(10), 701–709.
- Hawke, L. D., Hayes, E., Darnay, K., & Henderson, J. (2021). Mental health among transgender and gender diverse youth: An exploration of effects during the COVID-19 pandemic. *Psychology of Sexual Orientation and Gender Diversity*.
- Hernández, D., Jiang, Y., Carrión, D., Phillips, D., & Aratani, Y. (2016). *Journal of Children and Poverty Housing hardship and energy insecurity among native-born and immigrant low-income families with children in the United States*. <https://doi.org/10.1080/10796126.2016.1148672>
- Hertz, M. F., & Barrios, L. C. (2021). Adolescent mental health, COVID-19, and the value of school-community partnerships. *Injury Prevention*, 27(1), 85–86.
- Hill, C., Creswell, C., Vigerland, S., Nauta, M. H., March, S., Donovan, C., Wolters, L., Spence, S. H., Martin, J. L., Wozney, L., McLellan, L., Kreuzer, L., Gould, K., Jolstedt, M., Nord, M., Hudson, J. L., Utens, E., Ruwaard, J., Albers, C., ... Kendall, P. C. (2018). Navigating the development and dissemination of internet cognitive behavioral therapy (iCBT) for anxiety disorders in children and young people: A consensus statement with recommendations from the #iCBTLorentz workshop group. *Internet Interventions*, 12, 1–10. <https://doi.org/10.1016/J.INVENT.2018.02.002>
- Hodgkinson, S., Godoy, L., Beers, L. S., & Lewin, A. (2017). Improving mental health access for low-income children and families in the primary care setting. *Pediatrics*, 139(1). <https://doi.org/10.1542/PEDS.2015-1175>
- Hoffnung, G., Feigenbaum, E., Schechter, A., Guttman, D., Zemon, V., & Schechter, I. (2021). Children and Telehealth in Mental Healthcare: What We Have Learned From COVID-19 and 40,000+ Sessions. <https://doi.org/10.1176/Appi.Prp.20200035>, 3(3), 106-114. <https://doi.org/10.1176/APPI.PRPC.20200035>.
- Hollis, C., Falconer, C. J., Martin, J. L., Whittington, C., Stockton, S., Glazebrook, C., & Davies, E. B. (2017). Annual Research Review: Digital health interventions for children and young people with mental health problems – a systematic and meta-review. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 58(4), 474–503. <https://doi.org/10.1111/jcpp.12663>
- Hu, Y., Qian, Y. COVID-19 and adolescent mental health in the United Kingdom (2021). *Journal of Adolescent Health*, 69(1), 26-32. doi: 10.1016/j.jadohealth.2021.04.005.
- Hussong, A. M., Midgette, A. J., Thomas, T. E., Coffman, J. L., & Cho, S. (2021). Coping and mental health in early adolescence during COVID-19. *Research on child and adolescent psychopathology*, 1–11.
- Janssen, L. H., Kullberg, M. L. J., Verkuil, B., van Zwieten, N., Wever, M. C., van Houtum, L. A., ... Elzinga, B. M. (2020). Does the COVID-19 pandemic impact parents' and adolescents' well-being? An EMA-study on daily affect and parenting. *PLoS One*, 15(10), Article e0240962.
- Kazdin, A. E. (2019). Annual research review: Expanding mental health services through novel models of intervention delivery. *Journal of Child Psychology and Psychiatry*, 60(4), 455–472.
- van der Laan, S. E., Finkenauer, C., Lenters, V. C., Van Harmelen, A. L., van der Ent, C. K., & Nijhof, S. L. (2021). Gender-specific changes in life satisfaction after the COVID-19-related lockdown in Dutch adolescents: A longitudinal study. *Journal of Adolescent Health*, 69(5), 737–745.
- Leeb, R. T., Bitsko, R. H., Radhakrishnan, L., Martinez, P., Njai, R., & Holland, K. M. (2020). Mental health-related emergency department visits among children aged < 18 years during the COVID-19 pandemic—United States, January 1–October 17, 2020. *Morbidity and Mortality Weekly Report*, 69(45), 1675.
