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The Impacts of Remote Learning and In-Person Instruction Transitions on the Mental Health of Children and their Caregivers

RESEARCH

MAGGIE K. RICHARDSON
ALICIA FEDEWA
CLAIR TISCHNER
*Author affiliations can be found in the back matter of this article

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ABSTRACT

While the COVID-19 pandemic was initially rooted in social unity and acceptance of lockdown procedures, long-standing social distancing measures have kept students out of the physical classroom on and off for nearly two years. The instability of transitions and outcomes of remote learning has gained attention, mainly as frustrations over increased transmission rates and subsequent quarantines occur. Evidence has shown that the pandemic has had negative mental health outcomes on the caregivers of school-aged children. Still, there have been no known studies regarding the effects of shifting transitions between virtual and traditional learning modalities. The present study examined caregivers' and children's mental health experiences with remote and return to in-person learning and the correlation between caregiver and child mental health throughout the transition of learning platforms through survey data. A series of ANCOVA models showed that 74% of participants indicated that they and their children showed an increase in at least one mental health concern during remote learning. Post-hoc analysis showed a significant decrease in children's mental health concerns after their return to in-school learning. These results suggest that more support for caregivers and students during shifting learning modalities is necessary to reduce negative mental health symptoms.

CORRESPONDING AUTHOR:
Maggie K. Richardson
University of Kentucky, US
maggie.richardson@uky.edu

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INTRODUCTION

In March 2020, United States school systems moved classrooms online, most for the remainder of the school year to "stop the spread" of COVID-19 (Centers for Disease Control and Prevention, 2022). Despite school-age children being the least likely to develop severe symptoms from the disease, they have been one of the most disadvantaged because of school policy decisions leading to mental health decline (Lopez-Bueno, et al., 2021). Likewise, parental and caregiver stress due to such challenges has been widely scrutinized (Russell et al., 2021). With the promise of returning to in-person instruction in August 2021, it was hoped that these issues would improve; however, due to continued restrictions, anxiety over disease contraction, fluctuating case numbers, and transmission, it appears that both remote and in-person learning has and will continue to impact children and caregiver mental health (Samji et al., 2021). This may be especially true for disadvantaged and marginalized groups (Li et al., 2021).

Currently, children, vaccinated or not, are contracting the virus or being exposed (Centers for Disease Control and Prevention, 2022), leading to large numbers of quarantines and causing caregivers to find childcare, work from home, and facilitate remote learning. Such factors have been known to contribute to caregiver mental health decline (Racine et al., 2021). Therefore, the instability of multiple learning formats calls for acknowledgment and public examination of various systems. Cross-sectional and longitudinal studies regarding caregiver and child mental health surrounding remote learning and the transition back to in-person instruction are needed, so psychologists and public officials can begin to conceptualize a plan to combat the large-scale impact the COVID-19 pandemic has caused on individual and family systems. Indeed, not all individuals and groups have been affected equally, so it is essential to look at those discrepancies. Understanding how relationships between caregiver and child mental health during the pandemic will be imperative in moving forward with treatment options.

CORRELATES OF MENTAL HEALTH

Growing evidence of mental health decline in children during lockdown measures, and thus remote learning, continue to come forth. Initial concerns regarding increased screen time, lack of socialization opportunities, available resources, familial support, and decline in physical activity were raised by many researchers at the beginning of the pandemic (Eales et al., 2021; Golberstein et al., 2020; Prime et al., 2020). Certain groups, particularly those that are marginalized and of lower socioeconomic status (SES), are more vulnerable than those who have financial and physical resources (e.g., laptop computers, reliable internet connection, school materials, etc.) (Beckman et al., 2019; Hohlfeld et al., 2010; Hollingworth et al., 2011; Povey et al., 2016). While such resources are essential for productive and fulfilling learning opportunities, it appears that mental health decline during remote learning was correlated more so with family stability, connectedness, and prior diagnoses, including Attention/Hyperactivity-Disorder (ADHD), Autism-Spectrum Disorder (ASD), depression, and anxiety (Becker et al., 2020; Garbe et al., 2020; Prime et al., 2020).

