



Using Mixed Methods to Identify the Primary Mental Health Problems and Needs of Children, Adolescents, and Their Caregivers during the Coronavirus (COVID-19) Pandemic

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Abstract

Our understanding of child, adolescent, and caregiver mental health (MH) problems during the coronavirus pandemic, and which interventions are needed, may be advanced by consumer input. 133 general population caregivers reported top MH problems and needs for themselves and their children ($M_{age} = 8.21$; $SD = 4.94$), using standardized and idiographic measures. We applied linear regression models to quantitative data and thematic analysis to qualitative data. Caregivers' COVID-era depression and anxiety symptom means fell within the clinical range, as did their children's MH symptoms. Caregiver-reported child and adolescent symptoms were positively associated with number of children in the home. Caregiver and caregiver-reported child and adolescent symptoms were more pronounced in regions with *more lenient* COVID-19 restrictions. Among the kinds of help most urgently needed, MH services were ranked #1 for caregivers and adolescents, #2 for 6–12 year-olds, and #3 for 1–5 year-olds. Top problems identified for each age group highlight pressing pandemic-related intervention targets.

Keywords Coronavirus disease 2019 · Children · Adolescents · Families · Mental health intervention

Coronavirus disease 2019 (COVID-19) has emerged as a global public health crisis with adverse physical and psychological health implications for millions of people worldwide [1]. COVID-19 and efforts to quell its spread have resulted in significant disruptions to daily life, the education system, and health service delivery [2]. Preliminary data [3, 4] suggest that these disturbances may have especially negative effects on the mental health (MH) of children and adolescents, as well as their parents and caregivers (herein “caregivers”).

Indeed, emerging evidence highlights worsened emotional and behavioral health among children and adolescents in the general population and clinical samples during

the pandemic, including internalizing [3] and externalizing problems [4, 5]. Importantly, social isolation, a potential result of school closures and shelter-at-home orders, has been linked with child and adolescent MH problems [6]. Further, evidence that 35% of children and adolescents who require MH services receive care through school [7] suggests that students with MH care needs may be especially adversely impacted by school closures. The MH of caregivers has also appeared to worsen during the pandemic [5]. Many caregivers are contending with increased childcare responsibilities, financial strain, and loss of employment and health care coverage during the COVID-era, potentially exacerbating MH difficulties among families [2, 5, 8, 9]. Additionally, stay-at-home orders have kept some families in close quarters within confined spaces, providing a potential impetus for familial conflict [10]. Consequently, investigations focusing on the possible repercussions of these pandemic-induced disruptions for child, adolescent, and caregiver MH are warranted.

In response to these pandemic-specific challenges, MH professionals have pivoted to virtual care options [11], and researchers have been working to develop and disseminate largely technology-based MH supports that do not require

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face-to-face contact [10]. These efforts, and perhaps especially those that build upon evidence-based treatment protocols [12], may well be helpful to children, adolescents, and families. However, the rapid emergence and spread of COVID-19 has forced these programs to be built and launched quickly, and with little available data on the psychological effects associated with the pandemic. As a result, it is possible that existing interventions are not equipped to fully address the MH needs of children, adolescents, and families during this time. Our understanding of which emotional and behavioral difficulties require attention during the pandemic, as well as any gaps in coverage among existing protocols, might be enriched by input from the consumers these resources are designed to serve.

This approach aligns with research that prioritizes the inclusion of healthcare consumer perspectives, such as community-based participatory research (CBPR) [13]. CBPR and related methods have been applied during and after public health crises much like COVID-19, ranging from natural disasters (e.g., Hurricane Katrina) [14] to infectious diseases (e.g., human immunodeficiency virus) [15], and have guided efforts intended to improve crisis-related health outcomes among clinical and community populations. Within the specific context of MH care, CBPR and similar methodologies have been leveraged to inform the development of emotional and behavioral interventions for families [16], children and adolescents [17], and caregivers [18]. Of note, caregivers tend to serve as the gatekeepers for their children's MH services [19] and likely play an especially important role in addressing child and adolescent MH needs during periods marked by stay-at-home orders, as interactions with other potential sources of support and guidance are limited. Consequently, it could be particularly effective to focus limited resources on efforts to gain direct feedback from caregivers and target the problems that they deem most pressing for their families during this and related pandemics.

With this in mind, we adopted a consumer-driven approach in the current study that was inspired by CBPR and related work but featured a considerably adapted methodology that aligned with the current context, which requires virtual and rapid response. Specifically, we collected idiographic data from caregivers to capture what they judged to be the most prominent MH problems and needs of their families during the COVID-19 crisis. We primarily focused on identifying themes across these participant responses using thematic analysis [20], supplementing these data with quantitative measures of emotional and behavioral difficulties and related contextual factors. Of note, we targeted caregivers across the general population, rather than restricting our sample to families previously or currently enrolled in MH services, because rates of MH concerns appear to be rising regardless of pre-existing psychiatric disorder diagnoses [5, 21]. Given our focus on consumer-guided,

qualitative data, coupled with the novelty of COVID-19, the study was largely exploratory in nature, with the ultimate goal of informing which intervention programs, focusing on which problems, might be most appropriate and effective for families during this and future contagious disease outbreaks, as well as other crises that have similar impacts on family functioning.