- Levy, H. C., Stevens, K. T., & Tolin, D. F. (2022). Research review: A meta-analysis of relapse rates in cognitive behavioral therapy for anxiety and related disorders in youth. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 63(3), 252–260. <https://doi.org/10.1111/jcpp.13486>
- Liang, Z., Mazzeschi, C., & Delvecchio, E. (2021). The impact of parental stress on Italian adolescents' internalizing symptoms during the COVID-19 pandemic: A longitudinal study. *International Journal of Environmental Research and Public Health*, 18(15), 8074.
- Li, Y., Zhou, Y., Ru, T., Niu, J., He, M., & Zhou, G. (2021). How does the COVID-19 affect mental health and sleep among Chinese adolescents: A longitudinal follow-up study. *Sleep Medicine*, 85, 246–258.
- Loades, M. E., Chatburn, E., Higson-Sweeney, N., Reynolds, S., Shafran, R., Brigden, A., Linney, C., McManus, M. N., Borwick, C., & 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 the American Academy of Child & Adolescent Psychiatry*, 59(11), 1218–1239. <https://doi.org/10.1016/j.jaac.2020.05.009>. e3.
- Lui, J. H., Marcus, D. K., & Barry, C. T. (2017). Evidence-based apps? A review of mental health mobile applications in a psychotherapy context. *Professional Psychology: Research and Practice*, 48(3), 199.
- Lyneham, Heidi J., & Rapee, Ronald M. (2006). Evaluation of therapist-supported parent-implemented CBT for anxiety disorders in rural children. *Behaviour Research and Therapy*, 44(9), 1287–1300. <https://doi.org/10.1016/j.brat.2005.09.009>.
- Magson, N. R., Freeman, J. Y., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *Journal of Youth and Adolescence*, 50(1), 44–57.
- Meherali, S., Punjani, N., Louie-Poon, S., Abdul Rahim, K., Das, J. K., Salam, R. A., & Lassi, Z. S. (2021). Mental health of children and adolescents amidst CoVid-19 and past pandemics: A rapid systematic review. *International Journal of Environmental Research and Public Health*, 18(7), 3432.
- NHS Digital. (2020). Mental health of children and young people in England, 2020 Wave 1 follow up to the 2017 survey.
- NHS Digital. (2021). *Mental health of children and young people in England 2021: Wave 2 follow up to the 2017 survey*.

- Orben, A., Tomova, L., & Blakemore, S.-J. (2020). The effects of social deprivation on adolescent development and mental health. *The Lancet Child & Adolescent Health*, 4. [https://doi.org/10.1016/S2352-4642\(20\)30186-3](https://doi.org/10.1016/S2352-4642(20)30186-3)
- Page, K. R., Venkataramani, M., Beyrer, C., & Polk, S. (2020). Undocumented US immigrants and covid-19. *New England Journal of Medicine*, 382(21), e62.
- Paradies, Y., Ben, J., Denson, N., Elias, A., Priest, N., Pieterse, A., et al. (2015). Racism as a determinant of health: A systematic review and meta-analysis. *PLoS One*, 10(9), Article e0138511. <https://doi.org/10.1371/journal.pone.0138511>
- Perry-Jenkins, M., Laws, H. B., Sayer, A., & Newkirk, K. (2020). Parents' work and children's development: A longitudinal investigation of working-class families. *Journal of Family Psychology*, 34(3), 257.
- Punukollu, M., & Marques, M. (2019). Use of mobile apps and technologies in child and adolescent mental health: A systematic review. *Evidence-Based Mental Health*, 22(4), 161–166. <https://doi.org/10.1136/ebmental-2019-300093>
- Racine, N., Hartwick, C., Collin-Vézina, D., & Madigan, S. (2020). Telemental health for child trauma treatment during and post-COVID-19: Limitations and considerations. *Child Abuse & Neglect*, 110, Article 104698.
