

Family Well-Being and Individual Mental Health in the Early Stages of COVID-19

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Background: The objective of the study was to examine the association of COVID-19 with family well-being and adult mental health 1 month into the COVID-19 pandemic in the United States. Prior pandemics have had long-term effects on mental health. COVID-19 and its related stressors, such as loss of work and social distancing requirements, may have a profound impact on short-term and long-term mental health. Family stress theory indicates that subjective family meaning making and family resources affect how stressors lead to outcomes. **Method:** Participants, adults ages 18 years and older ($N = 416$), completed a cross-sectional online survey measuring depressive and anxiety symptoms, family health, subjective family meaning making, and loss of work resulting from COVID-19. Data were analyzed using a structural equation modeling framework. **Results:** Results indicated that subjective negative family meaning and effects were associated with more depression and anxiety. Higher family health resources were associated with less depression and anxiety. Family health resources mediated the relationships between COVID-19 loss of work with depression and anxiety. **Conclusion:** COVID-19 associated stressors 1 month into the pandemic had modest effects on family meaning making and family health resources. Individuals from families whose health resources were negatively impacted by COVID-19 reported more anxiety and depressive symptoms. Health care and public health systems should consider family health resources to help reduce the negative effects of COVID-19 on mental health. Longitudinal research is needed to examine the accumulation of stressors over time and the directionality of relationships.

Public Significance Statement

COVID-19 and associated social distancing measures have resulted in income loss and change to family routines and family health. The negative effects on families can reduce health resources, which may be associated with more anxiety and depression among adults.

Keywords: anxiety, depression, family health, structural equation modeling, COVID-19

Supplemental materials: <https://doi.org/10.1037/fsh0000633.supp>

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The authors declare no conflict of interest. The study was conceptualized by AliceAnn Crandall, PhD, MPH, Michael D. Barnes, PhD, and Carl L. Hanson, PhD. AliceAnn Crandall, PhD, MPH oversaw and conducted data curation, formal analysis, and writing of the article. Chantel Daines, MPH and

Malynne Cottam, MPH helped write the background, method, and discussion sections. Michael D. Barnes, PhD and Carl L. Hanson, PhD helped write the background and discussion sections. All authors approved the final draft of the article.

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An estimated 29% of the U.S. population is experiencing some form of mental illness ([Anxiety and Depression Association of America, 2020](#)), and times of crisis and stress can exacerbate symptoms of anxiety and depression. The 2019 coronavirus disease (COVID-19) creates a crisis situation for individuals and families as it takes a toll on lifestyle norms, health, and the economy ([Brock & Laifer, 2020](#)). Understanding the effects of COVID-19 on families and the association of family health on individual mental health is important to learning how pandemics and other stressors affect individuals' and families' health across the nation. Such research is important to inform immediate and later intervention efforts ([Brock & Laifer, 2020](#)).

COVID-19 and Families

As COVID-19 spreads, changes to family life and routines are inevitable. Individuals and families are coping with changes related to COVID-19 in many ways. Some families have found more time to reconnect with each other ([Wilson, 2020](#)). On the other hand, enforced quarantines, social distancing, and shelter-in-place recommendations have created emotional and economic issues contributing to an atmosphere of toxic stress in many homes ([Genetin & Hirsh-Pasek, 2020](#)). The unemployment rate in the United States increased from 3.5% in February 2020 to 14.7% in April 2020, and over 20.5 million individuals lost jobs ([Long & Van Dam, 2020](#)). With this sudden change in employment, many families experienced unexpected financial difficulties, leading to increased family stress, family conflict, and mental health concerns ([Lee et al., 2013](#)).