Methods

Participants

Our sample consisted of caregivers ($N=133$) of children and adolescents (1–19 years old) who, at the point of study participation, lived in the same household for at least 50% of the time. Given that limited data are available on the potential MH impact of COVID-19 on children, adolescents, and caregivers, we intentionally kept the inclusion criteria related to child and adolescent age broad, with the goal of examining differences and similarities across age subgroups. Caregivers were racially and ethnically diverse (2% American Indian; 15% Asian; 7% Black or African-American; 72% White; 8% multiracial; 12% Hispanic or Latino), reported a range of household incomes (14% poor; 35% working class; 50% middle class; 2% affluent) [22], and were between the ages of 18 and 60 years old ($M=35.80$; $SD=8.81$). Caregivers largely identified as female (81%; 18% male; 2% transgender or gender non-conforming), which aligns with broader trends in family-based research [23]. Caregivers were asked to identify one of their children with the greatest emotional and/or behavioral difficulties and answer several questions with this child in mind. These children and adolescents were between the ages of 1 and 19 years old ($M_{age}=8.21$; $SD=4.94$) and were distributed across each age subgroup (1–5 years, $N=48$; 6–12 years, $N=56$; 13–19 years, $N=29$).

Sample Size and Thematic Saturation

Given that thematic analysis [20] of participant-generated text data was the primary focus of this study, we followed established guidelines related to this procedure when determining a sufficient sample size. Specifically, prominent qualitative analysis models highlight *thematic saturation*, or the point at which new themes stop emerging among participant responses, as a key metric of qualitative study rigor [24], with previous research suggesting that saturation can be achieved with relatively small samples (e.g., 12 [25]; 17 [26]). Given that it is recommended that studies with broad, exploratory research questions and heterogeneous participants aim for larger sample sizes [25], we terminated data collection when 230 individuals met study criteria. Among these eligible participants, 97 were excluded due to insufficient

survey completion, defined as completing less than 80% of the survey; our final sample included 133 caregivers.

Procedures and Measures

All procedures were approved by the university's Institutional Review Board, and informed consent was obtained from all participants. Participants were recruited between April 20, 2020 and July 3, 2020 via a range of methods, including social media platforms and a community-oriented, online study participation platform associated with the university. Inclusion criteria included: (a) being at least 18-years-old; (b) residing in the United States (U.S.) at the point of study participation; and (c) identifying as a caregiver of a child or adolescent (1–19 years old) who lived with them for at least 50% of the time. Eligible participants were asked to complete a brief survey (range: 4.32–15.92 min; $M = 10.06$; $SD = 2.98$) via Qualtrics, after which they were invited to be entered into a lottery to win one of five possible Amazon gift cards.

The Behavior and Feelings Survey

The Behavior and Feelings Survey (BFS) [27], a 12-item rating scale, captured caregiver-reported emotional and behavioral difficulties of the child they identified as being most severe in these domains. Items are rated on a scale from 0 (not a problem) to 4 (a very big problem), with scores generated for internalizing, externalizing, and total problems. The BFS has demonstrated strong internal consistency, test–retest reliability, and validity [26], with an alphas of 0.93, 0.93, and 0.95 for total, internalizing, and externalizing scales, respectively, in the current study.

Generalized Anxiety Disorder 7-Item Scale

The Generalized Anxiety Disorder 7-Item (GAD-7) [28] scale was used to capture self-reported anxiety symptoms among caregivers. Participants were asked to rate the frequency with which they experienced each item, ranging from 0 (not at all) to 4 (nearly every day), with total scores ranging from 0 to 21. The GAD-7 has demonstrated good reliability and validity in adult samples [27], with an alpha of 0.93 in the current study.

Patient Health Questionnaire

The Patient Health Questionnaire 8-Item (PHQ-8) [29] served as our measure of self-reported depressive symptoms among caregivers. Participants were asked to rate the extent to which they endorsed each item, ranging from 0 (not at all) to 3 (nearly every day), with total scores ranging from 0 to 24. We opted to remove the 9th item of this scale, which

assesses suicidal ideation, given logistical barriers that limited our ability to provide appropriate follow-up care. This version of the measure has demonstrated strong psychometric properties in adult samples [28], with an alpha of 0.92 in the current study.

Demographics, Current Living Situation, and Effects of COVID-19

Participants were asked to report demographic information (age; race; ethnicity; gender identity; number of children for which they provide care; number of rooms in and residents of their home; approximate household income), their satisfaction with their current living situation (“How happy are you with the way you are living now?”; 1 = very unhappy; 4 = very happy), and their current zip code, allowing us to extract data on the number of total COVID-19 cases and deaths, as well as degree of public health restrictions related to COVID-19, in their place of residence at the time of study completion using Johns Hopkins University's Coronavirus Resource Center [30]. Participants were also asked whether (a) their children were learning from home; (b) they were working from home; and (c) COVID-19 had negatively impacted their ability to do their job (“Has COVID-19 negatively impacted your ability to do your job?”) and overall household income (“Has COVID-19 negatively impacted your household income?”; herein “financial strain”).

Top Problems and Needs Assessments

The Top Problems Assessment (TPA) [31] served as the basis of our idiographic measure of caregiver-identified MH problems during COVID-19. Given that the TPA is typically used in psychotherapy to identify treatment targets, and the current study did not involve a therapy-seeking sample, we adapted the TPA to fit our goals. Caregivers were asked to identify one child for whom they provide care who needed the most help for emotional and/or behavioral difficulties, and then report up to three of this child's top problems (“Please list up to three of the top emotional, behavioral, or mental health problems this child has right now.”).