- Radez, J., Reardon, T., Creswell, C., Lawrence, P. J., Evdoka-Burton, G., & Waite, P. (2021). Why do children and adolescents (not) seek and access professional help for their mental health problems? A systematic review of quantitative and qualitative studies. *European Child & Adolescent Psychiatry*, 30(2), 183–211.
- Ramos, G., & Chavira, D. A. (2020). Use of technology to provide mental health care for racial and ethnic minorities: Evidence, promise, and challenges. *Cognitive and Behavioral Practice*. <https://doi.org/10.1016/j.cbpra.2019.10.004>
- Ramos, G., Ponting, C., Bocanegra, E., Chodzen, G., Delgado, D., Rapp, A., ... Chavira, D. (2021). Discrimination and internalizing symptoms in rural Latinx adolescents: The protective role of family resilience. *Journal of Clinical Child and Adolescent Psychology*, 1–14.
- Ramos, G., Ponting, C., Labao, J. P., & Sobowale, K. (2021). Considerations of diversity, equity, and inclusion in mental health apps: A scoping review of evaluation frameworks. *Behaviour Research and Therapy*, 147, Article 103990. <https://doi.org/10.1016/j.brat.2021.103990>
- Rauschenberg, C., Schick, A., Goetz, C., Roehr, S., Riedel-Heller, S. G., Koppe, G., Durstewitz, D., Krumm, S., & Reininghaus, U. (2021). Social isolation, mental health, and use of digital interventions in youth during the COVID-19 pandemic: A nationally representative survey. *European Psychiatry*, 64(1), 1–16. <https://doi.org/10.1192/j.eurpsy.2021.17>. e20.
- Raw, J. A. L., Waite, P., Pearcey, S., Shum, A., Patalay, P., & Creswell, C. (2021). Examining changes in parent-reported child and adolescent mental health throughout the UK's first COVID-19 national lockdown. *The Journal of Child Psychology and Psychiatry*, 62, 1391–1401. <https://doi.org/10.1111/jcpp.13490>
- Rodriguez-Quintana, Natalie, Meyer, Allison E., Bilek, Emily, Flumenbaum, Rochelle, Miner, Kristen, Scoville, Lynne, ... Koschmann, Elizabeth (2021). Development of a Brief Group CBT Intervention to Reduce COVID-19 Related Distress Among School-Age Youth. *Cognitive and Behavioral Practice*, 28(4), 642–652. <https://doi.org/10.1016/j.cbpra.2021.03.002>
- Ros-DeMarize, R., Chung, P., & Stewart, R. (2021). Pediatric behavioral telehealth in the age of COVID-19: Brief evidence review and practice considerations. *Current Problems in Pediatric and Adolescent Health Care*, 51(1), Article 100949. <https://doi.org/10.1016/j.cppeds.2021.100949>
- Rosen, M. L., Rodman, A. M., Kasperek, S. W., Mayes, M., Freeman, M. M., Lengua, L. J., ... McLaughlin, K. A. (2021). Promoting youth mental health during the COVID-19 pandemic: A longitudinal study. *PLoS One*, 16(8), Article e0255294.
- Salerno, J. P., Devadas, J., Pease, M., Nketia, B., & Fish, J. N. (2020). Sexual and gender minority stress amid the COVID-19 pandemic: Implications for LGBTQ young persons' mental health and well-being. *Public Health Reports*, 135(6), 721–727. <https://doi.org/10.1177/0033354920954511>
- Saunders, N. R., Kurdyak, P., Stukel, T. A., Strauss, R., Fu, L., Guan, J., ... Toulany, A. (2022). Utilization of physician-based mental health care services among Children and adolescents before and during the COVID-19 pandemic in Ontario, Canada. *JAMA Pediatrics*, 176(4), e216298–e216298.