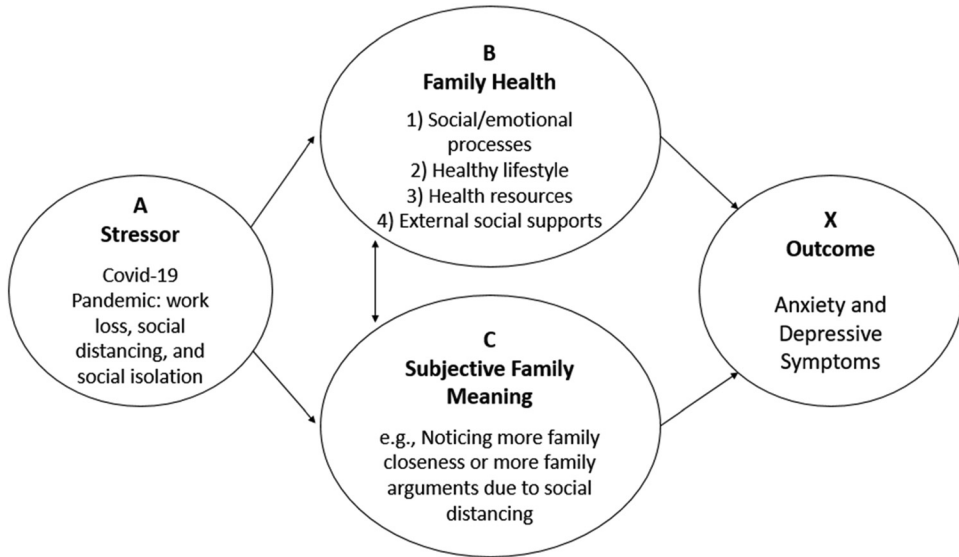
As family life is disrupted, the health of families is important to consider. Family health is "a resource at the level of the family unit that develops from the intersection of the health of each family member, their interactions and capacities, as well as the family's physical, social, emotional, economic, and medical resources" ([Weiss-Laxer et al., 2020](#)). Family health can be measured by examining emotional and social health processes (e.g., family communication, supportiveness); family health choices such as diet, exercise, and health care decisions; internal and external health resources that are available to the family (e.g., problem-solving skills, socioeconomic status, access to services); and the family's access to external social supports ([Crandall et al., 2020](#)). Families are central to the daily routines and

functions of individuals and influence all aspects of health. Families who encourage regular activities together, cultivate positive communication, and develop healthy relationships have better health outcomes and can better cope with stressful situations ([Abar et al., 2017](#)). Individuals from families that spend mealtimes together experience less mental illness and substance abuse ([Musick & Meier, 2012](#)). Conversely, children and adults experience more anxiety and depressive symptoms when they live in poorer functioning families ([Hughes et al., 2008](#)).

Disasters and Mental Health

Previous crises, such as the Great Recession in 2007–2009, demonstrated that prolonged economic difficulties lead to increases in anxiety, depression, substance abuse, and suicide ([Catalano et al., 2011](#); [Phillips & Nugent, 2014](#)). In Hong Kong, a third of the SARS survivors had experienced mental health problems at 3 months and 30 months postoutbreak ([Cheng et al., 2004](#); [Mak et al., 2009](#)). Three years after the Ebola outbreak in West Africa, the number of survivors with mental health problems far outranked those that did not have Ebola ([Nyanfor & Xiao, 2020](#)). This pattern of mental health issues has also been seen in times of natural and manmade disasters such as hurricanes and terrorist attacks. Given its high overall societal burden, even in times of relative calm, depression is perhaps the most prevalent of mental health disorders after a disaster ([Goldmann & Galea, 2014](#)). For example, 1 to 2 months following the September 11, 2001 terrorist attacks in New York City, 9.7% of surviving adults surveyed reported a serious depressive episode in the previous 30 days ([Galea et al., 2002](#)). However, although natural and humanmade disasters have been associated with worsening mental health, most people do not develop long-term psychopathology after a disaster, and among those who do, symptoms typically resolve or decline over time ([Goldmann & Galea, 2014](#); [Klein et al., 2003](#)). For example, after Hurricane Ike in Galveston, Texas, approximately 7% of survivors experienced posttraumatic stress disorder 2 to 5 months after the hurricane. At follow-up interviews, symptoms for most participants had declined ([Pietrzak et al., 2012](#)). Importantly, despite long-term resilience or the ability to bounce back, many people experience initial psychological symptoms ([Goldmann & Galea, 2014](#)). Despite our understanding of the effects of crises on individual health, these prior epidemics have not been examined for their

Figure 1
Theoretical Framework



effects on the intersection between family and individual health. Additionally, although many studies have examined the effects of disasters on depression, few studies have examined the effects on anxiety (Goldmann & Galea, 2014).

Theoretical Framework

Family stress theory (Hill, 1958; McCubbin & Patterson, 1983) forms this study's theoretical framework (see Figure 1). Family stress theory describes how families adapt to crises and how crises affect individual well-being (Masarik & Conger, 2017) and can be illustrated by the ABC-X model. In ABC-X, A is the crisis or stressor that affects a family. For purposes of this study, the crisis is COVID-19 loss of work and other associated stressors such as social distancing and social isolation. This stressor (A) affects the resources available to the family (e.g., family health) to manage the crisis (B) and the subjective meaning or effects that the family derives from the crisis such as feeling closer as a family or experiencing more arguments as a family due to stay-at-home orders (C). The intersection between the crisis (A), the resources (B), and the meaning derived (C) produces the outcome (e.g., anxiety and depressive symptoms; X; Malia, 2006). As

an example of how family stress theory applies to the COVID-19 pandemic, Wu and Xu (2020) conceptualized its effect on child maltreatment. Parental internal resources (e.g., life experiences and economic well-being) and external resources (e.g., social supports) along with family perceptions of the pandemic may serve to mediate the relationship between COVID-19 stressors and child maltreatment (Wu & Xu, 2020).

