Individual and School Predictors of Teacher Stress, Coping, and Wellness During the COVID-19 Pandemic

Keith C. Herman, James Sebastian, Wendy M. Reinke, and Francis L. Huang
Missouri Prevention Science Institute, University of Missouri

The Coronavirus disease 2019 (COVID-19) pandemic created unprecedented challenges for the U.S. education system and for teachers. The present study examined correlates and predictors of teacher well-being in the immediate aftermath of school closures related to the pandemic. Data were collected as part of a larger group randomized trial. Six hundred and thirty-nine teachers completed surveys about their stress, coping, health, job satisfaction, and internalizing symptoms in Fall 2019, before the pandemic, and May 2020, during the pandemic. Teachers also provided ratings during COVID-19 of their teaching, student attendance and engagement, and concern about students and families. Teachers reported lower levels of work-related stress after the pandemic's onset compared to their prepandemic levels. Multilevel regression analyses revealed teacher confidence in their ability to manage student behaviors as a consistent and robust predictor of teacher well-being outcomes. Additionally, pre-COVID-19 school-level factors measured in Fall 2019, including collegial school leadership and fair and equitable school discipline structures, also predicted aspects of teacher well-being at the onset of COVID-19. Findings suggest the importance of teacher competence and perceived efficacy in managing student behavior and engaging them in learning to help them adapt to the stressors of a pandemic. Additionally, aspects of organizational health and climate may also help facilitate or hinder teacher adjustment.

Impact and Implications
The present findings indicated that teacher classroom management self-efficacy predicted positive adaption to the COVID-19 school shutdowns. Additionally, collegial leadership and fair and equitable school discipline practices also predicted favorable teacher adjustment.

Keywords: teacher well-being, self-efficacy, organizational health, school climate, pandemic

The Coronavirus disease 2019 (COVID-19) pandemic created unprecedented challenges for schools, educators, families, and students, with the first impacts felt in the Spring 2020 semester (Horesh & Brown, 2020; Kaden, 2020; MacIntyre et al., 2020; Reich et al., 2020). According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), schools in 102 countries were closed with local closings in 11 others, affecting nearly half of the world's student population (United Nations Educational, Scientific & Cultural Organization [UNESCO], 2020a). In the U.S., schools eventually closed their physical campuses, and many transitioned to online or distance learning platforms, abruptly changing the work that teachers typically do (Kaden, 2020; Reich et al., 2020). The shift to online modes of instruction was forced by the pandemic often without adequate time

for planning and proper implementation (Espino-Díaz et al., 2020; MacIntyre et al., 2020).

Teachers are the frontline of our education system, and teaching is a stressful profession under the best of circumstances (Johnson et al., 2005; Kyriacou, 2001; Sharifian & Kennedy, 2019; von der Embse et al., 2019). Moreover, teacher stress and poor coping are linked to negative outcomes for teachers and their students (Herman et al., 2018; Herman, Prewett, et al., 2020). Johnson et al. (2005) found that teachers were part of six professions including ambulance workers, social and services, prison officers, and police, that were "occupations that were reported as being the most stressful regarding physical and psychological well-being and as having the lowest levels of job satisfaction." (p.184). Researchers have also noted the severe risk to well-being and adverse mental health effects of ecological disasters like COVID-19 on the general population (Morganstein & Ursano, 2020; Prime et al., 2020). Thus, COVID-19 likely only magnified the already high levels of stress reported by teachers.

United Nations Educational, Scientific and Cultural Organization (UNESCO, 2020b) highlighted confusion and stress among teachers as one of the main severe consequences of school closures related to the pandemic, noting that "teachers are often unsure of their obligations and how to maintain connections with students to support learning. Transitions to distance learning platforms tend to be messy and frustrating, even in the best circumstances" (p. 1).

Uncertainty about the duration of school closures, lack of training and preparedness for online education, and the suddenness of closures have been noted as contributing factors to teacher stress (Kim & Asbury, 2020). Although all teachers are clearly on the frontlines of the national response to the COVID-19 pandemic, in some cases they have also been deemed as essential workers (i.e., critical infrastructure employees required to work in person even after COVID-19 exposure; Will, 2020), likely adding to teacher stress and anxiety. Given the prevalence of teacher stress in normal times and added stress and trauma from COVID-19, there is a critical need for research to understand their experiences during this crisis (Roman, 2020).

Researchers have noted a wide range of factors affecting teacher stress (for reviews, see Herman & Reinke, 2014; Kyriacou, 2001; von der Embse et al., 2019; Wiley, 2000). Some of these factors such as classroom management skills and student disruptive behaviors, attendance, and engagement are directly related to classroom instruction. With the shift to online instruction due to COVID-19, it is likely that these classroom-related stressors were amplified by how they play out in online settings, as well as teachers' unfamiliarity and lack of preparation to teach in these settings (Kaden, 2020). The COVID-19 pandemic also brought on wide-scale disruptions to regular life that are unprecedented for most individuals (Espino-Díaz et al., 2020).

Although COVID-19 is thought to be amplifying stressors of regular teaching work, teachers are also dealing with job stressors that are a direct result of the pandemic itself. These COVID-19 enhanced stressors include excessive bureaucratic tasks, lack of support and training, and inadequate infrastructure (see Espino-Díaz et al., 2020). Some of these factors are indirectly related to teaching and learning whereas other factors such as classroom management, student behavior, student attendance, and student engagement are directly related to instruction itself. The transition to an online setting can be stressful, as teachers struggle to develop their skillsets and tools for online teaching within extremely constrained timelines (Espino-Díaz et al., 2020; Fleming, 2020), while also struggling to keep students engaged (Trust & Whalen, 2020).

Studies show that teachers are working more hours than before the pandemic (Kaden, 2020), and facing challenges with lower student attendance, lower engagement in online lessons, and difficulties with student access to technology (Educators for Excellence, 2020). Teachers also report underestimating the complexity of online teaching, instruction preparation time, content planning, engaging students, and assessing learning (Kaden, 2020). The challenges of moving to online learning environments have been exacerbated by students' varying access to technology and students' willingness to engage (Auxier & Anderson, 2020; Kim & Asbury, 2020). Faced with these challenges, teachers are also reaching out more to students and their parents (Educators for Excellence, 2020).

Studies and policy debates have examined the impact on the mental and psychological health of frontline medical workers in their work during the pandemic. Similar research for teachers is necessary to guide school policy in the context of school openings. Kaden (2020) notes that more research is needed to document the interruptions brought about by the pandemic to teaching practices and responsibilities and its impact on school personnel, to prioritize the mental health of teachers. With studies showing that teachers are being affected by unprecedented changes to their professional life

and practice, it is important to focus on their well-being and mental health. In emergency situations, teacher well-being can be related to instructional quality, and students' own well-being (Seyle et al., 2013; Sharifian & Kennedy, 2019), and therefore it is an important research topic.

In the present study, we utilized teacher survey data to examine measures of stress, coping, and well-being, following the onset of the pandemic, along with data on the transition to online instruction, specifically examining the following: The frequency of online teaching, attendance, participation, classroom management, teachers' confidence in their ability to manage student behavior in online settings, and outreach to parents. Although previous survey studies have described some of these aspects of online instruction in isolation (see Educators for Excellence, 2020), we also examined the relationship of these measures to teacher stress, coping, and well-being.