- Schleider, J. L., Mullarkey, M. C., Fox, K. R., Dobias, M. L., Shroff, A., Hart, E. A., & Roulston, C. A. (2021). A randomized trial of online single-session interventions for adolescent depression during COVID-19. *Nature Human Behaviour*, 1–11.
- Shirotsuki, K., Sugaya, N., & Nakao, M. (2022). Descriptive review of internet-based cognitive behavior therapy on anxiety-related problems in children under the circumstances of COVID-19. *BioPsychoSocial Medicine*, 16(1), 1–6. <https://doi.org/10.1186/S13030-021-00233-Y/FIGURES/1>
- Shujuan, L., Biru, L., Hanmin, L., Li, Z., Wei, S., Yalin, L., & Peng, J. (2021). Bilateral associations between sleep duration and depressive symptoms among Chinese adolescents before and during the COVID-19 Pandemic. *Sleep Medicine*.
- Singh, S., Roy, M. D., Sinha, C. P. T. M. K., Parveen, C. P. T. M. S., Sharma, C. P. T. G., & Joshi, C. P. T. G. (2020). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. *Psychiatry Research*, Article 113429.
- Stewart, S. L., Vasudeva, A. S., Van Dyke, J. N., & Poss, J. W. (2021). Child and youth mental health needs and service utilization during COVID-19. *Traumatology*. <https://doi.org/10.1037/TRM0000345>
- Sullivan, A. D. W., Forehand, R., Acosta, J., Parent, J., Comer, J. S., Loiselle, R., & Jones, D. J. (2021). COVID-19 and the acceleration of behavioral parent training telehealth: Current status and future directions. *Cognitive and Behavioral Practice*, 28(4), 618–629. <https://doi.org/10.1016/J.CBPRA.2021.06.012>
- Summers, J., Baribeau, D., Mockford, M., Goldhopf, L., Ambrozewicz, P., Szatmari, P., & Vorstman, J. (2021). Supporting children with neurodevelopmental disorders during the COVID-19 pandemic. *Journal of the American Academy of Child & Adolescent Psychiatry*, 60(1), 2–6.
- Thorisdottir, I. E., Asgeirsdottir, B. B., Kristjansson, A. L., Valdimarsdottir, H. B., Tolgves, E. M. J., Sigfusson, J., ... Halldorsdottir, T. (2021). Depressive symptoms, mental wellbeing, and substance use among adolescents before and during the COVID-19 pandemic in Iceland: A longitudinal, population-based study. *The Lancet Psychiatry*.
- Tomaz, T., & Castro-Vale, I. (2020). Trauma-informed care in primary health settings—which is even more needed in times of COVID-19, 2020 *Healthcare*, 8, 340. <https://doi.org/10.3390/HEALTHCARE8030340>. Page 340, 8(3).
- Ugueto, A. M., & Zeni, C. P. (2021). Patterns of youth inpatient psychiatric admissions before and after the onset of the COVID-19 pandemic. *Journal of the American Academy of Child & Adolescent Psychiatry*, 60(7), 796–798. <https://doi.org/10.1016/J.JAAC.2021.02.006>
- United Nations. (2020). *COVID-19 and the need for action on mental health; policy brief, 13 May 2020*. New York: United Nations. <https://unsdg.un.org/resources/policy-brief-covid-19-and-need-action-mental-health>, 2020.
- U.S Surgeon Generals. (2021). *U.S surgeon generals advisory: Protecting youth mental health*.
- Uysal, Burcu, Morgül, Ebru, Taştekné, Feyzanur, Sönmez, Dilruba, Tepedelen, Mehmed Seyda, Gülay, Sümeýra, ... Hülya, Gormez (2022). Videoconferencing-based cognitive behavioral therapy for youth with anxiety and depression during COVID-19 pandemic. *School Psychology International*, 4, 420–439. <https://doi.org/10.1177/01430343221097613>.