Caregiver-identified needs were assessed via a series of open-ended questions, through which caregivers were asked to report which kinds of help *they* needed most for their emotional well-being or mental health (“What kinds of help, if any, do you need most right now for your emotional well-being or mental health?”) and which kinds of help *their child* with the greatest emotional or behavioral difficulties needed most (“What kinds of help does this child need most right now for their emotional, behavioral, or mental health problems?”) during this time.

Qualitative Data Coding Procedure

Qualitative data capturing top MH problems and needs were analyzed to identify key themes using a well-established thematic analysis approach [20]. Braun and Clarke [20] outline six phases of thematic analyses, including familiarizing oneself with the data; generating initial codes; searching for, reviewing, and defining themes; and producing the report. Following these guidelines, the first and second authors independently reviewed caregiver responses to each open-ended item for initial codes and, subsequently, themes. Using these themes, we developed and iteratively refined a codebook (Supplementary Table 1). Interrater reliability was calculated for these refined themes, with $kappa$ values ranging from 0.89 to 0.97, and discrepancies were resolved through discussion to finalize data for analyses.

Results

Analyses were conducted in SPSS, Version 25 [32]. Correlations among demographic variables and caregiver and child/adolescent MH symptoms, measured via standardized instruments, are reported in Supplementary Table 2. Of note, caregiver age was significantly correlated with caregiver depression and anxiety, and the total number of children for whom caregivers provided care was significantly associated with caregiver-reported internalizing, externalizing, and total problems among the child identified as having the greatest difficulties.

Quantitative Analyses

Mental Health Symptoms: Standardized Measures

Self-reported anxiety ($M = 11.69$; $SD = 5.96$) and depression ($M = 11.67$; $SD = 6.73$) among caregivers averaged above 10 on the GAD-7 and PHQ-8, the cutoff for clinically significant symptoms [28, 29]. A majority of caregivers (57.14%; $N = 76$) reported scores ≤ 10 on the GAD-7 and, coincidentally, 57.14% of caregivers reported scores ≤ 10 on the PHQ-8, both substantially above rates previously reported for general population samples (e.g., 23% for GAD-7 [28]; 9% for PHQ-8 [29]). Overall, caregiver-reported total ($M = 18.58$; $SD = 12.22$), internalizing ($M = 8.31$; $SD = 6.61$), and externalizing ($M = 10.27$; $SD = 7.32$) problems among the child/adolescent identified as most severe in these domains aligned with previous reports of the BFS among clinical samples (total: $M = 17.78$, $SD = 9.85$; internalizing: $M = 7.08$, $SD = 6.08$; externalizing: $M = 10.70$, $SD = 7.52$

[27]), highlighting the evidently elevated symptoms in the current general population sample.

To assess links among caregiver and child/adolescent MH symptoms, we conducted separate linear regression models with PHQ-8 and GAD-7 scores and BFS total scores. Both caregiver depression ($b = 1.19$, $SE = 0.12$, $t = 9.67$, $p < 0.01$) and anxiety ($b = 1.25$, $SE = 0.14$, $t = 9.11$, $p < 0.01$) scores were significantly correlated with their child's total caregiver-reported problems.

Current Living Situation

A majority of caregivers reported living in a house (78%) or apartment (19%), with an average of 5.52 rooms in their family living space ($SD = 3.05$; range: 1–15), and the number of total adults ($M = 2.32$; $SD = 0.83$) and children ($M = 1.81$, $SD = 0.99$) reported to be living in the home both ranged from 1–6. Based on these data, we calculated population density (number of individuals living in the home/number of estimated rooms in the home) scores, ranging from 0.23 to 4.00 ($M = 1.01$; $SD = 0.63$). Population density scores were not significantly associated with caregiver (anxiety: $b = 0.48$, $SE = 0.86$, $t = 0.56$, $p = 0.58$; depression: $b = 1.38$, $SE = 0.97$, $t = 1.42$, $p = 0.16$) or child/adolescent ($b = 0.92$, $SE = 1.76$, $t = 0.52$, $p = 0.60$) MH symptoms.

Caregivers' satisfaction with their current living situation was relatively high (range: 1–4; $M = 2.87$; $SD = 0.82$). Linear regression models revealed significant relationships in the expected direction between caregiver satisfaction with their living situation and caregiver depression ($b = -2.30$, $SE = 0.70$, $t = -3.30$, $p < 0.01$) and anxiety ($b = -1.63$, $SE = 0.63$, $t = -2.59$, $p = 0.01$), such that greater satisfaction was associated with fewer MH difficulties. This pattern was similar among children and adolescents, with caregiver satisfaction being significantly correlated with their child's total ($b = -3.34$, $SE = 1.26$, $t = -2.64$, $p < 0.01$) and externalizing ($b = -2.45$, $SE = 0.75$, $t = -3.29$, $p < 0.01$), but not internalizing ($b = -0.89$, $SE = 0.70$, $t = -1.27$, $p = 0.21$), caregiver-reported problems.