FAMILY STABILITY AND STRUCTURE

Many studies have focused on risk and resilience research during the COVID-19 pandemic on lockdowns and remote learning. Given that this pandemic has created a unique opportunity to examine the effects of a worldwide disaster, studies on mental health continue to hold great value. From the current research, it appears that protective factors for stable (and in some cases, decreased) mental health distress included the caregiver's education (Villaume, 2021), access to resources (including financial), prior mental health status, and overall outlook on the future (McMahon et al., 2022; Panchal et al., 2021). This aligns with past research linking parental mental health status and child well-being (Burstein & Ginsburg, 2010; Lipscomb et al., 2021).

Within the household, lack of structure and routines have been found to correlate with caregiver and childhood mental health. When routines and fluidity within those routines were present, lower levels of stress, anxiety, and depression were seen (Masten & Motti-Stefanidi, 2020; Prime et al., 2020). Adolescents from low and moderate education backgrounds were more likely to be negatively impacted than those from highly educated parent households (Villaume, 2021).

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Given that higher education levels can be correlated with more significant income, it should be no surprise that parents who felt overburdened before the pandemic, and especially those whose troubles were exacerbated by it, were more likely to display anxious and depressive symptomatology (McArthur et al., 2021). Further, these groups were less likely to support children with remote learning. Still, nearly all groups remained concerned with balancing work responsibilities (in or out of the home) and learner needs (Garbe et al., 2020).

POTENTIAL ADVERSE EFFECTS OF REMOTE LEARNING FOR CHILDREN AND CAREGIVERS

When it comes to remote learning, studies have shown that students and their caregivers who have been diagnosed with neurological developmental disorders like ADHD, ASD, and Learning Disorders (LD) struggle more during remote learning. Children with ASD showed more anxiety than children without ASD during the lockdown (Amorim et al., 2020). Further, a decline in resources and appropriate intervention for such populations has been a significant concern during pandemic lockdown measures. In one study, an exacerbation of symptoms of ADHD was related to an increase in irritability and disruptive behavior (Bobo et al., 2020). Another study showed a rise in remote learning difficulties for students with ADHD and an Individualized Education Plan (IEP) compared with peers with ADHD and without an IEP or neither of the two (Becker et al., 2020). On the other hand, a decrease in symptomatology has occurred; this change is believed to be correlated with a lack of rigidness and expectations associated with brick-and-mortar schooling (Bobo et al., 2020). A decrease in the therapy of rehabilitation services is a strong indicator of behavior and mental health discrepancies for these populations (Bentenuto et al., 2020).

Regarding mental health diagnoses, children and caregivers were more likely to be distressed during remote learning if symptomatology occurred before the lockdown. This included diagnoses of anxiety, depression, PTSD (McArthur et al., 2021), and eating disorders (Graell et al., 2020). In one study, children that had previously been admitted to outpatient psychiatric facilities reported heightened fear and anxiety scores during lockdown procedures (Torun & Torun, 2020). Therefore, prior diagnoses of mental health, learning, or neurological conditions were often associated with a decline in mental health outcomes and difficulties during remote learning due to access and lack of structure and resources.

POTENTIAL BENEFITS OF REMOTE LEARNING FOR CHILDREN AND CAREGIVERS

As stated, there have been many negative impacts of COVID-19 lockdown procedures on remote learning regarding child and caregiver mental health. While this has been the case in specific demographics (e.g., low-income, less educated, disabled, and minority), some families found themselves thriving under the new circumstances. One study noted that some children reported fewer emotional reactions and better somatic/cognitive outcomes during the pandemic (Larsen et al., 2021). Further, associations between age and gender have also been shown to be protective factors for mental health improvement. Younger children, compared to adolescents, seemed to better adapt to changes in closures and lockdowns (Eales et al., 2021; Larsen et al., 2021). Also, males have shown resistance to mental health decline compared to their female peers (Asanov et al., 2021; Chen et al., 2020; Perkins et al., 2021). Some families even saw the lockdown and the increase in educational responsibility as an opportunity to build connections, spend more time together (Eales et al., 2021; Garbe et al., 2020), and stay healthy and safe (Idoiaga et al., 2020). School connectedness appeared to be a protective factor for school-age students as well. According to Perkins (Perkins et al., 2021), those that felt connected through virtual schooling, including access to mental health services, had lower scores of anxiety and depression compared to those who did not. More than peer connections, school connectedness was negatively associated with mental health symptomatology (Perkins et al., 2021).