The Present Study

This study aimed to explore the association of COVID-19 with mental health in the context of the family's well-being. Drawing on family stress theory, we explored two research questions that, if addressed, give rise to appropriate health care and public health system responses: (a) What is the association of COVID-19 subjective family meaning and family health with depression and anxiety? and (b) Do subjective family meaning and family health mediate the relationship between COVID-19 loss of work and adult mental health? Three major hypotheses were explored. First, we hypothesized that families would find positive and negative meaning from COVID-19-associated stressors (such as social distancing) and that the meaning families derived would be highly correlated with their family health.

The effects of COVID-19 on families would be highly correlated with their family health. For example, some families may thrive from more time to be together, which would likely be associated with better family social and emotional health processes and more family health resources. Conversely, other families may experience more arguments and discord from being in close association with each other, perhaps due to less monetary resources (e.g., smaller houses), fewer external supports, or less healthy social and emotional health processes. Second, we hypothesized that negative subjective family meaning and/or worse family health would be associated with higher anxiety and depressive symptoms. Alternatively, the positive subjective family meaning and/or better family health would be associated with less depression and anxiety. Finally, it was hypothesized that both family health and subjective family meaning would mediate the relationship between COVID-19 loss of work and depression and anxiety.

Method

Sample and Procedures

Data for this study came from a sample of 501 adults ages 18 and older who were born in the United States and were registered as workers on Amazon Mechanical Turk (MTurk). The study was conducted in mid-April 2020, 1 month after most states first imposed social distancing guidelines. Only participants who reported that they lived with one or more family members were included, for a final sample of 416 adults. Participants who did not live with family members were excluded because some questions were relevant only to people who lived with their families. Participants were recruited using quota sampling techniques based on statistics from the U.S. Census Bureau that allowed for examining participants from various family types. A total of 15% of the sample was required to be low income (household annual income < \$25,000), 40% parents, 20% married, and 25% from any family demographic or socioeconomic type to reflect general trends. Registered workers on MTurk were able to see a description of the study if they met the qualifications based on their MTurk profile information. Potential participants who wanted to participate were directed to a Qualtrics survey link. Once participants gave consent, a 10-min survey was administered. Participants received a \$2.00 incentive posted to their MTurk account following

survey completion. Demographic characteristics of MTurk users are similar to other survey services and have demonstrated strong generalizability to national samples (Coppock, 2019; Huff & Tingley, 2015). The study was approved by the Brigham Young University institutional review board.

Measures

Outcomes: Anxiety and Depressive Symptoms

Anxiety was measured using the Generalized Anxiety Disorder-7 scale (GAD-7; Spitzer et al., 2006). The GAD-7 consists of seven questions with response options on a 4-point Likert scale ranging from *not at all* to *nearly every day*. Higher scores indicated greater anxiety. Cronbach's alphas in prior samples have indicated good reliability ($\alpha = .92$; Spitzer et al., 2006). The current sample likewise had a high Cronbach's alpha ($\alpha = .93$).

Depressive symptoms were measured using the Patient Health Questionnaire-9 (Kroenke et al., 2001). Response options were on a 4-point Likert scale ranging from *not at all* to *nearly every day*. Higher scores indicated more depressive symptoms. Previous studies have indicated excellent reliability ($\alpha = .89$; Kroenke et al., 2001), and the current sample had a Cronbach's alpha of .91.

Meaning Making: Subjective Family Meaning

To examine participants' perceptions of how COVID-19 social distancing and social isolation affected their family, a series of 21 questions were developed relating to the positive, neutral, and negative effects of COVID-19 on families. The questions were developed by three family health scholars (authors of this article) and were then tested among a small group of adults living in the United States who provided feedback on the questions based on their experience with COVID-19. Revisions to the scale were made based on this feedback. A total of 13 questions were asked relating to family members living in the same household as the participants, and eight questions were asked relating to the effects of COVID-19 on family interactions with members living in different households. Each question was asked on a 5-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*.

Resources: Family Health

Family health was measured using the 32-item Family Health Scale (FHS; Crandall et al., 2020). Response options were on a 5-point Likert scale ranging from (1) *strongly disagree* to (5) *strongly agree*. The FHS includes four subscales: family emotional and social health processes, family healthy lifestyle, family health resources, and family external social supports. Reliability has been demonstrated to be high for each subscale in prior samples (Cronbach's alphas ranging from .82 to .92; Crandall et al., 2020). In the current sample, Cronbach's alphas ranged from .80 to .93. Higher scores indicated better family health.