Geographic Location

Participants reported residing in 32 different states and 116 different cities, with varying rates of COVID-19 cases and deaths, as well as levels of public restrictions. We identified 4 distinct categories of public restrictions ($N_1 = 49$; $N_2 = 28$; $N_3 = 30$; $N_4 = 26$), ranging from strict policies requiring a stay-at-home order (1) to more lenient policies opening the region with precautions (4). To examine the potential link between these factors and MH, we conducted a series of linear regression models with caregiver and child/adolescent MH problems as the outcomes, reporting standardized regression coefficients because the predictors and outcomes

were measured on considerably distinct scales [33]. These models showed that the number of COVID-19 cases in a participant's current region of residence was significantly associated with caregiver depression ($\beta=0.22$, $SE=0.00$, $t=2.50$, $p=0.01$) and child/adolescent internalizing problems ($\beta=0.18$, $SE=0.00$, $t=2.05$, $p=0.04$), but not caregiver anxiety ($\beta=0.16$, $SE=0.00$, $t=1.79$, $p=0.08$) or child/adolescent externalizing problems ($\beta=0.06$, $SE=0.00$, $t=0.66$, $p=0.51$). Further, COVID-19 deaths were correlated with caregiver depression ($\beta=0.22$, $SE=0.00$, $t=2.56$, $p=0.01$), but not caregiver anxiety ($\beta=0.13$, $SE=0.00$, $t=1.50$, $p=0.14$) or child/adolescent MH problems (internalizing: $\beta=0.16$, $SE=0.00$, $t=1.80$, $p=0.08$; externalizing: $\beta=0.03$, $SE=0.00$, $t=0.33$, $p=0.74$). Interestingly, linear regression models indicated that *more lenient* policies were associated with *greater* caregiver-identified child/adolescent internalizing ($b=1.67$, $SE=0.48$, $t=3.48$, $p<0.01$) and externalizing ($b=1.22$, $SE=0.19$, $t=2.24$, $p=0.03$) problems, as well as caregiver depression ($b=1.87$, $SE=0.49$, $t=3.79$, $p<0.01$) and anxiety ($b=1.60$, $SE=0.44$, $t=3.60$, $p<0.01$).

Effects of COVID-19

Among caregivers who reported that at least one of their children was enrolled in school at the start of the calendar year (75%), a majority indicated that their children were not physically attending school (95%). These children and adolescents were largely engaging in virtual learning led by the school (88%) or a family member (4%), but some were no longer engaging with school at all (8%).

Among caregivers who reported having a job at the start of calendar year (82%), a majority were working from home (69%), with a small percentage continuing to physically attend work (31%). Most of these caregivers reported that COVID-19 negatively impacted their ability to do their work (68%). Across all caregivers, including those who did *not* endorse having a job at the beginning of the calendar year, 59% reported that COVID-19 negatively impacted their overall household income. To examine the impact of this financial strain on caregiver MH symptoms, we conducted linear regression models, separately testing the impact of COVID-19 on household income as a predictor of PHQ-8 and GAD-7 scores. These models revealed that financial strain related to COVID-19 was significantly associated with caregiver depression ($b=2.59$, $SE=1.20$, $t=2.17$, $p=0.03$) but not anxiety ($b=1.26$, $SE=1.07$, $t=1.17$, $p=0.24$).

Combined Model: Which Predictors are most Robust?

We then conducted a series of linear regression models to elucidate *which* of these examined variables might account for the greatest variance in caregiver and child/adolescent

MH problems. Specifically, we identified all variables that were found to be significantly associated with MH difficulties after correcting for multiple tests using the Holm-Bonferroni method [34] (initial $p\leq 0.002$): caregiver satisfaction with their current living situation, total number of children cared for by caregivers, and policies related to COVID-19. We then input these three variables as predictors of each caregiver and child/adolescent MH outcome. In these combined models, caregiver satisfaction with their current living situation and policies related to COVID-19 emerged as significant predictors of caregiver depression (satisfaction with living situation: $b=-2.27$, $SE=0.66$, $t=-3.46$, $p<0.01$; policies: $b=1.87$, $SE=0.47$, $t=3.96$, $p<0.01$) and anxiety (satisfaction with living situation: $b=-1.63$, $SE=0.60$, $t=-2.74$, $p<0.01$; policies: $b=1.61$, $SE=0.43$, $t=3.75$, $p<0.01$), whereas total number of children cared for by caregivers did not (depression: $b=0.68$, $SE=0.53$, $t=1.30$, $p=0.20$; anxiety: $b=0.74$, $SE=0.47$, $t=1.57$, $p=0.12$).

For children and adolescents, the total number of children cared for and policies related to COVID-19 emerged as significant predictors of caregiver-reported child/adolescent total (number of children: $b=3.90$, $SE=0.92$, $t=4.21$, $p<0.01$; policies: $b=2.86$, $SE=0.82$, $t=3.50$, $p<0.01$), externalizing (number of children: $b=2.24$, $SE=0.56$, $t=3.99$, $p<0.01$; policies: $b=1.20$, $SE=0.50$, $t=2.42$, $p=0.02$), and internalizing (number of children: $b=1.65$, $SE=0.52$, $t=3.17$, $p<0.01$; policies: $b=1.66$, $SE=0.46$, $t=3.59$, $p<0.01$) problems. Additionally, caregivers' satisfaction with their current living situation significantly predicted externalizing ($b=-2.33$, $SE=0.70$, $t=-3.35$, $p<0.01$) and total ($b=-3.13$, $SE=1.15$, $t=-2.72$, $p=0.01$), but not internalizing ($b=-0.79$, $SE=0.65$, $t=-1.23$, $p=0.22$), problems.