PURPOSE OF PRESENT STUDY

The purpose of the present study is to investigate how remote learning and a return to in-person learning during the pandemic have affected parental and child mental health. Further,

the authors are interested in understanding how such challenges and feelings change from one format to another. Given that there has been a back-and-forth shift between the two, both with their own very distinct challenges and given the current climate of the COVID-19 pandemic in terms of infection rates, quarantine stipulations continue to cause policy and individual implications; it is essential to notice how these affect family systems. While there have been numerous research studies examining the effects of virtual learning and the unique situation of the COVID-19 pandemic on caregiver and child mental health, there appear to be no current studies that compare remote and in-person learning adjustments on mental health, nor how those effects correlate between caregivers and their child(ren).

OBJECTIVES

The focus of the present study is to answer two questions related to the impact of the COVID-19 pandemic on mental health. Firstly, it aims to investigate whether there was a change in mental health for caregivers and children when schools resumed in-person learning during the pandemic. Secondly, the study aims to determine whether there was a switch between positive and negative mental health outcomes for caregivers and children during remote learning as compared to in-person learning. Specifically, the study explores whether individuals who experienced negative symptoms during remote learning experienced a more positive outlook with the return to in-person learning, and vice versa. By answering these questions, the study aims to provide insight into the effects of the pandemic on mental health and inform strategies for addressing these effects in the future.

METHODOLOGY

DATA COLLECTION

Data was collected through the University of Kentucky's Wellness, Health, and You (WHY) program, a research project established to measure how different life experiences impact health. An annual survey was sent to volunteers electronically through the HIPPA-compliant platform REDCap. Participants were sent individual links to complete surveys. Recruitment was conducted through in-person events, self-direction through exposure to the WHY website, or outreach to existing network members in the state of Kentucky. Once a volunteer agreed to participate, they completed a baseline data survey and were invited to additional follow-up surveys. The current study utilized the COVID-19 Prevention Quarterly Q3 survey sent in the fall of 2021.

PARTICIPANTS AND PROCEDURE

Participation was entirely voluntary, confidential, and available to men and women 18 years and older. The current study analyzed questions that were answered by participants regarding their and their child's remote learning experience(s) during the COVID-19 pandemic for the 2020 and 2021 school years. Only parents or caregivers of school-aged children who attended school remotely during the 2020 school were considered. The questions, "Are you currently the parent or caregiver of a grade school (Pre-K through 12th grade) aged child," and "did you have grade school-aged children that attended school remotely (distance learning) during any part of the 2020 school year because of the COVID-19 pandemic" established inclusion criteria. Children that were homeschooled were excluded. Parents or caregivers with more than one child were asked to respond based on their child who was most affected by remote learning, totaling 121 participants who are parents or caregivers of school-aged children that attended school remotely.

Table 1 displays participants' characteristics. Participants self-identified their individual characteristics, including (1) race/ethnicity: White or Caucasian (n = 115, 95%), American Indian (n = 1, 0.8%), Black or African American (n = 3, 2.5%), Other (n = 1, 0.8%), and did not report (n = 1, 0.8%); (2) marital status: married (n = 89, 73.6%), separated (n = 1, 0.8%), divorced (n = 18, 14.9%), widowed (n = 5, 4.1%), single, never married (n = 7, 5.8%), and did not report (n = 1, 0.8%); (3) sexual orientation: heterosexual (n = 111, 91.7%), Lesbian (n = 1, 0.8%), Bisexual (n = 6, 5%), Queer (n = 1, 0.8%), and did not report (n = 2, 1.7%); (4) sex at birth: female (n = 117, 96.7%) and male (n = 4, 3.3%); (5) education: less than college (n = 1, .8%), college degree (n =

	N	%
Race		
White or Caucasian	115	95%
American Indian	3	2.5%
Black or African Amerian	3	2.5%
Other	1	0.8%
Not reported	1	0.8%
Marital Status		
Married	89	73.6%
Separated	1	0.8%
Divorced	18	14.9%
Widowed	5	4.1%
Single/Never married	7	5.8%
Not reported	1	0.8%
Sexual Orientation		
Heterosexual	111	91.7%
Lesbian	1	0.8%
Bisexual	6	5%
Queer	1	0.8%
Not reported	1	0.8%
Education		
Less than college	1	0.8%
College degree	1	0.8%
Advanced degree	65	53.7%
Not reported	4	3.3%
Income Level		
<35K	2	1.7%
35K – 75K	2	1.7%
>74K	11	9.1%
Not reported	106	87.6%
Sex at birth		
Female	117	96.7%
Male	4	3.3%
Number of Children		
1	63	52.06%
2	50	41.3%
3	7	6.7%
4	1	0.8%
Children's Grade*		
Pre-K	20	10.6%
Grade 1 – 2	25	13.3%
Grade 3 – 5	37	19.7%
Grade 6 – 8	54	28.7%
Grade 9 – 12	52	27.7%

Table 1 Participants Characteristics.
Note. * Number of children in each grade will not sum to 121 as parents have multiple children.