COVID-19 Stressors

COVID-19 has universally affected individuals and families throughout the United States. Though effects may have varied based on transmission rates in a locale, information was not collected on where participants lived to protect confidentiality and because rates of transmission were rapidly changing. All measures were collected 1 month into the pandemic in the United States.

In addition to the universal stressors experienced, which we did not directly measure, we examined COVID-19 loss of work. Participants responded to a one-item question on whether they had lost income or work hours due to COVID-19 ("Have you had reduced hours or reduced income because of the COVID-19 outbreak?"). Response options included "yes," "no," and "unsure." Responses were coded as 1 (yes) and 0 (no), with "unsure" responses coded as missing.

Controls

The following controls were included: education (1 = bachelor's degree or higher; 0 = less than a bachelor's degree), race (1 = White; 0 = non-White), household income, participant age (in years), and participant gender (1 = female; 0 = male). These controls were included to adjust for sociodemographic conditions felt to affect family life and reporting of mental health.

Analytic Methods

Descriptive analyses were conducted in STATA 16. The factor structure of the subjective family meaning items was examined by conducting exploratory factor analysis using a structural equation

modeling (SEM) framework in Mplus Version 7, allowing 1–4 factors. Items were sequentially dropped based on low loadings on all factors ($< |.40|$), high cross-loadings on more than one factor ($> |.30|$), or theoretical concerns. To ensure that models were at minimum just identified, each factor was required to have at least three items after dropping any items due to low loadings or high cross-loadings. Following identification of the factor structure, we conducted confirmatory factor analysis (CFA). The model fit of the CFA was examined using the following model fit indices: root mean square error of approximation (RMSEA) less than .10 and a comparative fit index (CFI) of greater than .90 indicated adequate fit (Brown, 2006). All other latent variables (e.g., four FHS subscales, depression, and anxiety) were next added to the model with the subjective family meaning latent variables to examine the entire measurement model fit. The final measurement model had adequate fit (RMSEA = .05; CFI = .93).

We examined the effects of loss of work due to COVID-19 by regressing anxiety, depression, FHS, and subjective family meaning on the loss of work. Controls were included in the model by regressing all of the variables of interest on participant education, race, income, age, and gender. Model fit was assessed using the same model fit indices as was used in the CFA. Indirect pathways were examined from COVID-19 loss of work to anxiety and depression by examining the significance of the indirect effects (Mplus model indirect command) using 5,000 bootstraps to provide robust standard errors (Preacher & Hayes, 2008).

All models were estimated using a robust weighted least squares maximum likelihood estimation, which is appropriate for categorical data. Missing data were minimal ($< 3.5\%$ for any single item) and addressed using full information maximum likelihood.

Results

Descriptive Statistics

Table 1 includes the descriptive statistics for the sample. Participants were on average 40.8 years old, 54.3% were female, and 40.8% had experienced a loss of work due to COVID-19. The median annual income was \$40,000–60,000, with 15.6% earning $< \$25,000$. The mean number of people living in the household was 3.3, 74.3% were

Table 1
Descriptive Characteristics of the Sample

Demographics	Percent
Age (in years), <i>M (SD)</i>	40.84 (11.96)
Female	54.3
Bachelor's degree	69.2
White/Caucasian	79.3
Respondents with children	76.7
Married	74.3
Experienced loss of work due to COVID-19	40.8
Moderate or severe symptoms of depression	23.1
Moderate or severe symptoms of anxiety	23.8

Note. *N* = 416.

married, and 76.7% had children, and of those, 86.2% reported that at least one of their children lived with them. Relating to mental health, 23.8% of participants reported moderate or severe anxiety symptoms, and 23.1% had moderate or severe depressive symptoms.

Factor Analysis and Item Distributions for COVID-19 Subjective Family Meaning

Exploratory factor analysis for the 21 items measuring subjective family meaning indicated a two-factor scale with 10 items fitting a factor we named positive family meaning and effects (PFME) and nine items fitting a second factor we named negative family meaning and effects (NFME); two items were dropped. In CFA, factor loadings ranged from .43 to .91 for PFME and from .54 to .92 for NFME. Model fit was adequate (RMSEA = .09; CFI = .95). Cronbach's alpha indicated good internal reliability at .85 for PFME and .88 for NFME. Table 2