It is not only important to describe teacher well-being after the pandemic but also to identify factors associated with teacher well-being. Individual teacher factors including perceived competence, coping skills, time spent working, and interactions with students and parents are known to be associated with teacher stress and well-being (Herman et al., 2018; Herman, Reinke, & Eddy, 2020). In particular, teacher classroom management self-efficacy, or their confidence in managing student behaviors, is a well-documented aspect of teacher functioning and well-being (Reinke et al., 2011). According to the Coping-Competence-Context (3C) theory of teacher stress (Herman, Reinke, & Eddy, 2020), school contextual conditions, organizational factors, and context (such as proximity to outbreak areas) can also influence variation in adoption of instructional strategies in response to the pandemic as well as teacher stress and well-being. For example, organizational conditions can affect teacher response to a given traumatic event (Sebastian et al., 2019). In particular, the quality of school leadership and the sense of community or belonging that a teacher feels in a school can influence how teachers respond to changes brought about by external events (Bottiani et al., 2019). Examining these organizational and contextual factors in relation to teacher stress and well-being is therefore important to guide future educational policy. Studies of teachers in historical situations causing trauma (such as war zones) have shown that in these situations, teachers work with children who are experiencing stress, while facing their own personal challenges and stresses and putting their own lives at risk, can lead to negative outcomes (Sharifian & Kennedy, 2019). Teachers in such situations face extraordinary challenges that contribute to increased teacher burnout at a time that they are needed the most for vulnerable students (Sommers, 2002).

Existing studies that have documented the changes caused by the pandemic have been mainly single timepoint, descriptive studies (see Educators for Excellence, 2020). Fewer studies have examined variation between teachers and school settings over time. The present study attempted to fill this gap by both describing pandemic work conditions and their relation to teacher well-being. Additionally, the present study included prepandemic organizational and contextual factors as predictors of teacher well-being during the pandemic.

The focus of the study was on teacher well-being in the context of the pandemic. We began with the following research questions: (1)

What were the relative and comparative levels of teacher well-being before and during the pandemic? (2) What were the levels/frequencies/proportions of online teaching, attendance, student engagement, contact with caregivers, and concern for students and families during the pandemic? and (3) What instructional and organizational variables predicted teacher stress and well-being during the pandemic? For research question 1, we hypothesized that teachers would report significantly higher levels of stress during the pandemic than before it. Research question 2 focused primarily on describing the circumstances of teaching during the pandemic, so we did not have formal hypotheses for this question. For research question 3, we hypothesized that individual teacher characteristics, including their self-reported confidence in classroom management, and adaptive organizational health and school climate factors would predict positive teacher adaptation to the pandemic circumstances.

Method

Participants

The data for this study come from two randomized controlled trials (RCTs) of a school leadership training program, *Leadership in Behavior Support* (LBS; Sprick et al., 2016), that is aimed to improve school leadership skills in improving school organizational climate and student behavior. All study procedures were approved by the University of Missouri Institutional Review Board. The study design involved recruitment of four annual cohorts of schools and principals who were randomly assigned to study condition within the cohort. As part of the larger efficacy study, surveys were collected from teachers on many aspects of school organizational health and climate to examine school context and the changes caused by the LBS training program. The same surveys were distributed to both treatment and control schools participating in the LBS schools in the fall and spring semesters year. In Spring 2020, we added a subset of questions specifically about changes related to COVID-19. Research question 1 included all 50 schools and teachers who were participating in the RCT in Fall 2019 and Spring 2020. The COVID-19 survey was added to the assessment protocol in late Spring 2020 after several schools had started completing the survey. Thus, the analytical sample for research questions 2 and 3 focused on the subset of 639 teachers and 31 schools who completed the COVID-19 survey. Tables 1 and 2 display the descriptive statistics for teacher demographic and school contextual characteristics. Several variables shown in these tables have been dummy coded for use in the regression analysis, the reported mean therefore represents the proportion for that variable. In terms of school contextual characteristics (see Table 1), 45% were elementary schools, 32% were middle schools, 13% were high schools, and 10% were combination levels (K-12 or 6-12). About 32% of the schools were from suburban settings, and 61% of the schools were in rural settings. Additionally, 87% of the schools were from Missouri and 13% were from Oklahoma. About 39% of the schools were designated as COVID-19 high-risk schools; that is, schools in locales with widespread community transmission and community-wide lockdowns at the time of the survey. Regarding teacher demographics (see Table 2), 79% of these teachers were female, 87% were White, 3% Latino/Hispanic. and 7% Black. Close to 60% of the teachers had greater than 10 years of experience.

Measures and Analysis

Teacher Well-Being and Online Instruction

Our measures of teacher well-being come from single items measuring teacher stress, coping, job satisfaction, and overall health (see Table 3). These items were asked in every administration of the teacher surveys. The technical adequacy of the single-item stress and coping measures have been previously reported; in particular, these items have comparable correlations and predictive value as longer scales of the same construct (Eddy et al., 2019). The measure for stress has a 10-point scale with 1 indicating *Not Stressful* to 10 indicating *Very Stressful*. Coping is also measured on a 10-point scale with 1 indicating *Not Well* and 10 indicating *Very Well*. The overall health and job satisfaction were modeled after the stress and coping items. The scales of overall health and job satisfaction are on 6-point scales; the measure for overall health varies from 1 indicating *Extremely Poor* to 6 indicating *Excellent*, whereas the scale of job satisfaction varies from 1 indicating *Very Dissatisfied* to 6 indicating *Very Satisfied*.

In the Spring 2020 survey, we included items that examined changes brought about by the COVID-19 pandemic in teacher well-being and classroom instruction. Specifically, we looked at the frequency of online teaching, attendance of students in online classes, teacher confidence in providing online classes, student engagement in online classes, managing student behavior in online settings, interactions with students' families and caregivers, teachers' worries about their students, and teachers' perceptions about how families are managing transitions to online teaching. Similar to the teacher well-being measures, we used single-item survey questions to obtain information on various instructional aspects of COVID-19-related changes. Questions were developed and refined through consensus with experts on our research team as well as an external team working with us on related projects. The wording and scales of these single-item survey questions are shown in Table 3.

We also included additional measures of teacher well-being as part of the COVID-19-specific items. The *Patient Health*

Table 1
School-Level Descriptive Statistics (Number of Schools = 31)

Label	M	SD
Level—Elementary	0.45	—
Level—Middle	0.32	—
Level—High	0.13	—
Level—Multiple levels	0.10	—
Setting—Urban	0.06	—
Setting—Suburban	0.32	—
Setting—Rural	0.61	—
State—Missouri	0.87	—
State—Oklahoma	0.13	—
Intervention status (Ever received intervention)	0.55	—
COVID-19 risk (High risk setting)	0.39	—
School disciplinary structure—Fairness	3.98	0.57
School disciplinary structure—Justness	5.25	0.21
Student support scale total	4.97	0.35
Collegial leadership OHI subscale	3.16	0.40
Teacher affiliation OHI subscale	3.30	0.34

Note. School Level, Setting, State, and COVID-19 risk were coded as dummy (0–1) variables, the mean represents the proportion for that variable. COVID-19 = Coronavirus disease 2019; OHI = Organizational health inventory.