51, 42.1%), advanced degree (*n* = 65, 53.7%) and did not report (*n* = 4, 3.3%); (6) income level: lower than 35K (*n* = 2, 1.7%), between 35K and 75K (*n* = 2, 1.7%), above 75K (*n* = 11, 9.1%), and did not report (*n* = 106, 87.6%). In addition, their age ranged from 33 to 81.85 years old (*M* = 50.63, *SD* = 9.80, *n* = 119).

MEASURES

The lead researchers devised all questions to gauge parent and child experiences of remote learning and mental health during the global pandemic. Along with demographic questions, the survey for the present study included questions that assessed parental and child (from the parental perspective) experiences of remote learning and mental health. Seventeen items were used to assess parental and child's (from the parental perspective) mental health status, which was divided into eight items measuring negative mental health status (e.g. "increased anxiety," "increased irritability"), eight items measuring positive mental health status (e.g., "decreased difficulties with sleep," "decreased difficulties with verbal aggression"), and one item measuring no effect (e.g., "no noticeable change in mental health status") and others. These items were measured on a dichotomous scale of yes [1] and no [0], which were measured three times: (1) parental mental health change due to remote learning, (2) child's mental health change due to remote learning (from parent's perspective), and (3) child's mental health change since returning to in-person schooling (from parent's perspective). Internal consistencies of dichotomous measurements calculated using Kuder-Richardson Formula 20 (KR-20) ranged from .23 (low) to .77 (acceptable). The soft internal consistency of a scale for measuring positive mental health status was due to a few variabilities in the item response (most participants chose 0, indicating no positive mental health). Table 2 displays KR-20 for each scale.

SCALE	KR-20
Child's negative mental health during remote learning	0.74
Child's positive mental health during remote learning	0.53
Parent's negative mental health during remote learning	0.64
Parent's positive mental health during remote learning	0.23
Child's negative mental health since returning in-person learning	0.69
Child's positive mental health since returning in-person learning	0.77

Table 2 Internal consistencies of a dichotomous scale for measuring mental health status.
Note. *n* = 121; Number of items for each scale is 8.

STATISTICAL METHODS

IBM's Statistical Package for the Social Sciences (SPSS) Version 26 was used to summarize the characteristics of survey participants using descriptive statistics and frequency tables. Second, reliability analyses were performed for a checklist of mental health symptoms using Kuder-Richardson Formula 20 (KR-20), which measures the internal consistency of dichotomous measurements. Lastly, to answer research questions, a series of Repeated Measures Analyses of Covariance (ANCOVA) was performed to examine if significant changes in mental health symptoms were found before and after remote learning while controlling for participants' background variables. Covariates used were race/ethnicity (white vs. not), sexual orientation (heterosexual vs. not), education (below college, college degree, advanced degree), income (high income vs. not), and marital status (married vs. not).

RESULTS

PARENTAL OR CHILDREN'S EXPERIENCES OF REMOTE LEARNING

Participants' responses to an item asking about their experience of remote learning were equally negative (*n* = 29, 24% indicating worse than expected; *n* = 7, 5.8% indicating much worse than expected) or positive (*n* = 20, 16.5% indicating better than expected; *n* = 10, 8.3% indicating much better than expected). However, most participants indicated that their experience of remote learning was what was expected (*n* = 55, 45.5%), with a mean response of 2.98 (*SD* = .99, *Min* =1, *Max* = 5, *n* = 121). A similar pattern was found when participants were asked to respond to their children's (from the parent's perspective) experience of remote learning. Their

responses were approximately equal on negative (n = 23, 19% indicating worse than expected; n = 8, 6.6% indicating much worse than expected) and positive (n = 24, 19.8% indicating better than expected; n = 11, 9.1% indicating much better than expected). Most participants indicated that their experience of remote learning was what was expected (n = 55, 45.5%), with a mean response of 3.06 (SD = 1.01, Min =1, Max = 5, n = 121). A significant chi-squared value of 210.65 (df = 16) suggests that the parental experience of remote learning was associated with their children's experience of remote learning (p < .001), with Cramer's V of .66 indicating a strong relationship.