Table 2
Bivariate Correlations Between Key Study Variables

Study variables	PFME	NFME	FSEHP	FHL	FHR	FESS	Anxiety	Depression	Loss of work
PFME	1.00								
NFME	-.30***	1.00							
FSEHP	.60***	-.61***	1.00						
FHL	.59***	-.43***	.80***	1.00					
FHR	.23***	-.75***	.63***	.54***	1.00				
FESS	.48***	-.27***	.61***	.56***	.49***	1.00			
Anxiety	-.19***	.63***	-.44***	-.36***	-.67***	-.24***	1.00		
Depression	-.16***	.76***	-.58***	-.48***	-.84***	-.30***	.87***	1.00	
Loss of work	.18**	.18**	-.07	.01	-.31***	.05	.23***	.32***	1.00

Note. *N* = 416. PFME = positive family meaning and effects; NFME = negative family meaning and effects; FSEHP = family social and emotional health processes; FHL = family healthy lifestyle; FHR = family health resources; FESS = family external social supports.
** *p* < .01. *** *p* < .001.

includes bivariate correlations of key study variables. Correlations between the PFME and NFME with the FHS and mental health indicators were high and in the expected direction, providing evidence of construct validity of the subjective family meaning subscales.

Table 3 shows the item means, distributions, and which items loaded onto each factor. Two thirds (66.51%) of the sample had a mean score of 4 or higher (somewhat agreed or strongly agreed) across the PFME items, and 12.26% scored 4 or higher on average for NFME items. Generally, mean scores for PFME items were above 4.0 (out of 5.0), indicating agreement with the statement. Items for NFME were typically in the 2.0–3.0 range, indicating that participants generally did not agree with the statement. Mean scores were worse (e.g., lower for PFME and higher for NFME) for 20 of the 21 items for participants in the lowest tertile of family health compared to the rest of the sample.

Family Health, Subjective Family Meaning, and Mental Health

In SEM models examining the relationship between subjective family meaning with depression and anxiety, NFME was associated with more depression (.78, *p* < .001) and anxiety (.63, *p* < .001). PFME was not associated with either depression or anxiety. There was evidence of multicollinearity in early SEM models due to high correlations between both PFME and NFME with some FHS constructs. Omitting the PFME construct resolved this issue in our final models.

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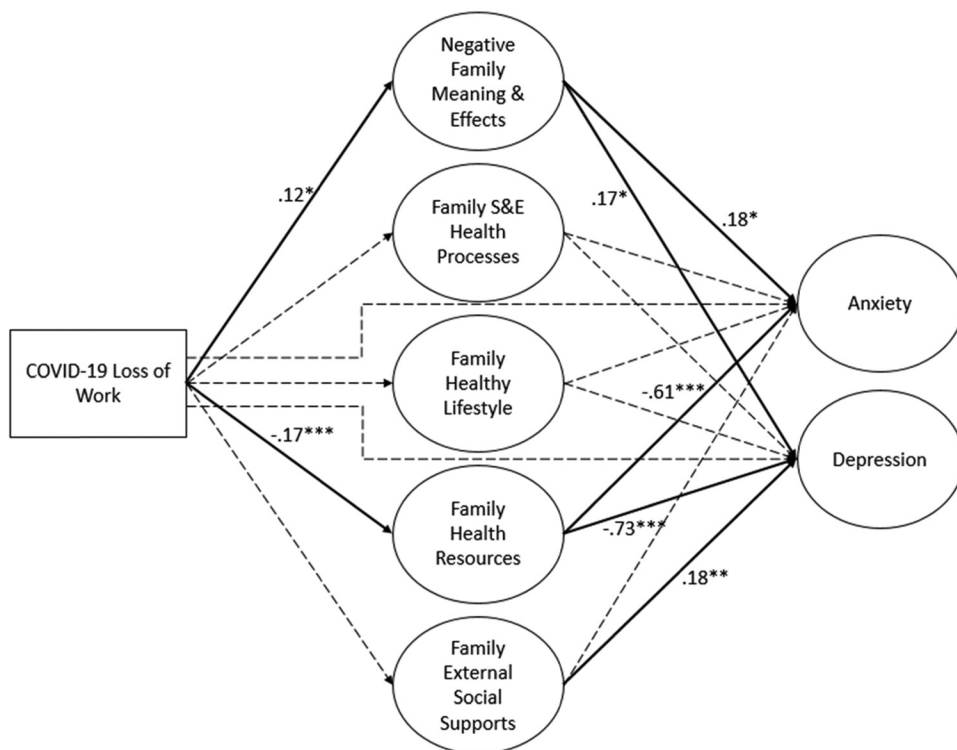
Table 3
COVID-19 Subjective Family Meaning Item Means and Distributions