Table 2
Teacher Demographics (N = 639)

Label	M
Teacher gender (Female = 1)	0.79
Teacher years experience (1–2 years)	0.07
Teacher years experience (3–5 years)	0.16
Teacher years experience (6–10 years)	0.17
Teacher years experience (>10 years)	0.60
Teacher survey ethnicity—(Hispanic or Latino = 1)	0.03
Race—Black/African American	0.07
Race—White	0.87

Note. All variables are coded as dummy (0–1) variables; the mean represents the proportion for that variable.

Questionnaire-2 (PHQ-2) is a two-item instrument that measures the frequency of depression mood and anhedonia (Kroenke et al., 2003). Anhedonia is defined as "An inability to experience pleasure from activities usually found enjoyable" (Web search definition). The PHQ-2 is the shortened version of an original nine-item measure to assess depression severity, the PHQ-9. Kroenke et al. (2003) evaluated the utility of the shorter PHQ-2 instrument for busy clinical settings and found that the instrument had adequate construct and criterion validity. These questions asked respondents whether, over the previous 2 weeks they have been bothered by the following: (a) Little interest or pleasure in doing things and (b) Feeling down, depressed, or hopeless. The response categories for these items ranged from $0 = Not\ at\ all$, to $3 = Nearly\ every\ day$. We used a sum score of the two items. The range of this sum score is 0–6; a score greater than 3 indicates that major depression is likely.

The *Generalized Anxiety Disorder-2 (GAD-2)* instrument is used to assess anxiety disorders. The GAD-2 is the shortened version of the original seven item GAD-7 instrument which is established as having the best performance relative to other instruments for measuring generalized anxiety disorders (Herr et al., 2014). The GAD-2 version was found to have acceptable psychometric properties for identifying GAD (Plummer et al., 2016). The two items ask respondents about two aspects of anxiety—feeling nervous or anxious, and not able to stop worrying. The response categories for these items ranged from $0 = Not\ at\ all$, to $3 = Nearly\ every\ day$. We used the sum score of the two items which ranged from 0 to 6; a score greater than 3 indicates further diagnostic evaluation for generalized anxiety disorder is warranted (Plummer et al., 2016).

Organizational Health

Measures of organizational health were taken from the *Organizational Health Inventory* (OHI; Hoy & Feldman, 1987). The OHI measures multiple aspects of school organizational health. Specifically, a measure of Collegial Leadership examined the extent to which teachers perceived the principal as being friendly and supportive and includes 10 items. Examples of survey items include the following: (a) the principal explores all sides of topics and admits that other opinions exist and (b) the principal lets faculty know what is expected of them. A six-item measure of Teacher Affiliation examined the extent to which teachers felt a sense of connection to the school and one's peers. Examples of survey items measuring teacher affiliation include: (a) teachers in this school like each other and (b) there is a feeling of trust and confidence among staff. For both measures, the response categories of the underlying items ranged from $1 = Strongly\ Disagree$ to $4 = Strongly\ Agree$. Both subscales are widely used and have adequate technical qualities (Bottiani et al., 2019; Hoy & Feldman, 1987; Sebastian et al., 2019).

School Climate

We also used two measures from the *Authoritative School Climate Survey* (ASCS), an instrument based on Authoritative

Table 3
Survey Item Scales

Label	Scale
How stressful is your job?	$1 = Not\ stressful$, 2, 3, 4, 5, 6, 7, 8, 9, $10 = Very\ Stressful$
How well are you coping with the stress of your job?	$1 = Not\ Well$, 2, 3, 4, 5, 6, 7, 8, 9, $10 = Very\ Well$
How would you describe your overall state of health these days?	$1 = Extremely\ Poor$, $2 = Poor$, $3 = Fair$, $4 = Good$, $5 = Very\ Good$, $6 = Excellent$
Overall, how satisfied are you with your job at this school?	$1 = Very\ Dissatisfied$, $2 = Dissatisfied$, $3 = Slightly\ Dissatisfied$, $4 = Slightly\ Satisfied$, $5 = Satisfied$, $6 = Very\ Satisfied$
Patient health questionnaire—2	0–6, >3 indicates major depression is likely
General anxiety disorder-2	0–6, >3 indicates further diagnostic evaluation for generalized anxiety disorder is warranted
How often do you teach online in an average week?	$1 = 4–5\ times\ per\ week$; $2 = 2–3\ times/week$; $3 = Once\ per\ week$; $4 = Less\ than\ once/week$
On average, what percentage of your students attend online class sessions?	0 = 0%; 1 = 10%; 2 = 20%; 3 = 30%; 4 = 40%; 5 = 50%; 6 = 60%; 7 = 70%; 8 = 80%; 9 = 90%; 10 = 100%
On average, what percentage of your students appear engaged or highly engaged in online learning?	0 = 0%; 1 = 10%; 2 = 20%; 3 = 30%; 4 = 40%; 5 = 50%; 6 = 60%; 7 = 70%; 8 = 80%; 9 = 90%; 10 = 100%
How hard is it to manage student behaviors in an online format?	$0 = 0$-$Not\ at\ all$ to $10 = Extremely\ Hard$
How confident are you in your ability to manage student behaviors in an online format?	$0 = 0$-$Not\ at\ all$ to $10 = Extremely\ Confident$
Of your students' caregivers, what percentage of them have you had contact?	0 = 0%; 1 = 10%; 2 = 20%; 3 = 30%; 4 = 40%; 5 = 50%; 6 = 60%; 7 = 70%; 8 = 80%; 9 = 90%; 10 = 100%
How stressed do you think your students' families are with the move to online schooling/distance	$0 = 0$-$Not\ at\ all$ to $10 = Extremely\ Stressed$
How worried are you about your students right now? (t_strcopcov1)	$0 = 0$-$Not\ at\ all$ to $10 = Extremely\ Worried$

School theory which posits that school climate needs to offer students both structure and support, in order to be effective (Gregory & Cornell, 2009; Gregory et al., 2012; Huang & Cornell, 2016; Huang et al., 2015). The Structure subscale consisted of nine items that examine two dimensions of justness and fairness. Justness refers to the equitable enforcement of disciplinary practices at the school, while fairness relates to the consistency in applying school discipline rules. An example of survey items measuring disciplinary support are—for justness: (a) When students are accused of doing something wrong, they get a chance to explain, and for fairness: (b) students know the school rules for student conduct. The response categories of the underlying items ranged from 1 = *Strongly Disagree* to 6 = *Strongly Agree*. The measure of Student Support measures the extent to which students were willing to seek help (six items), and whether students felt respected (four items). Examples include: (a) Most teachers and other adults at this school care about all students, and (b) Students are encouraged to report bullying and aggression. The response categories of the underlying items ranged from 1 = *Strongly Disagree* to 6 = *Strongly Agree*. The psychometric properties of the ASCS survey havebeen examined in different school settings—middle and high (Huang & Cornell, 2016; Huang et al., 2015; Konold et al., 2014).