Qualitative and Thematic Analyses

Top Problems: Child and Adolescent Emotional and Behavioral Difficulties

Caregivers were asked to generate up to three top problems related to emotional or behavioral difficulties for their child with the greatest severity in these domains during the pandemic. We identified numerous themes within these responses using thematic analysis [20] and, through an iterative identification and refinement process, we concluded with 17 themes (see Table 1). Caregiver-identified problems for their children were most often related to misbehavior (35%), anxiety/stress (24%), social isolation (23%), depression (20%), and academics (17%).

Independent sample *t*-tests revealed that several problem categories were significantly associated with the age of the target child, with problems related to dependence on caregivers ($t=6.83$, $p<0.01$, CI 95% 3.40, 6.36) being more common among younger children, and problems related to

Table 1 Caregiver-identified emotional, behavioral and mental health top problems of children and adolescents

Problem category	Representative responses	Total problem frequency <i>N</i> (%)
Misbehavior	“Tantrums,” “Disobedience,” “Attitude”	46(35%)
Attention, hyperactivity, and/or impulsivity	“Impulsivity,” “Focusing in online classes,” “ADHD”	12(9%)
Depression	“Sadness,” “Sad thoughts,” “Feeling down”	26(20%)
Anxiety and/or stress	“Fear of the future,” “Worries about failing school,” “Anxiety”	32(24%)
Restlessness/lack of physical activity	“Fidgety,” “Excess energy,” “Antsy”	16(12%)
Screen management	“Screen time,” “Too much TV,” “Asking for more screen time”	9(7%)
Social isolation	“Missing friends,” “Lack of ability to socialize,” “Loneliness”	30(23%)
Sleep	“Insomnia,” “Trouble falling asleep,” “Not sleeping”	14(11%)
Physical health	“Eating junk food,” “Binge eating,” “Stomach problems”	14(11%)
Emotion regulation	“Anger management,” “Being grouchy,” “Irritable”	10(8%)
Lack of routine/structure	“Lack of structure,” “Lack of consistent schedule,” “Loss of structure and routine”	10(8%)
Boredom/lack of engaging activities	“Boredom,” “Lack of activities,” “Not enough mental stimulation”	15(11%)
Motivation	“Lack of motivation,” “Laziness,” “No motivation”	4(3%)
Academics	“Not wanting to do schoolwork,” “Procrastinating on schoolwork,” “School refusal”	22(17%)
Other emotional or behavioral difficulties	“Autism,” “ASD,” “Learning disability”	10(8%)
Dependence on caregiver(s)	“Wants to be near an adult at all times,” “Frustrated about not getting full attention,” “Independence with daily tasks”	10(8%)
Other	“Communicating,” “Space,” “Safety”	8(5%)

depression ($t=7.02$, $p<0.01$, CI 95% 4.28, 7.72) and anxiety/stress ($t=2.51$, $p=0.02$, CI 95% 0.50, 4.49) being more common among older adolescents. To explore these age differences further, we clustered children and adolescents according to age (1–5 years old; 6–12 years old; 13–19 years old) and examined the most frequently identified problems among each age group. Among the 1–5 year old age group ($N=48$), problems related to misbehavior (46%), social isolation (23%), boredom (19%), needing attention (19%), and anxiety (15%), and were the most commonly reported. Among the 6–12 year old age group ($N=56$), problems related to academics (29%), misbehavior (28%), anxiety (25%), social isolation (25%), and depression (18%) were the most commonly reported. Among the 13–19 year old age group ($N=29$), problems related to depression (55%), anxiety (38%), misbehavior (28%), social isolation (17%), attention or impulsivity (14%) and were the most commonly reported.

Mental Health Needs Assessment: Children and Adolescents

Caregivers were asked to identify the top emotional or behavioral needs for their child with the greatest difficulties within these domains during the pandemic. We identified themes within these responses using thematic analysis [20] and, through an iterative identification

and refinement process, we concluded with 14 themes (Table 2). Caregiver-identified needs for their children most often focused on a need for social interaction (27%), mental health services (22%), a more structured routine (11%), academic support (7%), and physical/outdoor activity (7%).

Independent sample t -tests revealed that several needs assessment categories were significantly linked with child/adolescent age, with a need for MH services ($t=3.67$, $p<0.01$, CI 95% 1.80, 6.21) more common among adolescents, and strategies for maintaining physical health ($t=8.01$, $p<0.01$, CI 95% 3.64, 6.12), and for managing stress ($t=3.76$, $p=0.02$, CI 95% 1.99, 11.70) more common among children. We then examined the most frequently identified needs among each age subgroup. Among the 1–5 year old age group ($N=48$), needs related to social interaction (29%), physical/outdoor activity (16%), MH services (13%), school/daycare reopening (13%), and behavior management (9%) were most common. Among the 6–12 year old age group ($N=56$), needs related to social interaction (29%), mental health services (14%), academic support (13%), routine/stability (11%), and validation/reassurance (7%) were the most common. Among the 13–19 year old age group ($N=29$), needs related to mental health services (52%), social interaction (24%), stress management (14%), executive functioning skills (10%), and routine/stability (7%) were most common.