Items	M	Strongly disagree%	Somewhat disagree%	Neither agree nor disagree%	Somewhat agree%	Strongly agree%
Family members in same household						
I have been spending more time with my family since the COVID-19 outbreak. ^a	4.57	1.71	3.66	3.17	18.54	72.93
I have enjoyed being with my family more since the COVID-19 outbreak. ^a	4.14	1.98	6.17	12.59	34.81	44.44
Since the COVID-19 outbreak, I have been getting in more arguments with my family. ^b	2.33	37.50	26.23	9.80	18.87	7.60
Since the COVID-19 outbreak, I have felt closer to family. ^a	4.08	1.71	6.85	16.63	31.30	43.52
As much as I can, I try to be in different parts of the house from the rest of my family since the COVID-19 outbreak. ^b	2.48	34.39	22.68	14.39	17.80	10.73
Family members have been driving me crazier than usual since the COVID-19 outbreak. ^b	2.60	34.31	19.71	9.98	23.36	12.65
I feel more connected to my family since the COVID-19 outbreak. ^a	4.05	3.19	5.39	15.93	34.56	40.93
I wish my family would give me more space since the COVID-19 outbreak. ^b	2.65	27.14	24.21	17.85	18.58	12.22
I feel more annoyed with my family since the COVID-19 outbreak. ^b	2.44	35.44	24.51	11.41	17.96	10.68
I feel more unsafe around some of my family members since the COVID-19 outbreak. ^b	1.82	66.11	11.54	4.57	9.38	8.41
I feel that my family is stronger now because of our experiences together since the COVID-19 outbreak. ^a	3.84	4.42	8.35	19.41	34.40	33.42
The COVID-19 outbreak has helped my family to develop positive habits (e.g., eating meals together as a family, exercising together as a family). ^a	3.68	7.90	11.85	18.27	28.15	33.83
The COVID-19 outbreak has had a negative effect on my family's view of the world. ^b	2.45	33.50	25.49	13.59	17.48	9.95
Family members outside of household						
Since the COVID-19 outbreak, I have seen less of my family. ^c	3.07	33.41	11.95	5.37	12.93	36.34
I have not heard from my family since the COVID-19 outbreak. ^b	1.66	66.42	18.00	3.16	8.27	4.14
Since the COVID-19 outbreak, I feel closer to members of my family. ^a	3.41	11.17	16.13	20.60	25.06	27.05
Since the COVID-19 outbreak, I feel distant from my family. ^b	2.59	37.16	17.36	10.27	20.05	15.16
I text more with my family since the COVID-19 outbreak. ^c	3.58	11.25	15.40	12.47	25.67	35.21
I have connected more with my family through social media since the COVID-19 outbreak. ^a	3.36	15.76	15.76	12.32	28.57	26.59
I have made a more conscious effort to talk to my family through phone, FaceTime, Skype, Marco Polo, Zoom, or other videoconferencing platforms. ^a	3.58	13.61	13.61	8.91	28.71	35.15
I have had more fun with my family even though we may not see each other as often since the COVID-19 outbreak. ^a	3.00	16.54	21.73	24.44	20.00	17.28

Note. N = 416. Answers were coded as missing if participant marked "prefer not to answer"; the sample for each item ranged from 403–416.
^aItem loaded onto COVID-19 positive family meaning and effects. ^bItem loaded onto COVID-19 negative family meaning and effects. ^cItem dropped during factor analysis.

Figure 2

Model Results for the Relationships Between COVID-19 Loss of Work Hours, Family Health, and Mental Health



Note. $N = 416$. Model fit: RMSEA = .05; CFI = .94. Dotted lines indicate nonsignificant paths. S&E = social and emotional. Model controls for age, gender, race, income, and education. White race (.09, $p < .05$) and having a higher income (.11, $p < .05$) were both related to higher anxiety (education, age, and gender had no effect). White race only was associated with higher depression (.12, $p < .01$). Older age was associated with lower NFME ($-.25$, $p < .001$); bachelor’s degree or higher (.13, $p < .13$) was associated with higher NFME. Correlations between latent variables (not shown on figure): NFME with S&E: $-.59$ ***; NFME with healthy lifestyle: $-.41$ ***; NFME with health resources: $-.75$ ***; NFME with external social supports: $-.28$ ***; S&E with healthy lifestyle: .78***; S&E with health resources: .59***; S&E with external social supports: .59***; healthy lifestyle with health resources: .49***; healthy lifestyle with external social supports: .51***; health resources with external social supports: .48***; anxiety with depression: .75***. * $p < .05$. ** $p < .01$. *** $p < .001$.