Teacher Stress and Well-Being Before and During the Pandemic Analyses

As noted earlier, our measures of teacher well-being were asked in every administration of the teacher surveys as part of the broader project. The measures for stress, coping, satisfaction, and overall health were available from both the Spring of 2020, after the onset of the COVID-19 pandemic and resulting school closures, and Fall 2019, before the pandemic. These survey items helped us understand changes in teacher well-being that occurred during the pandemic. We compared survey data on teacher well-being from a time-point prior to the pandemic to survey data collected during the pandemic. Note that for these comparisons we could use a larger sample of teachers and schools who answered the teacher well-being items and were not restricted to teachers who also answered the COVID-19-specific items. As the teacher surveys were anonymously reported within schools, the pre–post comparisons were conducted at the school level ($N = 50$ schools). Our comparisons were based on simple regression models where survey data from Fall 2019 and Spring 2020 were stacked and a dummy variable for time indicated the different survey waves.

COVID-19 Survey Analyses

We examined basic descriptive statistics to show average levels of measures on stress, coping, and well-being and measures related to online instruction across all teachers and settings. To examine our main research questions regarding the relationship of instructional practices following the COVID-19 pandemic with teacher well-being measures, we conducted multilevel regression modeling using Mplus (Muthen & Muthen, 2007; Muthén & Muthén, 2013). A two-level modeling approach, with teachers nested with schools, was selected because the data have a nested structure; teachers from the same school are likely to have responses that are more related. The outcomes we examined were teacher stress, coping, overall health,

job satisfaction, generalized anxiety, and depression. All the models adjusted for teacher and school covariates. At the teacher level, we adjusted for gender, race/ethnicity, and years of experience. At the school level, we adjusted for setting, school level, state, and COVID-19 risk (schools were coded as 1 if they were in a location with high rates of COVID transmission and community lockdowns at the time of survey completion and as 0 if not).

Our analyses also adjusted for school organizational and climate measures, for which we averaged teachers' responses from the previous year (Fall 2019) on organizational health and climate and used these school-level constructs as predictors of Spring 2020 teacher well-being outcomes. Using school-level measures from the previous year was a reasonable approach to consider organizational information that was not affected by COVID-19 itself. However, because teacher surveys were anonymously reported within schools, we were not able to link information at the teacher level and therefore, prior-year school averages were included as covariates at the school level. We used grand-mean centering for all our models, so the intercepts represented an expected score for an observation that was average on all teacher-level and school-level covariates. Additionally, we included intervention status as a covariate in all analyses to adjust for the potential influence of the ongoing intervention to influence teacher well-being outcomes.

The general form of the statistical models used in our analyses are shown below:

$$\textbf{Level--1}: Y_{ij} = \pi_{0j} + \sum_{n=1}^{N} \pi_{nj}(X)_{ij} + \sum_{m=N+1}^{M} \pi_{mj}(Z)_{ij} + e_{ij} \quad (1)$$

$$\textbf{Level--2}: \pi_{0j} = \beta_{00} + \sum_{p=1}^{P} \beta_{0p}(W)_{0j} + r_{0j} \quad (2)$$

where Y_{ij} represents a teacher well-being outcome measure (e.g., stress, coping), π_{0j} represents the Level-1 intercept, X is a vector of variables representing instruction after COVID-19 (e.g., the frequency of online teaching, attendance of students in online classes) and Z is a vector of teacher-level control variables (e.g., gender, years experience). Teacher gender was entered as a dummy variable with a value of 1 indicating the teacher was female. A series of dummy variables captured teacher experience at 1–2 years, 3–5 years, 6–10 years, and greater than 10 years; the left-out category in the regression models was the variable for 1–2 years experience. Dummy variables indicating whether teacher race was Black, White, and Hispanic (see Table 2) were entered in the model; the left-out category were teachers who were not in any of those categories. We allowed the Level-1 intercept to be random at Level 2. At the school level (Level 2), β_{00} represents the school-level intercept, and W is a vector of control variables (e.g., school setting, school level). School level was represented by a series of dummy variables (see Table 1) and elementary school was the left-out category for the regression models. School setting/urbanicity was represented by a series of dummy variables for urban, suburban, and rural settings, with urban being the left-out category in the models. A dummy variable for whether the school was in Oklahoma was used in the models; Missouri schools were the left-out category.

Table 4
Teacher Well-Being Before and During COVID-19 (Number of Schools = 50)

Item	Pre-COVID-19		During COVID-19	
	M	SD	M	SD
How stressful is your job?	6.71	0.76	6.21	0.83
How well are you coping with the stress of your job?	6.79	0.62	7.33	0.57
How would you describe your overall state of health these days?	4.14	0.29	4.43	0.25
Overall, how satisfied are you with your job at this school?	4.73	0.48	4.99	0.37

Note. Pre–Post-COVID-19 differences are all significant at $p < .05$. COVID-19 = Coronavirus disease 2019.

Results

Teacher Well-Being Before and After the Pandemic

For research question 1, Table 4 shows the descriptive statistics for the measures we used to compare teachers' well-being from Fall 2019 to Spring 2020. Teachers reported significantly lower levels of stress, higher coping, better overall health, and higher satisfaction in Spring 2020 when compared to Fall 2019. All differences based on t-tests were statistically significant (i.e., all $p < .05$). These differences were also seen in the regression analyses which controlled for school level, setting, state, and proximity to risk. Because the surveys were anonymous, we could not match individual teacher responses; instead, these comparisons represented overall teacher responses across both time points. We conducted post hoc analyses to rule out the possibility that differential attrition across schools accounted for improvement of teacher well-being. The correlation between teacher survey completion rate per school at each time was high ($r = .87$) suggesting teacher persistence in survey completion was comparable between schools at both time points.

COVID-19 Survey Measures

Regarding research question 2, Table 5 shows that teachers on average reported above midpoint levels on job stress, indicating that their jobs were more stressful than not, 6.55 on the 10-point stress scale, and also reported values showing high coping with job stress

(7.11 on a 10-point scale). The mean values for teacher job satisfaction (4.88 on a 6-point scale), and overall state of health (4.40 on a 6-point scale) were positive. On the measures for depression and anxiety, 9% of teachers reported scores above than the cut-off on the PHQ-2, indicating that major depression is likely, and 16% of teachers reported scores above the cut-off on the GAD-2, indicating likely risk for generalized anxiety disorder.

On instruction-related measures, teachers on average reported teaching online about 2–3 times per week. They reported that only between 30% and 40% of their student attended online classes, and only 30% and 40% of students were engaged or highly engaged. On average, teachers indicated it was not very hard to manage students in an online format (3.78 on a 10-point scale of difficulty) and reported above-average levels of confidence in their ability to manage student behaviors in an online setting (6.15 on a 10-point scale of confidence). The teacher reported that they had contact with 50%–60% of students' caregivers. They also indicated that students' families were stressed with the move to online education (7.55 on a 10-point scale), and also a high level of worry about their students (7.36 on a 10-point scale).