PARENTAL AND CHILDREN'S MENTAL HEALTH STATUS DURING AND AFTER REMOTE LEARNING

Table 3 summarizes the percentage of participants who indicated a change in parental and children's mental health status during remote learning and since returning to in-person school learning.

Table 3 Percentage of participants' responses on change in child(ren) and parents or caregivers' mental health symptoms after remote learning and since returning to in-school.
Note. n = 121.

CHECKLIST OF MENTAL HEALTH SYMPTOMS	AFTER REMOTE LEARNING		SINCE RETURNING TO IN-SCHOOL
	CHILD(REN)	PARENTS OR CAREGIVER	CHILD(REN)
Increased anxiety	45%	57%	21%
Increased depression	26%	15%	2%
Increased difficulties with attention and hyperactivity	45%	7%	11%
Increased difficulties with social skills	36%	4%	12%
Increased difficulties with sleep	17%	18%	4%
Increased irritability	40%	41%	11%
Increased physical aggression	7%	1%	3%
Increased verbal aggression	13%	8%	4%
Increased negative mental health	74%	68%	31%
Decreased anxiety	3%	6%	28%
Decreased depression	2%	0%	16%
Decreased difficulties with attention and hyperactivity	0%	0%	15%
Decreased difficulties with social skills	2%	0%	17%
Decreased difficulties with sleep	2%	1%	8%
Decreased irritability	2%	0%	16%
Decreased physical aggression	0%	0%	1%
Decreased verbal aggression	0%	0%	5%
Decreased negative mental health	7%	6%	42%
No noticeable effects	26%	27%	28%

Children

74% of participants indicated that their children showed an increase in at least one mental health concern during remote learning. Of the eight mental health areas, 45% of parents reported that they experienced an increase in children's anxiety and difficulties with attention and hyperactivity, followed by irritability (40%), difficulties with social skills (36%), depression (26%), and difficulties with sleep (17%). The total number of children's mental health concerns ranged from 0 to 8, with a mean of 2.28 (SD = 2.05, n = 121), while the sum indicator of children's positive mental health ranged from 0 to 3, with a mean of 0.11 (SD = 0.44, n = 121).

Since returning to in-person school learning, 31% of participants indicated that their children showed an increase in at least one mental disturbance. Of the eight mental health areas, 21% of parents reported that they experienced an increase in children's anxiety followed by

difficulties with social skills (12%) and problems with attention and hyperactivity (11%). On the other hand, 42% of participants indicated that their children showed a decrease in at least one mental disturbance after returning to in-person schooling. Notably, more participants reported a reduction in anxiety (28%), difficulties with social skills (17%), difficulties with attention and hyperactivity (15%), irritability (16%), and depression (16%). The total number of children's mental health concerns ranging from 0 to 6, with a mean of 0.69 (SD = 1.23, n = 121), while the sum indicator of children's positive mental health ranged from 0 to 7, with a mean of 1.06 (SD = 1.48, n = 121).

After controlling for individual characteristics, results from the repeated measures ANCOVA suggested a significant difference in children's mental health concerns between before and after remote learning ($F(1,115) = 5.42$, $p = .02$) after controlling for covariates and their interaction. Post-hoc analysis using Sidak adjustment showed a significant decrease in children's mental health concerns ($Mdiff$ = 2.75, SE = 1.18, p = .02) after their returning to in-school learning (M = 3.12, SE = 1.16, 95% CI: .83 and 5.40), when compared to their mental health concerns during remote learning (M = .37, SD = .71, 95% CI: –1.04 and 1.88). However, no significant differences were found in children's positive mental health before and after remote learning ($F(1,115) = 1.33$, $p = .25$.

Parents

Slightly fewer participants (68%) reported they experienced at least one mental health concern during remote learning. Specifically, parents had an increase in anxiety (57%), irritability (41%), difficulties with sleep (18%), and depression (15%). The total number of parental mental health concerns ranged from 0 to 6, with a mean of 1.51 (SD = 1.48, n = 121), while the sum of parental positive mental health indicators ranged from 0 to 2, with a mean of 0.07 (SD = 0.28, n = 121).