- Valero Aguayo, L., Rodríguez Bocanegra, M., Ferro García, R., & Ascanio Velasco, L. (2021). *Meta-analysis of the efficacy and effectiveness of Parent Child Interaction Therapy (PCIT) for child behaviour problems*. *Psicothema*.
- Wade, M., Prime, H., & Browne, D. T. (2020). Why we need longitudinal mental health research with children and youth during (and after) the COVID-19 pandemic. *Psychiatry Research*, 290, Article 113143. <https://doi.org/10.1016/j.psychres.2020.113143>
- Wang, X., Markert, C., & Sasangohar, F. (2021). *Investigating popular mental health mobile application downloads and activity during the COVID-19 pandemic*. *Human Factors*, Article 0018720821998110.
- Wang, M. T., Toro, J. D., Scanlon, C. L., Schall, J. D., Zhang, A. L., Belmont, A. M., Voltin, S. E., & Plevniak, K. A. (2021). The roles of stress, coping, and parental support in adolescent psychological well-being in the context of COVID-19: A diary-study. *Journal of Affective Disorders*, 294, 245–253. <https://doi.org/10.1016/j.jad.2021.06.082>
- Wasil, A. R., Gillespie, S., Patel, R., Petre, A., Venturo-Conerly, K. E., Shingleton, R. M., ... DeRubeis, R. J. (2020). Reassessing evidence-based content in popular smartphone apps for depression and anxiety: Developing and applying user-adjusted analyses. *Journal of Consulting and Clinical Psychology*, 88(11), 983.
- Wasil, A. R., Venturo-Conerly, K. E., Shingleton, R. M., & Weisz, J. R. (2019). A review of popular smartphone apps for depression and anxiety: Assessing the inclusion of evidence-based content. *Behaviour Research and Therapy*, 123, Article 103498.
- World Health Organization. (2022). *Mental health and COVID-19: Early evidence of the pandemic's impact: Scientific brief, 02 March 2022*. World Health Organization. [https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci-Brief-Mental\\_health-2022.1](https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci-Brief-Mental_health-2022.1).
- Zhou, X., Hetrick, S. E., Cuijpers, P., Qin, B., Barth, J., Whittington, C. J., et al. (2015). Comparative efficacy and acceptability of psychotherapies for depression in children and adolescents: A systematic review and network meta-analysis. *World Psychiatry*, 14(2), 207–222. <https://doi.org/10.1002/wps.20217>

## Further reading

- Gainesville, FL: PCIT International.
- Linarodon, J., & Fuller-Tyszkiewicz, M. (2020). Attrition and adherence in smartphone-delivered interventions for mental health problems: A systematic and meta-analytic review. *Journal of Consulting and Clinical Psychology*, 88(1), 1.
- Pennant, M. E., Loucas, C. E., Whittington, C., Creswell, C., Fonagy, P., Fuggle, P., ... Williams, P. (2015). Computerised therapies for anxiety and depression in children and young people: A systematic review and meta-analysis. *Behaviour Research and Therapy*, 67, 1–18. <https://doi.org/10.1016/J.BRAT.2015.01.009>
- Research Center, P. (2021). *Digital divide persists even as Americans with lower incomes make gains in tech adoption*. Retrieved from <https://www.pewresearch.org/fact-tan k/2021/06/22/digital-divide-persists-even-as-americans-with-lower-incomes-make-gains-in-tech-adoption/>.
- Sanchez, A. L., Cornacchio, D., Poznanski, B., Golik, A. M., Chou, T., & Comer, J. S. (2018). The effectiveness of school-based mental health services for elementary-aged children: A meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, 57(3), 153–165. <https://doi.org/10.1016/J.JAAC.2017.11.022>
- Tolou-Shams, M., Folk, J., Stuart, B., Mangurian, C., & Fortuna, L. (2021). Rapid creation of child telemental health services during COVID-19 to promote continued care for underserved children and families. *Psychological Services*. <https://doi.org/10.1037/SER0000550>