We next examined the association of NFME and family health with anxiety and depression (see Figure 2 for significant standardized pathways and online supplemental materials 1 for full results). NFME continued to be associated with more depression and anxiety. Family health resources were associated with less depression and anxiety. Family external social supports was associated with more depression but was not associated with anxiety. Family social and emotional health processes and family healthy lifestyle were not associated with

depression or anxiety. All four family health subscales were associated with lower NFME.

Mediators Between Loss of Work and Mental Health

Loss of work was not directly associated with anxiety and depression but was associated with higher NFME and lower family health resources. The indirect pathway between loss of work and mental health was significant through family health

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Table 4

Examination of Family Well-Being as an Indirect Pathway Through Which COVID-19 Affects Mental Health

Indirect pathway	<i>B</i>	95% CI	<i>Z</i> score	<i>p</i>
Loss of work → NFME → anxiety	.05	[.01, .10]	1.58	.11
Loss of work → NFME → depression	.04	[.00, .09]	1.48	.14
Loss of work → family health resources → anxiety	.17	[.08, .28]	2.89	.004
Loss of work → family health resources → depression	.24	[.12, .38]	3.15	.002
Loss of work → NFME → family health resources → anxiety ^a	.08	[.02, .14]	2.04	.04
Loss of work → NFME → family health resources → depression ^a	.11	[.03, .21]	2.11	.04

Note. CI = confidence interval; NFME = negative family meaning and effects.

^a Post hoc analysis where associations between NFME and family health resources were examined instead of the correlations as modeled in the main model in order to examine indirect effects.

resources only, with family health resources mediating the relationship between loss of work with anxiety and with depression. In post hoc analyses, NFME only served as a mediator through its correlation with family health resources (see Table 4).

Discussion

The purpose of the study was to explore the relationship between COVID-19 and its associated stressors with family well-being and individual mental health outcomes approximately 1 month into social distancing in the United States. In this study, COVID-19 loss of income or work was directly measured. Individuals reported on their family experiences and meaning making from COVID-19 through the NFME and PFME subscales. Other stressors related to COVID-19 were universally experienced but were not directly measured. However, the results of the study should be considered within the context that the data were collected: All participants were experiencing stress due to a global pandemic and the associated restrictions and changes in routines. Results largely supported the family stress theory. Consistent with the hypotheses, subjective family meaning (NFME and PFME) was associated with family health in the expected direction. Family health resources were associated with less anxiety and depression, and NFME was associated with more depression and anxiety. Contrary to the hypotheses, PFME was not associated with mental health. COVID-19 loss of work was indirectly associated with anxiety and depression through family health resources. Rates of depression and anxiety were similar to each other 1 month into social distancing requirements in the United States. This information is

useful given the overall deficit of studies examining anxiety following disease outbreaks and disasters (Goldmann & Galea, 2014).

Respondents generally felt their family was stronger as a result of COVID-19. However, this had no direct protective association with anxiety and depressive symptoms early in the pandemic. One explanation is that preventing and treating trauma may be more important than building a supportive environment during a crisis. As this study was conducted 1 month after social distancing measures were instituted in most states, over time, PFME may play a larger role in mental health as families have a chance to develop further meaning and resilience in response to COVID-19. Higher PFME may prevent pile-up of stressors and strain as demonstrated by the double ABC-X model (McCubbin & Patterson, 1983). Similarly, family social and emotional health processes and family healthy lifestyle may have more of an effect on mental health over time. The double ABC-X model examines the accumulation of stressors over time and the family's ability to cope as stressors accrue. The resulting pile-up of stressors and family coping lead to either family bonadaptation or maladaptation (McCubbin & Patterson, 1983). Applying the double ABC-X model, longitudinal data is important to further examine the effect of positive family meaning on mental health as the COVID-19 pandemic continues to affect families across the United States.

More than 1 in 10 respondents reported high NFME. Although loss of work was associated with slightly higher NFME, NFME alone was not a sufficient vehicle to increase anxiety and depressive symptoms in the face of job and income loss. Only through family health resources did NFME serve to mediate the relationship between loss of work and mental health. This is consistent with the family

adaptation and adjustment response model that arose out of family stress theory, suggesting that the stressor and resources combine to affect the meaning derived, though the meaning derived can also influence both the stressor and resources (Patterson, 1988, 2002).

Irrespective of NFME, family health resources mediated the relationship between loss of work with both anxiety and depressive symptoms. Early in a pandemic, one's family resources appear to be more salient to mental health than the meaning that the family derives from the crisis. Family health resources include such things as availability of transportation, knowledge of and trust in available resources, economic assets, good health of individual family members, and the ability to work without being distracted by family problems. Individuals from families lacking these important resources may have found that the COVID-19 pandemic compounded their struggles, leading to higher individual anxiety or depression.