We conducted two-level regression analysis to examine the relationship of instructional variables during COVID-19 to teacher well-being measures. Tables 6–8 show the regression results of analyses examining teacher well-being measures as outcomes while controlling for teacher-level demographic and school contextual information as covariates. The tables show unstandardized coefficients from the multilevel regression analysis. Since all the

Table 5
Descriptive Statistics (N = 639)

Label	M	SD	Min	Max
How stressful is your job?	6.55	2.07	1	10
How well are you coping with the stress of your job?	7.11	2.00	1	10
How would you describe your overall state of health these days?	4.40	0.95	1	6
Overall, how satisfied are you with your job at this school?	4.88	1.07	1	6
How often do you teach online in an average week?	2.05	0.93	1	4
On average, what percentage of your students attend online class sessions?	3.30	2.21	0	10
On average, what percentage of your students appear engaged or highly engaged in online learning?	3.54	2.48	0	10
How hard is it to manage student behaviors in an online format?	3.78	3.51	0	10
How confident are you in your ability to manage student behaviors in an online format?	6.15	2.98	0	10
Of your students' caregivers, what percentage of them have you had contact?	5.67	3.44	0	10
How stressed do you think your students' families are with the move to online schooling/distance …	7.55	2.05	0	10
How worried are you about your students right now?	7.36	2.33	0	10
Depression severity, patient health questionnaire (PHQ-2) Sum	1.06	1.23	0	6
Depression severity, patient health questionnaire (PHQ-2) cut score	0.09	0.29	0	1
Generalized anxiety disorder (GAD-2) sum	1.43	1.48	0	6
Generalized anxiety disorder (GAD-2) cut score	0.16	0.37	0	1

Note. The scales for these variables are shown in Table 3.

Table 6
Teacher- and School-Level Predictors of Teacher Stress and Coping (N = 639)

Variable	Stress		Coping	
	Coeff.	S.E	Coeff.	S.E
Intercept	6.55	0.05***	7.10	0.05***
Teacher level				
Frequency of online teaching/week	−0.03	0.09	0.03	0.08
Percentage of students attending online classes	0.05	0.04	0.02	0.05
Percentage of students engaged in online classes	−0.07	0.04	0.01	0.04
Difficulty managing student behavior online	0.00	0.02	−0.02	0.02
Confidence to manage student behavior online	−0.07	0.03*	0.12	0.03***
Percentage of caregivers contacted	−0.03	0.02	0.05	0.03
How stressed families are with move online	0.14	0.04***	−0.06	0.04
How worried about students right now	0.02	0.04	0.00	0.04
(Teacher demographics)				
Gender	0.71	0.19***	−0.40	0.17*
Hispanic/Latino	−0.23	0.40	−0.06	0.31
Years teaching (3–5)	0.27	0.26	−0.31	0.33
Years teaching (>10)	0.22	0.33	0.08	0.39
Years teaching (6–10)	0.47	0.27	−0.04	0.30
Race—Black/African American	0.68	0.53	1.12	0.49*
Race—White	0.23	0.44	0.52	0.41
Residual variance (Level 1)	3.67	0.23***	3.43	0.3***
School level				
School disciplinary structure—Fairness	−0.33	0.20	−0.09	0.19
School Disciplinary Structure—Justness	−3.68	0.68***	1.69	0.67*
Student support	1.33	0.51**	−1.01	0.5*
Collegial leadership	0.00	0.35	1.11	0.3***
Teacher affiliation	−0.12	0.41	0.03	0.29
(School context)				
Level—Middle	−0.58	0.24*	0.01	0.19
Level—High	−0.78	0.31*	−0.18	0.28
Level—Multiple levels	−1.39	0.3***	0.94	0.23***
Setting—Suburban	−0.20	0.24	0.58	0.18***
Setting—Rural	−0.63	0.21**	1.18	0.16***
State—Oklahoma	0.71	0.31*	0.10	0.26
COVID-19 risk (High risk setting)	−0.01	0.24	0.01	0.24
Treatment status—Treated	−0.30	0.13*	0.04	0.13
Residual Variance (Level 2)	0.00	0.01	0.00	0.01

Note. COVID-19 = Coronavirus disease 2019.
* $p < .05$. ** $p < .01$. *** $p < .001$.

predictors are grand-mean centered, the intercept represents the expected score on the outcome for an average teacher (average on all predictors in the model). As an example, for the outcome measure of teacher stress, Table 6 shows that the expected stress for an average teacher from an average school (average on all entered variables in the model) was 6.55 ($p < .05$). A unit increase in teacher confidence to manage student behavior online negatively predicted teacher stress ($B = −.07, p < .05$).

In brief, our results show that teachers' confidence in their belief to manage student behavior in online settings was positively correlated with teacher coping ($B = .12, p < .001$), health ($B = .05, p < .01$), and satisfaction ($B = .03, p < .05$), and negatively correlated with stress ($B = −.07, p < .01$), depression ($B = −.06, p < .01$), and anxiety ($B = −.05, p < .01$). This was the only consistent correlation across all teacher health outcomes. The other significant correlations at the teacher level were as follows: Teachers' reports about how stressed they thought students' families were correlated positively with their own stress ($B = .14, p < .001$), depression ($B = .07, p < .001$), and anxiety ($B = .011, p < .001$). Teacher reports of how worried they were about their students

positively correlated with their depression ($B = .07, p < .001$) and anxiety ($B = .12, p < .001$) but was also positively correlated with satisfaction ($B = .06, p < .01$). The percentage of caregivers contacted was negatively related to teachers' depression ratings ($B = −.03, p < .05$). The percentage of students engaged in online classes was positively related to teacher health ($B = .04, p < .05$). Last, the difficulty of managing student behavior online was negatively related to teacher job satisfaction ($B = −.02, p < .05$).

In terms of school organizational predictors of teacher well-being, school disciplinary structure—justness, was negatively correlated with stress ($B = 3.68, p < .001$) and positively correlated with coping ($B = 1.68, p < .05$). Disciplinary structure—fairness was negatively correlated with depression ($B = −.31, p < .05$) and anxiety ($B = −.51, p < .001$). The student support measure was positively correlated with stress ($B = 1.33, p < .001$) and negatively correlated with coping ($B = −1.11, p < .001$). Collegial leadership was positively correlated with coping ($B = 1.11, p < .001$) and job satisfaction ($B = 1.04, p < .001$). Last, teacher affiliation was positively correlated with both depression ($B = .72, p < .05$) and anxiety ($B = .85, p < .05$).