Parents and Children

No significant differences were found in children's positive mental health before and after remote learning ($F(1,115) = 1.33$, $p = .25$); parental mental health concerns during remote learning and children's mental health concerns since returning to in-person schooling ($F(1,115) = 3.34$, p = .07); or children's positive mental health during remote learning and children's positive mental health since returning to in-person schooling ($F(1,115) = 2.19$, $p = .14$). In addition, no evidence was found to support a change between positive and negative mental health outcomes for remote-learning versus in-person learning for caregivers and children. None of the covariates and their interactions were statistically significant across all repeated measures of ANCOVAs.

RELATIONSHIP BETWEEN PARENTAL AND CHILDREN'S MENTAL HEALTH STATUS DURING AND AFTER REMOTE LEARNING

As shown in Table 4, results from Pearson Product Moment Correlations suggest that children's level of mental health concerns during remote learning was positively related to parent's level of mental health concerns during remote learning (r = .56, $p < .01$). Similarly, children's level of positive mental status during remote learning was positively related to parents' level of positive mental quality (r = .41 $p < .01$), but negatively related to parents' level of mental health concerns (r = –.18, $p < .05$). In addition, children's level of mental health concerns (r = .26, $p <$ .05) and the positive mental status during remote learning (r = .29, $p < .01$) were both positively and significantly related to children's level of mental health concerns. Lastly, children's level of mental health concerns during remote learning was positively and significantly associated with children's level of positive mental status since returning to in-person schooling (r = .45, $p < .01$).

Also, when age was correlated with parental and children's mental health status during and after remote learning, we found that parent's age was significantly but negatively related to children's level of positive mental status during remote learning (r = –.22, $p < .01$). The magnitude of their relationship was small to medium. This result indicates that children with older parents are less likely to experience positive mental health status.

DISCUSSION

The COVID-19 pandemic has resulted in numerous changes and challenges to individuals' lifestyles. Many individuals have lost their jobs, been socially isolated, faced housing

		1	2	3	4	5	6
1	*r*	–					
	n	121					
2	*r*	0.003	–				
	n	121	121				
3	*r*	.56**	0.017	–			
	n	121	121	121			
4	*r*	−0.148	.41**	−.18*	–		
	n	121	121	121	121		
5	*r*	.27**	.29**	0.03	.28**	–	
	n	121	121	121	121	121	
6	*r*	.45**	−0.02	.44**	−0.118	−.20*	–
	n	121	121	121	121	121	121
Age	*r*	−.07	−.22**	−.11	.08	−.10	−.14
	n	119	119	119	119	119	119

Table 4 Correlation among mental health status before and after remote learning. *Note.* ** $p < .01$; * $p < .05$; 1 = Total number of children's mental disturbance during remote learning; 2 = Total number of children's positive mental health during remote learning; 3 = Total number of parental mental disturbance during remote learning; 4 = Total number of parental positive mental status during remote learning; 5 = Total number of children's mental disturbance since returning to in-person schooling; 6 = Total number of children's positive mental health since returning to in-person schooling.

insecurities, and quarantined in their homes. Additionally, education transitioned to an online learning platform rather than in-person, causing children and their families to likely navigate learning at home for the first time. As we enter the second year of the pandemic, its impacts are still present across the world, with several precautionary measures set in place for safety purposes, such as mask mandates, social distancing, and vaccinations, allowing children to return to in-person learning. The purpose of this study was to examine whether differences exist in children's and their parents' mental health during remote learning and the transition to returning to in-person learning during the pandemic. Findings indicated that children and their parents experienced changes in their mental health levels during the pandemic, and children and their parents anticipated remote learning occurring as it did. Most children experienced more mental health difficulties during remote learning compared to the return of in-person learning, and a positive relationship was observed between parent's and child's mental health during remote learning.

Most participants reported that their experience of remote learning was as expected. The use of technology within education has increased heavily over the last decade, allowing teachers and students to become more familiar with various devices and platforms (Selwyn et al., 2017). Perhaps this made the transition to remote learning slightly more accessible and more comfortable for some. Due to the rapid and significant influx of COVID-19 cases, schools were required to close and quickly transition into remote learning, creating limited preparation time for schools to navigate the logistics of remote learning. Some families did not have adequate internet access, resources, or space for remote learning within their homes (Valicenti et al., 2022). Additionally, previous research has documented that remote learning is challenging for younger children, particularly those with attention difficulties (Zhang et al., 2020). Therefore, some families may have anticipated the challenges that were to be endured during remote learning.