Table 2 Caregiver-identified emotional and behavioral needs of children and adolescents

Needs category	Representative responses	Total problem frequency <i>N</i> (%)
Mental health care	“Psychologist,” “Counselor,” “Emotional guidance”	29(22%)
Routine/stability	“Things to go back to normal, so my kid has some stability and routine,” “More structure,” “More routine”	15(11%)
School or daycare reopening	“School!” “To go back to school,” “Daycare”	9(7%)
Social support	“Support from me and my husband,” “Support of family and friends,” “Social help, someone for him to connect to at his age that he can really empathize with.”	6(5%)
Social interaction	“Access to friends,” “Being able to socialize,” “Face to face contact with his peers.”	36(27%)
Academic support	“Help with learning,” “Help with online schooling,” “IEP.”	9(7%)
Executive functioning skills	“Time management,” “Reminders to complete and submit homework,” “Organization.”	6(5%)
Motivation	“More discipline,” “Motivation to do schoolwork,” “He needs help being more motivated to do his schoolwork.”	4(3%)
Physical/outdoor activity	“Go out and play,” “A good way to burn off energy,” “Outdoor activity.”	9(7%)
Activities that are engaging/counteract boredom	“Boredom,” “Mental stimulation,” “Doing a variety of activities.”	8(6%)
Validation/reassurance	“Reassurance,” “Just reassurance that things will be okay,” “Positive reassurance.”	8(6%)
Stress management/coping	“The ability to not feel pressure,” “Distress,” “Calming strategies.”	5(4%)
Behavior management	“Behavior,” “Strategies for staying in control of behaviors.” “She is acting out”	8(6%)
Other	“Better care from parent who is watching full time” “Not sure” “How to sleep better.”	6(5%)

Mental Health Needs Assessment: Caregiver

Caregivers were asked to identify *their* top needs related to emotional or mental health during the pandemic. We identified themes within these responses using thematic analysis [20] and, through an iterative process of identification and refinement, we concluded with 13 themes (Table 3). Overall, responses most frequently focused on a need for MH services (18%), strategies for general coping (11%), time dedicated to solitary self-care activities (11%), strategies for relaxation and stress management (10%), and physical/outdoor activities (8%).

Discussion

To our knowledge, this is the first study to combine standardized MH assessment with idiographically-derived top MH problems and needs in a sample of U.S. caregivers and their children during the COVID-19 pandemic. Our findings, grounded in both standardized measures and participant-generated text responses to open-ended items, highlight that COVID-19 and its resulting disruptions to daily life may be linked to a range of MH difficulties and needs among children, adolescents, and caregivers in the general population.

A striking pattern in our standardized assessments was the marked elevation in MH symptoms among both caregivers and their children. Caregivers' anxiety and depression

symptom means on the GAD-7 and PHQ-8, respectively, were well above what might be expected for a general population sample, falling instead within the clinical range on both measures [28, 29]. Similarly, their children's internalizing, externalizing, and total symptom means on the BFS were at levels previously reported for children and adolescents entering professional MH care [31]. The study also revealed potentially important correlates of MH symptom elevation. The fact that child/adolescent symptoms were positively associated with the number of children in the home is consistent with the notion, and testable in future research, that increased confinement of family members at home during a pandemic may have more adverse effects on child/adolescent MH as the number of children in the household increases. Larger numbers in the home may potentially increase opportunities for sibling conflict and limit chances for children to secure alone-time. Another possibility is that caregivers with more children to care for might be less well-equipped to provide quality one-on-one time to each of their children, which evidence indicates is important for emotional and behavioral health among children and adolescents [35] and is suggested by the words of one caregiver, who stated that their child is “Frustrated about not getting full attention” during the COVID-19 crisis.

A second factor associated with symptom elevations in both caregivers and their children was the degree to which their region of residence had implemented strict versus lenient pandemic-related restrictions. Given the common

Table 3 Caregiver mental health needs assessment

Needs category	Representative responses	Total problem frequency <i>N</i> (%)
Financial support/material goods	“Money to support my family,” “Get my health insurance back,” “Financial wellness check.”	5(4%)
Work-related support	“Lighter workload,” “More flexible workload,” “Choice of when to return to the work-place.”	6(5%)
Mental health care	“Psychologist,” “Counselor,” “See my therapist”	24(18%)
Routine/stability/normalcy	“Just need this to end quickly,” “Getting back to normal routine,” “I need things to get back to normal.”	4(3%)
Childcare	“I need childcare,” “Respite care for my special needs child,” “A break from the children.”	8(6%)
Parenting support	“Struggling with parenthood skills,” “More parenting strategies for ADHD kids,” “Help with engaging children.”	7(5%)
Stress management/relaxation	“Relaxation techniques,” “Meditation resources,” “Get some relaxation.”	13(10%)
Social support	“Support group for single dads,” “Acknowledgement and support,” “A community that I can reach out to would be helpful.”	9(7%)
Social interaction	“In person contact with friends,” “I need to see friends,” “Social nights.”	7(5%)
Physical/outdoor activity	“Exercise,” “Frequent movement outside,” “Getting outside more.”	10(8%)
Solitary “self-care” time	“A break,” “Just carving more time out for myself,” “I need to take more naps in the afternoon.”	14(11%)
General coping	“Anxiety coping tips designed for this crazy time,” “Keeping a healthy mindset,” “Emotional wellbeing,” “A way to stay focused and motivated.”	14(11%)
Other	“More consistent schooling plan,” “Something to look forward to,” “A feeling of personal freedom.”	9(7%)