Table 7
Teacher- and School-Level Predictors of Teacher Health and Satisfaction (N = 639)

Variable	Health		Satisfaction	
	Coeff.	*S.E*	Coeff.	*S.E*
Intercept	4.40	0.02***	4.88	0.03***
Teacher level				
Frequency of online teaching/week	0.04	0.04	0.02	0.03
Percentage of students attending online classes	−0.01	0.02	−0.01	0.03
Percentage of students engaged in online classes	0.04	0.02*	0.04	0.02
Difficulty managing student behavior online	0.00	0.01	−0.02	0.01*
Confidence to manage student behavior online	0.05	0.01***	0.03	0.02*
Percentage of caregivers contacted	0.01	0.01	0.01	0.01
How stressed families are with move online	−0.02	0.03	−0.02	0.02
How worried about students right now	0.01	0.02	0.06	0.02**
(Teacher demographics)				
Gender	−0.16	0.08*	0.03	0.07
Hispanic/Latino	0.08	0.21	0.36	0.14*
Years teaching (3–5)	−0.24	0.16	−0.10	0.18
Years teaching (>10)	−0.25	0.17	−0.04	0.19
Years teaching (6–10)	−0.23	0.13	0.05	0.14
Race—Black/African American	0.41	0.28	0.17	0.10
Race—White	0.10	0.22	0.00	0.14
Residual Variance (Level 1)	0.81	0.07***	0.93	0.13***
School level				
School disciplinary structure—Fairness	0.05	0.13	−0.01	0.12
School disciplinary structure—Justness	−0.06	0.36	−0.14	0.44
Student support	0.12	0.25	−0.44	0.36
Collegial leadership	0.37	0.22	1.04	0.27***
Teacher affiliation	−0.03	0.17	0.28	0.30
(School context)				
Level—Middle	0.27	0.09**	0.02	0.10
Level—High	0.08	0.11	−0.21	0.16
Level—Multiple levels	0.78	0.11***	0.13	0.26
Setting—Suburban	−0.15	0.11	−0.09	0.16
Setting—Rural	0.15	0.11	0.54	0.19**
State—Oklahoma	−0.12	0.16	0.24	0.18
COVID-19 risk (High risk setting)	0.19	0.11	0.44	0.13***
Treatment status—Treated	−0.04	0.06	−0.05	0.07
Residual Variance (Level 2)	0.00	0.01	0.00	0.00

Note. COVID-19 = Coronavirus disease 2019.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

The present study provides a glimpse into teacher self-reported health and its correlates in the immediate aftermath of the COVID-19 pandemic shutdown. Teachers reported lower levels of stress and higher levels of coping after the onset of the pandemic. Teacher self-perceptions of classroom management skills emerged as the most consistent predictor of post-COVID adjustment. Additionally, collegial leadership and aspects of school discipline practices also predicted teacher well-being.

We attempted to describe the activities and circumstances reported by teachers during the pandemic. Most teachers reported low levels of online instruction in the aftermath of the pandemic, and low levels of student attendance and engagement. In the U.S., nearly all schools scrambled to provide effective online instruction for students and most removed aspects of accountability for students. For instance, many schools adopted policies that allowed students to carry-forward grades achieved by the start of the pandemic to the end of the year without penalty; thus many students who were doing well at the time of the pandemic could opt out of classwork if they chose.

The low levels of teaching may in part explain the unexpected improvement in teacher self-reported health in the immediate aftermath of the pandemic. Contrary to expectations, teachers reported significantly lower levels of stress and higher levels of coping, well-being, and job satisfaction after the start of the pandemic. Despite the disruptions and uncertainties created by the shutdown and the disease, it is possible that teachers experienced lower levels of job stress without the daily hassles of in-person instruction. It will be important to examine teacher well-being in Fall 2020 after the start of the new school year after daily instruction expectations and workloads returned to previous levels to determine if these trends continued.

Our final research question examined predictors of teacher well-being during the pandemic. The most consistent predictor of positive teacher health outcomes was their self-reported confidence in managing student behavior. In general, concerns about students and their families predicted lower levels of health. Among school organizational predictors, prepandemic measures of school climate—disciplinary structure and student support, were the most consistent predictors of health outcomes. The consistent

Table 8

Teacher- and School-Level Predictors of Teacher Anxiety and Depression (N = 639)

Variable	Depression scale (PHQ-2 sum)		Anxiety scale (GAD-2 sum)	
	Coeff.	S.E	Coeff.	S.E
Intercept	1.06	0.03***	1.43	0.03***
Teacher level				
Frequency of online teaching/week	0.05	0.03	−0.01	0.06
Percentage of students attending online classes	0.05	0.03	0.02	0.04
Percentage of students engaged in online classes	−0.02	0.03	0.01	0.03
Difficulty managing student behavior online	0.01	0.01	0.02	0.02
Confidence to manage student behavior online	−0.06	0.02**	−0.05	0.02**
Percentage of caregivers contacted	−0.03	0.01*	−0.02	0.02
How stressed families are with move online	0.07	0.02***	0.11	0.03***
How worried about students right now	0.07	0.02***	0.12	0.03***
(Teacher demographics)				
Gender	0.23	0.12	0.29	0.12*
Hispanic/Latino	−0.43	0.23	−0.64	0.18***
Years teaching (3–5)	0.13	0.14	0.15	0.18
Years teaching (>10)	0.16	0.16	0.16	0.20
Years teaching (6–10)	−0.03	0.12	0.02	0.15
Race—Black/African American	−0.23	0.18	−0.42	0.31
Race—White	0.03	0.15	−0.09	0.40
Residual variance (Level 1)	1.30	0.12***	1.90	0.15***
School level				
School disciplinary structure—Fairness	−0.31	0.14*	−0.51	0.14***
School disciplinary structure—Justness	−0.08	0.50	−0.72	0.49
Student support	−0.04	0.37	0.10	0.38
Collegial leadership	−0.20	0.27	−0.04	0.26
Teacher Affiliation	0.72	0.3*	0.85	0.43*
(School context)				
Level—Middle	0.16	0.11	0.04	0.12
Level—High	0.47	0.2*	0.29	0.16
Level—Multiple levels	−0.52	0.27	−0.62	0.18***
Setting—Suburban	0.14	0.22	−0.29	0.19
Setting—Rural	−0.37	0.27	−0.20	0.15
State—Oklahoma	0.31	0.28	0.64	0.19***
COVID-19 risk (High risk setting)	−0.45	0.14***	0.09	0.14
Treatment status—Treated	0.02	0.07	−0.20	0.07**
Residual variance (Level 2)	0.00	0.00	0.00	0.01

Note. PHQ-2 = Patient health questionnaire-2; GAD-2 = Generalized anxiety disorder-2; COVID-19 = Coronavirus disease 2019.
* $p < .05$.　** $p < .01$.　*** $p < .00$.

relations between teacher confidence in their ability to manage student behaviors and all favorable teacher health outcomes support the importance of teacher self-efficacy in navigating new and unexpected challenges at work. The relations between teacher classroom management skills and job satisfaction and success are well documented (see Herman et al., 2018). Findings suggest the need to continue to find ways to bolster classroom management skills, especially in online environments, and confidence in these skills as a way to support teacher well-being.