Children were observed to have increased mental health difficulties during remote learning. Upon the return of in-person learning, some children had a decrease in mental health disturbances while others had increases in mental health disturbances. The return to school may have cultivated a stronger sense of belonging for some children compared to remote learning. While physically present with peers and teachers, more interactions are likely to occur. Positive peer and teacher interactions have decreased anxiety and depression (Epkins & Heckler, 2011; Li et al., 2021). However, returning to school may have created additional challenges for some children. Children may have been worried about their physical health and contracting COVID-19 upon return to in-person learning (Haig-Ferguson et al., 2021).

Additionally, social transitions may have been more difficult. While some students found peer interactions engaging and necessary, others may have seen them as burdensome or anxiety-

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provoking due to prolonged isolation in the spring and summer. Transitioning back to daily school routines may have been overwhelming for some students as they had been out of traditional school routines for a long time and worried about overcoming academic content that was unable to be sufficiently learned during remote learning (University of Washington, 2021).

In addition to children experiencing more mental health difficulties during remote learning, parents also reported experiencing more mental health difficulties. In addition to the challenges above that COVID-19 created for families, parents also endured additional hardships during remote learning. Children may have primarily relied on parents to assist in navigating remote learning, exacerbating parent stress as they took on the role of both parent and teacher (Valicenti et al., 2022). Further, a positive relationship was found between parent's and children's mental health during remote learning. These findings are similar to previous research that suggest a positive association between parent and child and adolescent psychological problems (Nelson et al., 2021; Stone et al., 2016). When children experience mental and behavioral health challenges that require significant time and monitoring, parents may also experience higher stress levels, leading to anxiety and depression. Research has also documented a bidirectional relationship between parent and child mental health, where parents' mental health difficulties may also trigger children to experience similar disturbances (Bagner et al., 2013). Individuals may also learn and imitate the behaviors, attitudes, and emotional reactions of others with whom they interact (Bandura, 1977). During the pandemic, families were instructed to follow stay-at-home orders, increasing time spent together and potentially exacerbating this relationship.

Interestingly a small but significant relationship was found between parental age and children's mental health. Children with older parents were less likely to experience positive mental health outcomes during remote learning. This could be for numerous reasons; however, one could be that the technological requirement for remote learning was challenging, which may have caused frustration (Vaportzis et al., 2017). More likely, though, was that the COVID-19 infection proved to be increasingly fatal to older populations (Vila-Corcoles et al., 2021). The stress of not only managing remote learning with their child but also reducing chances of disease contraction may have created a more intense quarantine experience.

IMPLICATIONS

These results suggest that abrupt educational transitions to various instructional formats may be harmful to the mental health of caregivers and children. As the pandemic continues, such changes to and from learning formats may occur, especially with children testing positive for or being exposed to COVID-19. Therefore, providing support during transitions, clear expectations, and proper guidance for both caregivers and children is appropriate for such occurrences. Likewise, employers should be flexible with caregivers with children when the latter must stay home and, perhaps, participate in remote instruction. Additionally, schools may support caregivers on remote learning strategies during quarantines. This may include access to appropriate materials, organization and time-management skills, and clear outlines and expectations for ease of going to and from school regarding mental and physical health needs.

LIMITATIONS

The limitations of the study include timing and perspective. First, this was conducted retroactively after most remote learning occurred during the spring of 2020. Thoughts, feelings, and information, therefore, could be skewed by participants. Additionally, caregivers answered questions about their mental health, experiences, and their children's. This should be well noted when considering the data obtained for both subjects' results. Finally, participants (caregivers) only answered for one child who "struggled the most." Therefore, extremes may have been obtained, and other children's experiences are unaccounted for.

CONCLUSIONS

This study provides insight into the mental health implications of caregivers and children during both the experiences and transitions of remote learning and a return to in-person instruction during the COVID-19 pandemic. Data suggests that mental health changes occurred during

remote instruction, including increased anxiety and depression, and went as expected. Further, a positive relationship between caregivers and their child's mental health was seen. Once participants returned to in-person learning, mental health disparities increased for some but decreased in others. Providing adequate support for caregivers and children during transitions has been shown to reduce mental health disparities. Therefore, would be a recommended strategy to minimize potential mental health disparities for stakeholders if quarantining were to occur.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Maggie K. Richardson orcid.org/0000-0001-7317-8596
University of Kentucky, US

Alicia Fedewa orcid.org/0000-0001-8891-4736
University of Kentucky, US

Clair Tischner orcid.org/0000-0002-4637-9066
University of Kentucky, US

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