perception that lenient restrictions are associated with lower levels of concern about COVID, it was surprising to see that caregiver and child/adolescent MH symptoms were *most* elevated in regions with the *most lenient* restrictions. One possible reason is that family members’ concerns about their safety may increase when community restrictions are lax, which may translate into increased MH symptoms. To our knowledge, this possibility has not yet been studied, and it may warrant attention in future studies of variations in community response to pandemics. We found a potentially related link between higher numbers of COVID-19 cases and deaths in the participants’ geographic region and greater child/adolescent and caregiver MH symptoms, highlighting further the possibility that concerns about COVID might heighten MH symptoms and increase the need for psychological supports in areas more severely affected by the disease.

Findings from the standardized measures also showed that caregiver and child/adolescent MH symptoms were highly, positively correlated, aligning with previous research that has underscored the relationship between parental and child psychopathology [36]. Of note, caregiver age was significantly associated with caregiver depression and anxiety scores, such that younger caregivers reported greater MH problems. This finding is in line with research indicating that early parenthood may be associated with higher risk for psychosocial difficulties [37]. Caregiver satisfaction with their living situation was also significantly associated

with caregiver MH, as well as child/adolescent total and externalizing, but not internalizing, problems. It is possible, following Athay [38], that caregivers of children and adolescents with externalizing problems reported less satisfaction with their home environment because externalizing behaviors are more disruptive at home than internalizing problems. Building on these findings, pandemic-specific analyses revealed several interesting patterns. First, financial strain related to COVID-19 was significantly associated with caregiver depression, but not anxiety, symptoms. Although the observed link between financial strain and caregiver depression aligns with previous research [39], the nonsignificant relation between financial strain and caregiver anxiety does not, perhaps suggesting a unique relationship between depression and financial strain within the context of COVID-19. One possible explanation is that participants may feel a particularly enhanced loss of perceived control over, and hopelessness about, their finances during the pandemic, which has been found to be strongly associated with depression [40]. Future research on the potentially differential associations between financial strain and types of MH difficulties among caregivers during the pandemic is warranted.

Qualitative analyses of the idiographic data revealed a high level of perceived need for MH services, both for children/adolescents and their caregivers. Among the kinds of help identified as most needed “right now,” MH care was ranked #1 for caregivers and adolescents, #2 for

6–12 year-olds, and #3 for 1–5 year-olds. In terms of *which* problems these MH services might target, several themes emerged from our thematic analysis of participant-generated text responses to items focusing on top MH problems and needs. Among the MH themes that were most prominent, several could likely be addressed by existing interventions that do not require face-to-face contact and, consequently, might be especially conducive to COVID-era MH care. Therapies that can be delivered without in-person contact with a MH care provider have been developed and tested for symptoms of child/adolescent anxiety [41–43], depression [44, 45], attention-deficit hyperactivity [46, 47], misbehavior [42, 48–50], and sleep disturbances [51–53]. All of these problem categories were highlighted as prominent child/adolescent MH problems by caregivers in the current study. Furthermore, existing child/adolescent prevention programs that target these concerns [54–56], as well as stress management [57, 58] and psychoeducation [59], might be especially beneficial for children and adolescents who do not exhibit clinically significant psychiatric symptoms during this time.

Although such intervention and prevention programs might be effective in addressing the primary MH problems among children and adolescents during the COVID-19 crisis, our idiographic data highlight important gaps in existing protocols. First, caregivers reported several problems and needs that could serve as targets for remote interventions but have been, to date, largely understudied. For example, caregivers across the age subgroups often indicated concerns within the domain of social isolation and loneliness. To our knowledge, only one remote intervention for loneliness has been designed and tested for young people, with a focus on emerging adults [60]. A handful of loneliness-based intervention and prevention programs have been designed for younger children [61, 62], but adaptations of such protocols that could be conducive to the virtual world of COVID-19 are limited. Relatedly, caregiver responses often focused on their child's boredom and motivation. It is possible that existing therapeutic techniques could be repurposed to address these issues among children/adolescents within the general population during the pandemic. For example, face-to-face prevention and intervention programs targeting boredom among children and adolescents via problem-solving strategies have been shown to be effective in promoting adaptive uses of free time [63] and reducing risky behaviors [64]. Additionally, remote behavioral activation programs have been found to be effective for promoting emotional and behavioral health among children and adolescents, especially within the context of depression [45, 54, 55]. Harnessing such evidence-based strategies to address boredom, which appears to be salient for children and adolescents during the pandemic, could be a promising method for improving child/adolescent well-being as public health restrictions continue. Lastly, caregivers often reported that

their child needed a more structured routine, as many of the organized activities that children and adolescents typically engage with are no longer available during the pandemic. As such, interventions that offer psychoeducation on and strategies for building routines during a less structured time period might be especially helpful for families in the era of COVID-19.