Contextual leadership and climate factors also emerged as significant predictors of teacher health. In particular, collegial leadership emerged as a promising principal practice for supporting teacher health during the pandemic as it positively predicted coping and satisfaction. These findings are consistent with prior research showing the value of positive and supportive leadership style in achieving many positive school outcomes (Bottiani et al., 2019; Smith et al., 2021). Additionally, among climate measures, the disciplinary structure, or the extent teachers perceived the school discipline practices being fair and equitable, predicted teacher well-being outcomes. It is noteworthy that both of these

contextual factors, collegiality and structure, were measured in the Fall semester prior to the pandemic and therefore, preexisting positive leadership style and aspects of school climate were associated with more favorable teacher adjustment after the pandemic onset. Unexpectedly, school disciplinary structure and support worked in opposite ways as student support was negatively correlated with coping and positively correlated with stress. Also unexpectedly, teacher affiliation was associated with high levels of internalizing symptoms. Although further work will need to examine these relations further, one potential explanation is while that high levels of support and affiliation can lead to social support during crisis, as we surmised, it can also contribute to corumination—that is, ongoing conversations about negative aspects of the crisis. Corumination is a type of social contagion that predicts worsening depressive symptoms (Bastin et al., 2021). An alternative explanation is that it is possible that high support and affiliation schools also have high levels of shared empathy; thus, observing peers or students struggling during times of crisis in these settings may contribute to higher levels of personal distress. Further studies will be needed to confirm the support/affiliation-

internalizing link and also to examine whether corumination and/or shared empathy are part of the pathway to negative teacher emotional well-being in high support and affiliation schools.

Consistent with the 3C theory of teacher stress, findings support the complex interplay between individual teacher factors (coping and competence) and contextual features of their work environment in shaping teacher adjustment (Herman, Reinke, & Eddy, 2020). Optimal school environments characterized by high levels of collegial leadership and sense of fairness and equity in school discipline practices may help mitigate the harmful aspects of external events such as the pandemic on teacher well-being. Moreover, school environments that support adaptive teacher coping and personal sense of competence and self-efficacy may also support teacher adjustment. Future research will need to examine the unique and relative contribution of different aspects of school contexts to teacher well-being compared to individual teacher attributes. Additionally, more work is needed to determine how the effectiveness of school context factors may be influenced by the nature of specific external school stressors. For instance, the role of supportive school environments may differ in the face of shared traumatic events like COVID-19, student deaths, or police brutality incidents versus stressors created by educational policy changes or shifting school demographics and resources.

Limitations

It is important to note that although the study was conducted in the context of an RCT, the specific research questions examined here did not involve experimental manipulation. Instead, we examined cross-sectional and longitudinal correlates and predictors of teacher well-being. Thus, causal inferences are not warranted. Additionally, although the study included a range of school types and settings, it occurred in a particular geographic context, the midwestern U.S., and thus it is not known how findings will generalize to other settings. Finally, some of the measures used in the present study relied on single-item ratings. Although traditional psychometric theory discourages the use of such measures, many recent studies have found that well-designed single items can provide meaningful information and are often as predictive of future outcomes as longer measures of the same construct (e.g., see Eddy et al., 2019; Lewis et al., 2017; Stormont et al., 2015).

Conclusion

Teacher health and well-being took on even more importance in the immediate aftermath of the COVID-19 pandemic. Teachers are charged with educating youth, positively supporting their development, and keeping them safe. Supporting teachers—helping them manage social, emotional, and somatic well-being—is critical to ensure they are healthy and able to fulfill the demands of their jobs. The present findings suggest that teacher confidence in their abilities to manage student behavior and to engage students in learning predicted positive adjustment to the pandemic circumstances. Moreover, teachers who worked in settings where school leaders provided a collegial and just and fair school environment prior to the pandemic also fared better after the pandemic onset.

References

Auxier, B., & Anderson, M. (2020). *As schools close due to the coronavirus, some U.S. students face a digital "homework gap."* https://www.pewresearch.org/fact-tank/2020/03/16/as-schools-close-due-to-the-coronavirus-some-u-s-students-face-a-digital-homework-gap/

Bastin, M., Luyckx, K., Raes, F., & Bijttebier, P. (2021). Co-Rumination and depressive symptoms in adolescence: Prospective associations and the mediating role of brooding rumination. *Journal of youth and adolescence*, *50*(5), 1003–1016.

Bottiani, J. H., Duran, C. A. K., Pas, E. T., & Bradshaw, C. P. (2019). Teacher stress and burnout in urban middle schools: Associations with job demands, resources, and effective classroom practices. *Journal of School Psychology*, *77*, 36–51. https://doi.org/10.1016/j.jsp.2019.10.002

Eddy, C. L., Herman, K. C., & Reinke, W. M. (2019). Single-item teacher stress and coping measures: Concurrent and predictive validity and sensitivity to change. *Journal of School Psychology*, *76*, 17–32. https://doi.org/10.1016/j.jsp.2019.05.001

Educators for Excellence. (2020). *Voices from the virtual classroom: A survey of America's teachers on COVID-19-related education issues.* https://e4e.org/sites/default/files/voices_from_the_virtual_classroom_2020.pdf

Espino-Díaz, L., Fernandez-Caminero, G., Hernandez-Lloret, C.-M., Gonzalez-Gonzalez, H., & Alvarez-Castillo, J.-L. (2020). Analyzing the impact of COVID-19 on education professionals. Toward a paradigm shift: ICT and neuroeducation as a binomial of action. *Sustainability*, *12*(14), Article 5646. https://doi.org/10.3390/su12145646

Fleming, N. (2020). *Curbing teacher burnout during the pandemic.* Edutopia. https://www.edutopia.org/article/curbing-teacher-burnout-during-pandemic

Gregory, A., & Cornell, D. (2009). "Tolerating" adolescent needs: Moving beyond zero tolerance policies in high school. *Theory into Practice*, *48*(2), 106–113. https://doi.org/10.1080/00405840902776327

Gregory, A., Cornell, D., & Fan, X. (2012). Teacher safety and authoritative school climate in high schools. *American Journal of Education*, *118*(4), 401–425. https://doi.org/10.1086/666362

Herman, K. C., Hickmon-Rosa, J. E., & Reinke, W. M. (2018). Empirically derived profiles of teacher stress, burnout, self-efficacy, and coping and associated student outcomes. *Journal of Positive Behavior Interventions*, *20*(2), 90–100. https://doi.org/10.1177/1098300717732066

Herman, K. C., Prewett, S. L., Eddy, C. L., Savala, A., & Reinke, W. M. (2020). Profiles of middle school teacher stress and coping: Concurrent and prospective correlates. *Journal of School Psychology*, *78*, 54–68. https://doi.org/10.1016/j.jsp.2019.11.003

Herman, K. C., & Reinke, W. M. (2014). *Stress management for teachers: A proactive guide*. Guilford Publications.

Herman, K. C., Reinke, W. M., & Eddy, C. L. (2020). Advances in understanding and intervening in teacher stress and coping: The Coping-Competence-Context Theory. *Journal of School Psychology*, *78*, 69–74. https://doi.org/10.1016/j.jsp.2020.01.001

Herr, N. R., Williams, J. W., Benjamin, S., & McDuffie, J. (2014). Does this patient have generalized anxiety or panic disorder?: The Rational Clinical Examination systematic review. *JAMA*, *312*(1), 78–84.

Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(4), 331–335. https://doi.org/10.1037/tra0000592

Hoy, W. K., & Feldman, J. A. (1987). Organizational health: The concept and its measure. *Journal of Research and Development in Education*, *20*, 30–38.