Surprisingly, higher family external social supports were associated with more depressive symptoms. This is contrary to prior research that has indicated that higher social capital is linked with decreased depression or has no direct effects (Fujiwara & Kawachi, 2008; Webber et al., 2011). In particular, prior research in the aftermath of disasters has found an inverse relationship between social support and depression (Goldmann & Galea, 2014). In the current study, without including other variables in the model, the family external social supports construct was indeed correlated with lower depressive symptoms. Thus, results from this study may indicate that when other aspects of family health are accounted for, greater family external social supports may be associated with higher depressive symptoms. One possible explanation is that the family external social supports measure may serve as a proxy for accessing outside resources such as mental health counseling and other health care services. Another possible explanation is that people who reported higher external social supports may have felt more depression or anxiety at being distanced from their typical supports. Additional research is needed to examine these findings further.

Limitations

The following were limitations of the current study. First, though efforts were made to represent a range of sociodemographic factors, the convenience

sample included a higher proportion of people who reported their race as White or who had a bachelor's degree as compared to the U.S. national average. Second, this was a cross-sectional study, and the temporality of relationships cannot be concluded. Since participant family health, depression, and anxiety were not known before the pandemic, it is plausible that depression and anxiety affected levels of family health and responses to COVID-19 stressors. Real-time results were collected 1 month into social distancing requirements to better understand the effects of the pandemic in its early stages; an important next step is to collect longitudinal data. Third, because each state or region had its own onset of infections and unique protective measures, respondents were differentially affected by the pandemic. Because we anonymized responses, we were unable to examine the location of participants and control for the severity of the outbreak. Fourth, the subjective family meaning scale only partially measured family meaning making as defined by family stress theory. Perceived positive and negative effects of COVID-19 on the family were examined, but only a few items appraised the difficulties and capabilities that the families felt during the pandemic. Still, a factor structure was generated with good reliability and construct validity relating to the FHS, and some aspects of subjective family meaning making specific to COVID-19 were measured. However, further psychometric testing on different samples would help to refine and further validate the scale. Fifth, the loss of work measure was based on a single survey question. The effects of COVID-19 on employment are likely much more nuanced than what was measured in the current study. Future research should consider more in-depth explorations of job loss and its effects on family well-being. Finally, only one adult family member responded to the survey. Thus, the family subjective meaning and family health items should be interpreted based on the perspective of one family member. Further research examining the responses of multiple family members would be valuable.

Implications

As understanding of pandemic-related stressors such as job loss and its effect on family and mental health increases, it will be important to develop population-level approaches to improve various aspects of family health in order to have an upstream effect on preventing mental illness (Barnes et al., 2020; Hanson et al., 2019). This

means that family scientists, the public health system, and health care systems need to collaborate to develop effective strategies and not assume that generic preventive measures and intervention techniques apply to all equally.

COVID-19 has affected employment during the pandemic, and there is likely to be an increased need for employment supports postpandemic. Consideration of increasing the capacity and utility of digital/web-based employment services during the pandemic is important. Australia has initiated a new postpandemic model for employment services, including changes to its fee structure and digital services (Casey & Lewis, 2020), and it will likewise be imperative that the United States considers innovative strategies for how to handle the higher need for employment services, including technological and case management capacities and capabilities.

Experts predict that the “fourth wave” of COVID-19 will be the mental health impact of the pandemic on individuals and families (Babaian, 2020). Prior research has indicated that after disasters, rates of mental health service usage increase only modestly compared to predisaster rates despite a much higher need for care (Boscarino et al., 2002). Due to social distancing requirements, many health care providers have begun to provide online services. Online cognitive behavioral therapy has shown promising results in treating mental health issues in prior disasters (Goldmann & Galea, 2014). As the pandemic progresses and also postpandemic, it will be important to provide web-based services not only for individual mental health problems but also for family supports and services. Psychological first aid has been applied effectively in the wake of other disasters (Goldmann & Galea, 2014). Psychological first aid can be applied at the family level to ensure family safety and access to basic resources (e.g., masks, sanitizing supplies, food, and shelter), provide families with strategies to help them cope with stressors and limit unhealthy stress reactions, and ensure that families can access any needed additional resources and have the efficacy to do so. As family health resources was the most strongly correlated construct with mental health, it will be important that a variety of providers (e.g., public and private providers of worksite wellness, health insurance, transportation supports, food, housing, financial, and other social services) ensure that services are available and readily accessible to families. To improve accessibility to families, providers may need to reexamine

their policies relating to cost, insurance coverage, qualifications for services, hours of operation, and web-based options.

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Received September 29, 2020

Revision received April 19, 2021

Accepted May 3, 2021 ■