Considering responses from caregivers about their child's problems and needs in tandem with their own needs highlights the complexity of MH difficulties among families, especially during the pandemic. For instance, caregivers often reported problems and needs related to misbehavior among their children, especially for the younger age groups, and needs related to parenting skills for themselves. Collectively, these themes suggest that some families may benefit from behavior management interventions that include a caregiver-focused component, which aligns with the structure of most existing remotely-delivered interventions that target misbehavior [48, 49]. However, caregivers also often identified needs that reflect feelings of being overextended, such as "A break from the children," "a lighter workload," "Just need this to end quickly," indicating that interventions that require substantial time and effort from caregivers may not be viewed as helpful or feasible to consumers. Thus, pandemic-specific programs that include an optional caregiver module but are designed for young people to mostly complete independently, either with or without MH care provider support, might be an appropriate option for families during this time.

Additionally, thematic analyses revealed a range of themes related to MH and emotional well-being among caregivers. Indeed, almost a quarter of caregivers explicitly reported a need for individual and/or family-based MH services, and many indicated needs related to general coping, relaxation, and stress management strategies. As such, remotely-delivered tools focusing on parenting stress might be especially pertinent for caregivers during the COVID-19 crisis. Numerous remotely-delivered intervention programs targeting parenting stress have been designed and tested, mostly within the context of caregivers of children with a diagnosed health condition [65, 66]. Prevention programs that focus on parenting stress and that can be disseminated remotely [67] might serve as especially relevant foundations for pandemic-specific programs for caregivers experiencing stress during the COVID-19 crisis, as this appears to be a concern among caregivers in the general population.

Of note, despite being prompted to identify needs related to emotional well-being or MH, themes related to more "tangible" needs, such as childcare and work-related support also emerged, potentially highlighting the salience of these needs in the minds of caregivers. Needs related to financial support and health insurance (e.g., "Better healthcare," "get my health insurance back and see my therapist") underscore the

financial barriers to obtaining MH care, perhaps especially during a time of heightened unemployment rates. Relatedly, it is important to emphasize that, although a large majority of children, adolescents, [68] and adults [69] in the U.S. have access to at least one digital device, rates of access to such technologies and consistent internet vary across communities, with historically marginalized families less likely to have access to these tools [70]. Consequently, it is critical that, in addition to technology-based interventions, researchers work to develop and disseminate emotional and behavioral health promotion tools that can be delivered via methods that are not primarily technology-based. For example, MH programs provided via bibliotherapy have been shown to be effective for a range of emotional and behavioral difficulties among young people [43, 44]. It is possible that supplementing technology-based platforms, which have the potential to expand access to MH tools among families within and outside of the context of COVID-19, with non-digital programs might magnify the number of families whose MH needs can be addressed.

Limitations

Our findings should be considered within the context of several limitations. First, we set our sample size at a level appropriate for in-depth thematic analysis of qualitative data, and the result was a sample with more modest power to detect effects in our regression models. That said, we did detect a substantial number of significant, and potentially important, findings in the context of conservative analyses that corrected for multiple tests. Nonetheless, findings should be interpreted and generalized with caution, and larger-scale research on this topic is needed. Second, we intentionally recruited caregivers of children and adolescents within a wide age range so that we could examine potential differences across age subgroups. Investigations of the potential impact of COVID-19 on child/adolescent and caregiver MH difficulties among narrower age groups may offer data that could inform more focused intervention targets for young people within different developmental stages. Third, although our sample was relatively diverse in terms of geographic location (32 states; 116 cities), research featuring participants across the U.S., and other countries affected by COVID-19, is needed to further understand the relationships among MH symptoms and COVID-19 cases, COVID-19 deaths, and public health restrictions related to COVID-19 that were observed in the current study. Finally, this study relied solely on caregiver reports of child and adolescent MH problems and needs during the pandemic. Future, complementary work that directly captures the perspectives of children and adolescents is needed to further elucidate the psychological impact of the pandemic on young people.

These limitations are complemented by strengths of the study, including the breadth of our sampling frame and our mixed methods blend of standardized and idiographic assessment, which permitted us to situate our findings within the broader pre-COVID research literature (e.g., clinical levels of child, adolescent, and caregiver MH problem), while also enabling participants to identify their problems and needs exactly as they perceive them, without the restriction of a fixed set of questionnaire items. With this broad sample and this breadth of methods, the study was able to shed light on child, adolescent, and caregiver MH problems and needs during the COVID era in a way that more restricted sampling and assessment might not have provided.

Summary

Our understanding of the potential psychological effects of COVID-19 and its accompanying disruptions to daily life among children, adolescents, and their caregivers, as well as which mental health interventions might be most needed during the pandemic, is nascent. This study, which harnessed standardized and idiographic measures, was designed to advance this understanding by assessing the primary mental health problems and needs of children, adolescents, and their caregivers during the COVID-19 crisis, directly from potential consumers of pandemic-specific mental health interventions. On average, caregiver depression and anxiety scores fell within the clinical range, as did their children's internalizing, externalizing, and total mental health symptoms, highlighting what appears to be heightened mental health difficulties among this general population sample. Quantitative analyses revealed that child and adolescent mental health symptoms were positively associated with number of children in the home, and both caregiver and child/adolescent symptoms were more pronounced in regions with *more lenient* COVID-19 restrictions. Through idiographic responses, caregivers reported a substantial need for mental health services among themselves and their children, as well as a range of mental health problems that may be important pandemic-specific intervention targets. The study illustrates the potential of mixed methods research to clarify the mental health impact of a complex crisis within families. The findings provide multiple hypotheses for future research and ideas about future directions for mental health care when family life is disrupted by a pandemic.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest to disclose.

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