Huang, F., & Cornell, D. (2016). Multilevel factor structure, concurrent validity, and test–retest reliability of the high school teacher version of the authoritative school climate survey. *Journal of Psychoeducational Assessment*, *34*(6), 536–549. https://doi.org/10.1177/0734282915621439

Huang, F. L., Cornell, D. G., Konold, T., Meyer, J. P., Lacey, A., Nekvasil, E. K., Heilbrun, A., & Shukla, K. D. (2015). Multilevel factor structure and concurrent validity of the teacher version of the authoritative school climate survey. *The Journal of School Health*, *85*, 843–851. https://doi.org/10.1111/josh.12340

Johnson, S., Cooper, C., Cartwright, S., Donald, I., Taylor, P., & Millet, C. (2005). The experience of work-related stress across occupations. *Journal of Managerial Psychology*, *20*, 178–187. https://doi.org/10.1108/02683940510579803

Kaden, U. (2020). COVID-19 school closure-related changes to the professional life of a K-12 teacher. *Education Sciences*, *10*, Article 165. https://doi.org/10.3390/educsci10060165

Kim, L. E., & Asbury, K. (2020). "Like a rug had been pulled from under you": The impact of COVID-19 on teachers in England during the first six weeks of the U.K. lockdown. *The British Journal of Educational Psychology*, *90*(4), 1062–1083. https://doi.org/10.1111/bjep.12381

Konold, T., Cornell, D., Huang, F., Meyer, P., Lacey, A., Nekvasil, E., Heilbrun, A., & Shukla, K. (2014). Multilevel multi-informant structure of the authoritative school climate survey. *School Psychology Quarterly*, *29*(3), 238–255. https://doi.org/10.1037/spq0000062

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2003). The Patient Health Questionnaire-2: Validity of a two-item depression screener. *Medical Care*, *41*(11), 1284–1292. https://doi.org/10.1097/01.MLR.0000093487.78664.3C

Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review*, *53*(1), 27–35. https://doi.org/10.1080/00131910120033628

Lewis, C. G., Herman, K. C., Huang, F. L., Stormont, M., Grossman, C., Eddy, C., & Reinke, W. M. (2017). The utility of single-item readiness screeners in middle school. *Journal of School Psychology*, *64*, 1–16. https://doi.org/10.1016/j.jsp.2017.04.003

MacIntyre, P. D., Gregersen, T., & Mercer, S. (2020). Language teachers' coping strategies during the COVID-19 conversion to online teaching: Correlations with stress, wellbeing and negative emotions. *System*, *94*, Article 102352. https://doi.org/10.1016/j.system.2020.102352

Morganstein, J. C., & Ursano, R. J. (2020). Ecological disasters and mental health: Causes, consequences, and interventions. *Frontiers in Psychiatry*, *11*, Article 1. https://www.frontiersin.org/article/10.3389/fpsyt.2020.00001

Muthen, L. K., & Muthen, B. O. (2007). *Mplus user's guide*. Muthen & Muthen.

Muthén, L. K., & Muthén, B. O. (2013). *Mplus statistical analysis* (7.11). Muthén & Muthén.

Plummer, F., Manea, L., Trepel, D., & McMillan, D. (2016). Screening for anxiety disorders with the GAD-7 and GAD-2: A systematic review and diagnostic metaanalysis. *General Hospital Psychiatry*, *39*, 24–31. https://doi.org/10.1016/j.genhosppsych.2015.11.005

Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, *75*(5), 631–643. https://doi.org/10.1037/amp0000660

Reich, J., Buttimer, C., Fang, A., Hillaire, G., Hirsch, K., Larke, L., Littenberg-Tobias, J., Moussapour, R., Napier, A., Thompson, M., & Slama, R. (2020). *Remote learning guidance from state education agencies during the COVID-19 pandemic: A first look*. https://doi.org/10.35542/osf.io/437e2

Reinke, W. M., Stormont, M., Herman, K. C., Puri, R., & Goel, N. (2011). Supporting children's mental health in schools: Teacher perceptions of needs, roles, and barriers. *School Psychology Quarterly*, *26*(1), 1–13. https://doi.org/10.1037/a0022714

Roman, T. (2020). Supporting the mental health of teachers in COVID-19 through trauma-informed educational practices and adaptive formative assessment tools. *Journal of Technology and Teacher Education*, *2*(2), 473–481.

Sebastian, J., Herman, K. C., & Reinke, W. M. (2019). Do organizational conditions influence teacher implementation of effective classroom management practices: Findings from a randomized trial. *Journal of School Psychology*, *72*, 134–149. https://doi.org/10.1016/j.jsp.2018.12.008

Seyle, D. C., Widyatmoko, C. S., & Silver, R. C. (2013). Coping with natural disasters in Yogyakarta, Indonesia: A study of elementary school teachers. *School Psychology International*, *34*(4), 387–404. https://doi.org/10.1177/0143034312446889

Sharifian, M. S., & Kennedy, P. (2019). Teachers in war zone education: Literature review and implications. *International Journal of the Whole Child*, *4*(2), 0–26.

Smith, T. E., Reinke, W. M., Herman, K. C., & Sebastian, J. (2021). Exploring the link between principal leadership and family engagement across elementary and middle school. *Journal of School Psychology*, *84*, 49–62. https://doi.org/10.1016/j.jsp.2020.12.006

Sommers, M. (2002). *Children, education and war : Reaching Education for All (EFA) objectives in countries affected by conflict* (CPR Working Paper No 1). World Bank, Conflict Prevention and Reconstruction Unit.

Sprick, R., Wise, B. J., Marcum, K., Haykin, M., McLaughlin, B., & Hays, S. (2016). *Leadership in behavior support*. Ancora Publishing.

Stormont, M., Herman, K. C., Reinke, W. M., King, K. R., & Owens, S. (2015). The Kindergarten Academic and Behavior Readiness Screener: The utility of single-item teacher ratings of kindergarten readiness. *School Psychology Quarterly*, *30*(2), 212–228. https://doi.org/10.1037/spq0000089

Trust, T., & Whalen, J. (2020). Should teachers be trained in emergency remote teaching? Lessons learned from the COVID-19 pandemic. *Journal of Technology and Teacher Education*, *28*, 189–199.

United Nations Educational, Scientific and Cultural Organization. (2020a). *Half of world's student population not attending school: UNESCO launches global coalition to accelerate deployment of remote learning solutions*. https://en.unesco.org/news/half-worlds-student-population-not-attending-school-unesco-launches-global-coalition-accelerate

United Nations Educational, Scientific and Cultural Organization. (2020b). *Adverse consequences of school closures*. https://en.unesco.org/covid19/educationresponse/consequences/

von der Embse, N., Ryan, S. V., Gibbs, T., & Mankin, A. (2019). Teacher stress interventions: A systematic review. *Psychology in the Schools*, *56*(8), 1328–1343. https://doi.org/10.1002/pits.22279

Wiley, C. (2000). A synthesis of research on the causes, effects, and reduction strategies of teacher stress. *Journal of Instructional Psychology*, *71*, 547–593.

Will, M. (2020). Deemed "Essential Workers," some teachers told to skip quarantine after COVID-19 exposure. *Education Week*, *40*(3), Article 5.